A Complete Bibliography of *ACM Transactions on Mathematical Software*

Nelson H. F. Beebe
University of Utah
Department of Mathematics, 110 LCB
155 S 1400 E RM 233
Salt Lake City, UT 84112-0090
USA

Tel: +1 801 581 5254

E-mail: beebe@math.utah.edu, beebe@acm.org,
beebe@computer.org (Internet)
WWW URL: https://www.math.utah.edu/~beebe/

20 March 2026
Version 3.172

Title word cross-reference

$-1/2, 1/2, 3/2, 5/2$ [942]. $0 - 1$ [498]. 1 [1127]. $1/x$ [1824]. 2 [1059, 1265, 1228, 1590, 1406, 1226, 1161, 1595]. $2^p - 1$ [925]. 3 [1758, 792, 1590, 1406, 1403, 1466, 1783]. 64 [1565]. $A - B$ [784]. $A - \lambda B$ [785]. $a = \pm 2^q \pm 2^r$ [995]. $ab + cd$ [1438]. $\mathbf{Ax} = \mathbf{b}$ [351]. $AX^2 + BX + C = 0$ [415]. $AXB^T + CXD^T = E$ [1071, 753, 752]. β [1515, 1785]. C^1 [1114, 660, 683]. C^2 [683, 682, 286]. e^x [1656]. $E_n(x)$ [437]. ℓ_1 [283, 316, 315]. F [803, 802, 617, 12]. $f(x)$ [403]. F_2 [1565]. H^2 [1669]. H_p [453, 452]. hp [1433, 1432]. $h \to \infty$ [445]. i [105]. I_0 [150]. $I_1(x)/I_0(x)$ [336, 332]. $I_{1.5}(x)/I_{0.5}(x)$ [336, 332]. $I_\nu(x)$ [126, 125, 207]. ith [30]. $J_\nu(x)$ [126, 125, 207]. k [789, 1793, 1515]. $k < m$ [1515]. $Ki_n(x)$ [438, 437]. L_1 [282, 281, 317, 314, 908]. l_2 [1455]. L_∞ [512]. LDL^T [1535]. m [1515]. $\mathcal{H}_\in$ [1767]. MDM^T [876]. N [1180, 1584, 105, 30, 1455, 1788, 213]. $O(\log_2 k)$ [789]. $O(n(1 + \log(N/n)))$ [841]. $O(n^{1/2}\tau)$ [616]. ω [1362]. p [1785]. $\pm 2^{k_1} \pm 2^{k_2}$ [925]. Q [1048, 1555, 1420]. Q_n [1762]. QR [1732, 1545, 1499, 1460, 1716, 1710, 1505, 1552, 953, 952, 1412]. QZ [1716]. rc

[804, 19, 79]. $r \times c$ [542]. s [1347]. T [1543, 1036, 14, 15, 338, 339, 228]. $U(a, x)$ [1165, 1164]. UTV [1587]. v [566, 619]. $V(a, x)$ [1165, 1164]. φ [1285, 1364]. $W(a, x)$ [1348]. $x_{n+1} = f(x_n)$ [149]. $x \geq 0, \nu \geq 0$ [126, 125, 207].

-Adaptive [1433, 1432]. **-based** [1596, 1704]. **-bit** [1565]. **-body** [1180]. **-Cell** [789]. **-Component** [1788]. **-concave** [1036]. **-D** [1059, 1127]. **-Dimensional** [792, 213]. **-Distribution** [802, 14, 338, 228]. **-Function** [1420]. **-Functions** [1364, 1285]. **-gonal** [1584]. **-Hermite** [682]. **-Interpolation** [683]. **-Linear** [1565]. **-Matrices** [1767, 1048]. **-Matrix** [1543]. **-Means-based** [1793]. **-Norms** [1455]. **-Percentiles** [803]. **-Preconditioned** [1545]. **-Quantiles** [15, 339]. **-Splines** [566, 619]. **-Test** [617, 12]. **-Vectors** [1455].

/MPI [1641].

1 [1006]. **100** [62]. **1000** [1626]. **1001** [1627]. **1002** [1628]. **1003** [1635]. **1004** [1636]. **1005** [1637]. **1006** [1638]. **1007** [1645]. **1008** [1646]. **1009** [1647]. **1010** [1751, 1814, 1648]. **1011** [1657]. **1012** [1666, 1805]. **1013** [1674]. **1014** [1675]. **1015** [1684]. **1016** [1685]. **1017** [1695]. **1018** [1705]. **1019** [1716]. **1020** [1717]. **1021** [1725]. **1022** [1726]. **1023** [1727]. **1024** [1728]. **1025** [1729]. **1026** [1739]. **1027** [1740]. **1028** [1741]. **1029** [1752]. **1030** [1753]. **1031** [1759]. **1032** [1760]. **1033** [1761]. **1034** [1762]. **1035** [1773]. **1036** [1774]. **1039** [1799]. **1040** [1800]. **1041** [1801]. **1042** [1806]. **1043** [1807]. **1045** [1809]. **1046** [1813]. **1047** [1815]. **1048** [1816]. **1049** [1817]. **1050** [1818]. **1051** [1820]. **1052** [1821]. **1053** [1822]. **1058** [1842]. **1060** [1856]. **13** [583]. **149** [3, 174]. **1788** [1588]. **179** [4, 94].

2-torsion [1621]. **2.0** [1490]. **2.5** [1236]. **2003** [1419, 1365, 1224, 1298]. **2008** [1594]. **219** [5, 155]. **236** [6, 58]. **246** [7, 60]. **259** [8, 141]. **284** [9, 115]. **299** [10, 116]. **2C** [387]. **2D** [895, 638]. **2Sum** [1538].

3 [1292]. **30** [1]. **334** [11]. **346** [12]. **349** [68, 13]. **395** [14, 228]. **396** [15, 228]. **3D** [896]. **3m** [1541].

4.0 [1185]. **408** [195, 16, 154]. **409** [173, 77]. **424** [229, 17]. **433** [18, 95]. **434** [79, 19]. **435** [20, 196]. **450** [104, 21]. **467** [22]. **474** [23, 230]. **475** [69, 80, 25]. **479** [26, 81]. **483** [59, 27]. **486** [117, 28, 129]. **487** [151, 29, 82]. **489** [105, 30]. **49** [194, 2]. **490** [31, 83]. **493** [49]. **494** [55]. **495** [56]. **496** [57, 118]. **497** [66]. **498** [67]. **499** [75]. **4m** [1541].

500 [130, 76]. **501** [77]. **502** [78]. **503** [91]. **504** [92]. **505** [93]. **506** [101]. **507** [102]. **508** [112]. **509** [113]. **510** [114]. **511** [126, 207]. **512** [127]. **513** [128]. **514** [136]. **515** [137, 1209]. **516** [138]. **517** [139]. **518** [150]. **519** [151]. **520** [152]. **521** [153]. **522** [163]. **523** [164]. **524** [171]. **525** [172]. **526** [181]. **527**

[182]. **528** [183, 983]. **529** [184]. **530** [192]. **531** [193]. **532** [203]. **533** [204]. **534** [205]. **535** [206]. **536** [215]. **537** [216]. **538** [217]. **539** [1107, 238]. **540** [760, 239]. **541** [240]. **542** [253]. **543** [254]. **544** [255]. **545** [256]. **546** [269]. **547** [270]. **548** [271]. **549** [272]. **550** [273]. **551** [282]. **552** [283]. **553** [284]. **554** [285]. **555** [286]. **556** [299]. **557** [300]. **558** [301]. **559** [302]. **560** [303]. **561** [304]. **562** [305]. **563** [316]. **564** [317]. **565** [326]. **566** [829, 327]. **567** [328]. **568** [1858]. **569** [334]. **570** [335]. **571** [336]. **572** [337]. **573** [348]. **574** [349]. **575** [350]. **576** [351]. **577** [352]. **578** [362]. **579** [363]. **580** [364]. **581** [371]. **582** [378]. **583** [379]. **584** [380]. **585** [386]. **586** [387]. **587** [388]. **588** [392]. **589** [393]. **590** [394]. **591** [395]. **592** [403]. **593** [404]. **594** [405]. **595** [406]. **596** [413]. **597** [414]. **598** [415]. **599** [416].

600 [417]. **601** [425]. **602** [427]. **603** [429]. **604** [430]. **605** [431]. **606** [433]. **607** [434]. **608** [436]. **609** [438]. **610** [439]. **611** [440]. **612** [443]. **613** [450]. **614** [453]. **615** [457]. **616** [463]. **617** [467]. **618** [470]. **619** [471]. **620** [693, 473]. **621** [476]. **622** [959, 478]. **623** [480]. **624** [481]. **625** [483]. **626** [485]. **627** [492]. **628** [493]. **629** [494]. **630** [496, 651]. **631** [497]. **632** [498]. **633** [502]. **634** [509]. **635** [512]. **636** [522]. **637** [524]. **638** [525]. **639** [1066, 529]. **64-bit** [1239]. **640** [530]. **641** [540]. **642** [541]. **643** [804, 542]. **644** [551, 694, 871, 1222]. **645** [552]. **646** [553]. **647** [560]. **648** [563]. **649** [567]. **650** [570]. **651** [577]. **652** [580]. **653** [581]. **654** [582]. **655** [589]. **656** [592]. **657** [594, 672]. **658** [596]. **659** [599, 1079]. **65th** [1009]. **660** [604]. **661** [605]. **662** [608, 695]. **663** [609]. **664** [614]. **665** [620]. **666** [622]. **667** [625]. **668** [627]. **669** [633, 725]. **670** [634]. **671** [638]. **672** [641]. **673** [643]. **674** [626]. **675** [649]. **676** [659]. **677** [660]. **678** [662]. **679** [664]. **680** [667]. **681** [675]. **682** [676]. **683** [678]. **684** [683]. **685** [689]. **686** [691]. **687** [696]. **688** [707]. **689** [708]. **690** [709]. **691** [711]. **692** [714]. **693** [715]. **694** [716]. **695** [717]. **696** [719]. **697** [721]. **698** [728]. **699** [729].

700 [733, 731]. **701** [735]. **702** [744, 982]. **703** [746]. **704** [750]. **705** [753, 1071]. **706** [759, 958]. **707** [761]. **708** [834, 763]. **709** [764]. **710** [765]. **711** [767]. **712** [769]. **713** [781]. **714** [773]. **715** [774, 891]. **716** [778, 978]. **717** [780]. **718** [787]. **719** [791]. **720** [792]. **721** [796]. **722** [799]. **723** [1031, 800, 910]. **724** [803]. **725** [809]. **726** [813, 962]. **727** [815]. **728** [817]. **729** [820]. **730** [821]. **731** [824]. **732** [827]. **733** [828]. **734** [832, 961]. **735** [835]. **736** [837]. **737** [839]. **738** [842]. **739** [844]. **740** [850]. **741** [851]. **742** [856]. **743** [860]. **744** [862]. **745** [863, 927]. **746** [864]. **747** [866]. **748** [867]. **749** [869]. **750** [873]. **751** [878, 979]. **752** [879, 980]. **753** [881]. **754** [885, 1785]. **755** [887]. **756** [888]. **757** [894]. **758** [895]. **759** [896]. **760** [898]. **761** [899, 1002, 965]. **762** [900]. **763** [901]. **764** [911]. **765** [915]. **766** [916]. **767** [917]. **768** [920]. **769** [1095, 921]. **77** [1003, 1179, 1485, 1200, 753, 983, 917, 1068, 1071, 839, 1037]. **770** [924]. **771** [932]. **772** [933]. **773** [934]. **774** [936]. **775** [937]. **776** [938]. **777** [939]. **778** [940]. **779** [942]. **780** [946]. **781** [950]. **782** [953]. **783** [954]. **784** [956]. **785**

[957]. **786** [963]. **787** [967, 966]. **789** [974]. **790** [975]. **791** [976]. **792** [977]. **793** [987]. **794** [988]. **795** [989]. **796** [991]. **797** [993]. **798** [994]. **799** [1001].

8.0 [1775]. **800** [1003]. **801** [1007]. **802** [1008]. **803** [1015]. **804** [1021]. **805** [1022]. **806** [1023, 1032]. **807** [1030]. **808** [1035]. **809** [1037]. **810** [1040]. **811** [1041]. **812** [1044]. **813** [1047]. **814** [1050]. **815** [1053, 1169]. **816** [1058]. **817** [1059]. **818** [1065]. **819** [1068]. **820** [1069]. **821** [1070]. **822** [1075]. **823** [1082]. **824** [1090]. **825** [1092]. **826** [1093]. **827** [1094]. **828** [1101]. **829** [1102]. **830** [1107]. **831** [1111]. **832** [1113]. **833** [1114]. **834** [1115]. **835** [1116]. **836** [1122]. **837** [1123]. **838** [1129]. **839** [1130]. **840** [1137]. **841** [1138]. **842** [1141]. **843** [1142]. **844** [1143]. **845** [1144]. **846** [1157]. **847** [1158]. **848** [1159]. **849** [1160]. **850** [1165]. **851** [1166]. **852** [1167]. **853** [1168]. **854** [1179]. **855** [1184]. **856** [1185]. **857** [1189]. **858** [1190]. **859** [1191]. **860** [1192]. **861** [1193]. **862** [1194]. **863** [1200]. **864** [1201]. **865** [1202]. **866** [1208]. **867** [1214]. **868** [1215]. **869** [1221]. **870** [1226]. **871** [1227]. **872** [1228]. **873** [1233]. **874** [1237]. **875** [1238]. **876** [1243]. **877** [1244]. **878** [1250]. **879** [1251]. **880** [1252]. **881** [1257]. **882** [1258]. **883** [1259]. **884** [1260]. **885** [1264]. **886** [1265]. **887** [1266]. **888** [1267]. **889** [1268]. **890** [1273]. **891** [1278]. **892** [1279]. **893** [1280]. **894** [1285]. **895** [1288]. **896** [1289]. **897** [1290]. **898** [1304]. **899** [1305].

90 [1191, 870, 831, 1193, 1408, 1096, 961, 901, 913, 1050]. **900** [1306]. **901** [1307]. **902** [1317]. **903** [1318]. **904** [1328]. **905** [1329]. **906** [1330]. **907** [1331]. **908** [1332]. **909** [1339]. **910** [1340]. **911** [1341]. **912** [1342]. **913** [1347]. **914** [1348]. **915** [1350]. **916** [1357]. **917** [1362]. **918** [1363]. **919** [1364]. **920** [1369]. **921** [1370]. **922** [1371]. **923** [1372]. **924** [1377]. **925** [1378]. **926** [1386]. **927** [1387]. **928** [1393]. **929** [1399]. **930** [1400]. **931** [1405]. **932** [1406]. **933** [1407]. **934** [1408]. **935** [1414]. **936** [1415]. **937** [1416]. **938** [1417]. **939** [1420]. **940** [1421]. **941** [1422]. **942** [1423]. **947** [1436]. **95** [1325, 1065, 1197, 1202, 1279, 1153, 1224]. **95/2003** [1224]. **954** [1461]. **958** [1476]. **959** [1477]. **960** [1484]. **961** [1485]. **962** [1486]. **966** [1511]. **967** [1512]. **969** [1521]. **970** [1522]. **971** [1523]. **972** [1524]. **973** [1532]. **974** [1533]. **978** [1546]. **979** [1551]. **980** [1552]. **981** [1553]. **982** [1554]. **983** [1555]. **986** [1558]. **992** [1704]. **995** [1615]. **996** [1616]. **997** [1617]. **998** [1618]. **999** [1625].

A1 [171, 257, 328]. **ABBPACK** [750]. **ABD** [1191]. **ABDPACK** [750]. **Abelian** [1797]. **Absolute** [457, 445]. **Abstract** [1610, 1281]. **abstraction** [1224]. **Abstractions** [1697, 1519]. **Accelerated** [1762, 1517, 387, 1832, 1810, 857, 1604]. **Accelerating** [1380]. **Acceleration** [1840, 427, 426]. **Accelerators** [1479, 1501]. **Acceptance** [464]. **Acceptance-Complement** [464]. **Access** [1660, 614]. **Accessible** [1844]. **Accumulating** [1170]. **Accumulator** [1421]. **Accumulator-Based** [1421]. **Accumulators** [122]. **Accuracy** [721, 720, 1665, 474, 1843, 1239, 700, 1751,

1752, 393, 1545, 534, 1814, 1648, 977, 1606, 898, 899, 1002]. **Accurate** [1638, 53, 576, 1646, 1721, 1013, 1461, 698, 1294, 1733, 1754, 1220, 679, 775, 1557, 1078, 1235, 1210]. **ACETAF** [1089]. **Achieving** [1239]. **ACM** [18, 23, 274, 11, 7, 22, 1, 9, 30, 20, 6, 8, 17, 31, 2, 1444, 10, 14, 15, 1057, 583, 5, 218, 365, 419, 459, 507, 544, 574, 618, 645, 687, 726, 4, 21, 19, 16, 3, 12, 26, 29, 977, 28, 27, 25, 518, 693, 473]. **ACRITH** [534]. **Active** [1773]. **Activities** [1530]. **ACTS** [1145, 1146]. **AD** [1134]. **Ada** [874]. **Adams** [777, 402, 199, 247]. **ADAPT** [172]. **adapting** [983]. **Adaptive** [1653, 1630, 668, 1469, 727, 728, 759, 792, 265, 1673, 1276, 1654, 348, 347, 912, 1778, 1680, 340, 322, 407, 1321, 1261, 1571, 213, 387, 1693, 46, 1514, 658, 1433, 1681, 1432, 1486, 278, 646, 70, 172, 462, 451, 1581, 1567, 1597, 1322, 208, 420, 1356, 970, 895, 896, 958, 1215, 1091, 1077, 1127, 1237]. **adaptive-grid** [895, 896]. **add** [1078]. **Addendum** [227]. **Addition** [532, 600, 1344]. **Additive** [1536]. **ADiGator** [1556]. **ADiJaC** [1504]. **Adjoint** [827, 1654, 969, 1640, 1457, 1608, 1055, 1001]. **Adjoint-guided** [1654]. **adjustment** [1275]. **ADMIT** [1006]. **ADMIT-1** [1006]. **ADOL** [887]. **ADOL-C** [887]. **Advanced** [1774, 1145, 1146]. **Advances** [1067]. **Affine** [833, 1589]. **Affine-Scaling** [833]. **Aggressive** [1460, 1716]. **Aided** [549]. **Aids** [557]. **Airy** [1129, 1128, 1068, 67, 353]. **AIZ** [1068]. **Algebra** [1687, 1707, 1708, 1688, 1061, 227, 1060, 1598, 1626, 1781, 397, 408, 714, 713, 1562, 592, 628, 591, 664, 663, 1599, 931, 1064, 1263, 1026, 1680, 1577, 1052, 581, 238, 237, 609, 1449, 1681, 1551, 1731, 132, 1833, 1706, 1132, 1131, 1281]. **Algebra-based** [1706]. **Algebraic** [53, 1544, 1325, 1736, 71, 1014, 461, 1443, 1440, 47, 120, 109, 1150, 996]. **Algebras** [1632]. **Algorithm** [18, 23, 564, 467, 466, 625, 624, 757, 821, 1645, 1429, 410, 1674, 300, 295, 1469, 1847, 1740, 182, 584, 906, 401, 11, 1430, 236, 127, 727, 759, 792, 297, 577, 7, 1675, 1544, 22, 105, 188, 496, 764, 916, 1520, 313, 371, 370, 798, 265, 804, 223, 579, 653, 1431, 520, 415, 1483, 348, 347, 1459, 460, 1545, 1658, 1709, 179, 164, 162, 1, 1428, 1494, 1605, 1762, 149, 427, 426, 1502, 9, 30, 142, 838, 1451, 20, 1543, 1834, 1827, 623, 206, 396, 486, 1499, 6, 8, 1470, 407, 17, 292, 113, 1468, 31, 567, 123, 1460]. **Algorithm** [1773, 742, 395, 2, 10, 14, 15, 1629, 1582, 1516, 583, 1571, 303, 298, 213, 1728, 1628, 5, 57, 118, 124, 215, 214, 1835, 1450, 1339, 1509, 382, 1523, 1017, 1335, 1793, 499, 647, 1495, 1619, 4, 1537, 21, 19, 406, 1587, 1836, 346, 1846, 138, 16, 1722, 1474, 1657, 3, 572, 601, 1349, 12, 1716, 685, 1443, 812, 1364, 1471, 739, 1503, 1583, 26, 369, 686, 358, 1849, 640, 159, 845, 29, 862, 1595, 1596, 1848, 744, 740, 588, 614, 1703, 1453, 331, 512, 1522, 1743, 1329, 488, 1511, 1828, 28, 565, 606, 1458, 192, 502]. **Algorithm** [27, 286, 857, 1556, 493, 1452, 25, 1487, 1557, 1570, 442, 1123, 1140, 1194, 1219, 1345, 1344, 1122, 1121, 1188, 1865, 1193, 958, 1168, 1403, 1091, 1313, 1390, 1405, 1290, 1285, 1058, 1092, 1159, 1296, 1377, 282, 1638, 803, 696, 1618, 416, 181, 231, 721, 898, 899, 1799, 1304, 867, 735, 1021, 1184, 467, 625, 1477, 1123, 821, 1191, 126, 207, 299, 438, 439, 441, 551, 678, 694, 871, 1645, 95, 230, 392, 1031, 1546, 457, 1808, 1674, 300, 334, 91, 494, 967, 1243, 1740, 829, 1288,

1194, 1774, 1094, 938, 733, 791, 1040, 182, 56, 283, 351]. **Algorithm** [860, 316, 509, 1214, 1003, 1179, 1485, 127, 1238, 728, 759, 792, 994, 1143, 1059, 709, 302, 1047, 953, 1030, 708, 824, 895, 896, 659, 577, 781, 1675, 915, 920, 1821, 79, 492, 1137, 634, 932, 599, 842, 950, 171, 257, 386, 69, 105, 834, 900, 1753, 137, 364, 398, 496, 651, 764, 832, 881, 780, 1627, 163, 916, 817, 1265, 352, 271, 873, 1646, 633, 746, 1387, 128, 1268, 1318, 139, 371, 1666, 1741, 1805, 1266, 1228, 301, 1416, 844, 804, 414, 620, 773, 799, 774, 194, 470, 522, 911, 1090, 617, 924, 112, 553, 1209, 827, 991, 650]. **Algorithm** [104, 415, 1122, 1113, 1160, 1331, 1350, 1400, 1626, 1635, 1781, 1751, 1002, 1532, 1484, 856, 1200, 1752, 348, 582, 763, 429, 610, 864, 397, 408, 714, 1260, 393, 592, 664, 765, 1267, 809, 888, 1142, 362, 184, 350, 1065, 130, 837, 270, 80, 272, 164, 1806, 589, 136, 1208, 563, 527, 1193, 1408, 717, 958, 1215, 1129, 936, 1093, 1555, 1762, 711, 59, 1807, 1069, 427, 1053, 381, 1461, 363, 1168, 1407, 183, 260, 560, 256, 1141, 1257, 1816, 173, 403, 433, 1406, 1157, 206, 396, 486, 608, 695, 753, 153, 253, 813, 962, 987, 1102, 440, 407, 983]. **Algorithm** [1822, 229, 917, 1705, 113, 1068, 1075, 1111, 1165, 1348, 1420, 1521, 1817, 567, 863, 927, 1192, 1328, 1167, 1185, 937, 887, 1001, 1417, 195, 1202, 1684, 1166, 1773, 1685, 554, 518, 946, 820, 1858, 388, 389, 535, 581, 1070, 1107, 1559, 1405, 306, 815, 1169, 1370, 1647, 450, 1290, 1726, 1809, 395, 102, 417, 626, 644, 716, 725, 150, 336, 338, 339, 504, 317, 1082, 431, 693, 760, 961, 1066, 1071, 1095, 1008, 254, 524, 525, 1138, 957, 541, 115, 1616, 93, 141, 49, 1371, 1079, 570, 1279, 1250, 1637, 850, 303, 956, 627, 662, 304, 1728, 151, 1628]. **Algorithm** [57, 118, 689, 675, 839, 901, 707, 1815, 1369, 387, 75, 1130, 1158, 215, 1222, 1244, 1342, 1285, 1022, 117, 1842, 1727, 1340, 828, 1422, 729, 1415, 1534, 78, 1436, 405, 530, 380, 1362, 238, 1339, 258, 1476, 1251, 216, 596, 769, 959, 68, 378, 1330, 1523, 1226, 1264, 1725, 609, 328, 1041, 1289, 1759, 529, 942, 894, 239, 750, 1512, 731, 1252, 406, 498, 1201, 1023, 1032, 349, 138, 425, 1399, 1558, 542, 1818, 1657, 326, 273, 1814, 203, 787, 866, 60, 463, 1144, 660, 1037, 285, 327, 83, 676, 1716, 761, 552, 767, 1421, 66, 1364]. **Algorithm** [217, 497, 536, 1533, 503, 337, 1648, 1801, 379, 305, 418, 921, 1615, 641, 1551, 1856, 1524, 954, 1760, 458, 1486, 1800, 471, 472, 94, 1729, 82, 667, 485, 505, 638, 683, 891, 67, 404, 974, 1739, 1761, 862, 1317, 1351, 1414, 851, 353, 691, 1278, 1636, 480, 481, 604, 605, 778, 879, 878, 933, 934, 965, 977, 975, 976, 979, 980, 1101, 1114, 1115, 1280, 885, 966, 413, 993, 172, 473, 478, 483, 1393, 1553, 1058, 1233, 1704, 1363, 1305, 430, 744, 1035, 196, 614, 719, 1227, 594, 672, 92, 76, 318, 1092, 1159, 869, 204, 796, 453]. **Algorithm** [77, 55, 154, 58, 174, 1695, 715, 963, 1050, 1341, 193, 434, 800, 910, 1554, 1715, 476, 1617, 1625, 1717, 540, 241, 101, 335, 512, 1189, 240, 1522, 13, 835, 205, 155, 978, 1329, 1386, 1813, 1820, 1306, 1511, 372, 1044, 1190, 1258, 394, 1347, 649, 129, 989, 284, 643, 1307, 622, 1259, 255, 1237, 192, 502, 1015, 286, 580, 939, 152, 436, 81, 988, 114, 1372, 493, 1007, 982, 1378, 1552, 1357, 1116, 940, 1332, 1221, 269, 443, 1423, 116, 228, 259, 1273, 1606]. **Algorithmic** [1431, 1530, 1637, 1845, 1457, 1556]. **Algorithmics** [1028]. **Algorithms** [1768, 1650, 1020, 598, 35, 274, 1356, 98, 1375, 312, 1851, 1538, 1660, 63, 352,

650, 1697, 489, 1626, 1781, 1465, 1484, 756, 784, 368, 1267, 345, 616, 1575, 1778, 85, 36, 97, 52, 107, 1327, 806, 189, 1381, 797, 388, 1726, 156, 1057, 1582, 143, 1261, 1074, 151, 1027, 853, 1019, 175, 218, 365, 419, 459, 507, 544, 574, 618, 645, 687, 726, 1492, 378, 377, 841, 103, 1692, 108, 133, 1644, 830, 1862, 557, 42, 106, 1551, 1603, 44, 1367, 811, 977, 70, 526, 636, 200, 1749, 835, 1724, 1374, 580, 939, 1418, 1049, 1132, 1131]. **algorithms** [1247, 1309, 998, 1355, 883, 887, 1284, 1073, 884, 1412, 1187, 1388, 1041, 1117, 1399, 1281, 1087, 1287, 1302, 1044, 1126, 518, 693, 1147, 1289, 473, 382]. **algorithms-by-blocks** [1287]. **Algorithms-by-Tiles** [1367]. **Alias** [907, 1513]. **All-hexahedral** [1755]. **Allocation** [787, 1344]. **Allowing** [739]. **Almost** [429, 428, 610, 750, 749, 456, 268]. **Along** [684]. **alphaCertified** [1370]. **Alternate** [429, 428, 610]. **Alternating** [1739]. **Alternative** [289]. **AMD** [1123, 1776]. **American** [431]. **AMG** [1574, 1823]. **AMGKQ** [1571]. **AMLS** [1242]. **AMPL** [1105]. **AMR** [1660]. **Analogue** [464]. **Analysis** [735, 734, 1051, 1786, 197, 1665, 1639, 128, 223, 1654, 165, 1459, 1795, 97, 1366, 400, 788, 395, 375, 1480, 405, 258, 596, 595, 1523, 1836, 45, 203, 202, 1443, 1560, 1125, 1615, 159, 1493, 1440, 120, 865, 1458, 502, 1245, 1135, 1084, 1355, 1054, 1163]. **Analytic** [360, 1089]. **Analytical** [1507, 47]. **Analytically** [132, 227]. **ANALYZE** [400, 788]. **Anasazi** [1286]. **Anatomy** [1234]. **Anisotropic** [1615]. **Annealing** [579, 653, 922]. **Any** [1592]. **Apache** [1799]. **API** [1643]. **Appearing** [1364]. **Application** [1758, 985, 143, 249, 1610, 1600, 739, 1553, 1132]. **Applications** [1851, 1632, 1655, 784, 785, 793, 1461, 41, 1328, 1327, 626, 644, 944, 1495, 1657, 106, 1838, 1662, 1258, 1245, 1391, 997, 1125]. **Applied** [1719, 1656, 445, 1016, 1103]. **Applying** [802]. **Approach** [301, 296, 1752, 440, 1809, 156, 1338, 648, 65]. **Approximants** [916, 226]. **Approximate** [53, 1757, 727, 1481, 1777, 1013, 1779, 1441, 921, 840, 966, 436, 1123, 1122, 1121, 1053, 1169, 1095, 885, 993, 1046]. **Approximating** [236, 1831, 1779]. **Approximation** [1847, 283, 367, 1573, 1686, 1468, 317, 314, 556, 1783, 868, 1337, 1824, 1589, 114, 1557, 1200, 1088, 1800]. **Approximations** [1847, 106, 157, 67, 353, 1143, 1174, 1402]. **APPSPACK** [1185]. **Arbitrarily** [481]. **Arbitrary** [784, 785, 93, 87, 151, 68, 1819, 747, 468, 1723, 13, 1190]. **ArborX** [1668, 1852]. **Arccosine** [928]. **ARCECO** [429, 610]. **Architecture** [1656, 1572, 1634, 1581, 1458]. **Architectures** [1508, 1585, 1463, 558, 1726, 1462, 515, 1672, 1748, 1367, 1761, 420, 1388]. **Arclength** [1469]. **Arcsine** [928]. **Area** [638]. **ARfit** [1035]. **Argument** [551, 678, 677, 694, 871, 51, 1521, 31, 1244, 1342, 83, 1111]. **Arguments** [8, 141, 761, 1386, 1828, 1110]. **Argyris** [1260]. **Arising** [750, 749, 997]. **Arithmetic** [772, 1764, 171, 170, 257, 276, 799, 1771, 1622, 534, 1550, 449, 1588, 1754, 328, 1722, 1714, 1515, 1785, 1802, 324, 715, 963, 1676, 1677, 1823, 642, 692, 751, 1589, 96, 211, 1864, 1299, 1078, 1050, 1038, 1039, 1500]. **Arithmetic-Based** [1823]. **Arithmetics** [225, 1257, 1141]. **ARKODE** [1772]. **Arnoldi** [875]. **Array** [1780, 543]. **Array-Aware** [1780]. **Arrays**

[1336]. **Art** [1531, 1511]. **Aspects** [701, 165]. **Assembly** [1724, 1398]. **Assessing** [563, 562, 654]. **Assignment** [271, 616, 1684, 866, 921, 436, 1394, 1095, 885]. **Assimilation** [1804]. **Assisted** [400, 788]. **Associated** [1642]. **Association** [1427]. **Asymmetric** [873, 872]. **Asymptotic** [437, 1555, 445]. **asymptotics** [1128]. **Asynchronous** [1750, 1729, 1185]. **ATC** [1774]. **Atlasing** [1583]. **Attributes** [984, 1012]. **AUGMENT** [276]. **Augmented** [1738]. **Author** [630, 971]. **Authors** [84]. **AUTO97** [1135]. **autogeneration** [1227]. **Automated** [1697, 1839, 738, 1600, 1634, 1670, 1303, 1315]. **Automatic** [1829, 1799, 91, 88, 185, 1688, 712, 1368, 1566, 1756, 265, 1006, 911, 864, 244, 711, 535, 1426, 1765, 1712, 277, 1672, 1358, 380, 1004, 1330, 1017, 74, 66, 65, 1748, 471, 1504, 120, 1240, 152, 1472, 246, 442, 951, 1043, 1090, 1172, 1055, 1410, 887, 1392, 1008, 1058, 1225, 967]. **automatically** [1176]. **Automating** [1655, 1696, 1519, 1126]. **Automaton** [1597]. **Automaton-based** [1597]. **Autoregressive** [1034, 1035]. **Auxiliary** [90]. **Average** [266, 1671]. **Avoiding** [818, 1802]. **Aware** [1780, 1547]. **Axis** [1226, 1606].

B [1349, 1766, 954, 1486, 1625, 1717, 1127, 940]. **B-series** [1766]. **B-spline** [1486, 1127]. **B-Splines** [1625, 1717, 954]. **BABDCR** [1191]. **Backslash** [1818]. **BACOL** [1127]. **BACOLI** [1591, 1486]. **BACOLR** [1237]. **BACOLR-spatial** [1237]. **balls** [1345]. **Band** [584, 1029, 190, 1027, 719, 1030]. **Banded** [1499, 945, 515, 447, 455, 506, 614, 1664, 1372, 1138]. **Bandwidth** [112, 107, 382]. **Bartels** [908]. **Barycentric** [1816]. **Base** [1592, 1515, 1785]. **base-** [1515, 1785]. **Based** [1633, 18, 23, 95, 230, 870, 1756, 991, 1574, 1532, 608, 695, 567, 1320, 944, 1628, 1450, 1466, 1518, 138, 1421, 1373, 1486, 1661, 1670, 1442, 1823, 1542, 905, 246, 1768, 1742, 1059, 1614, 1431, 1773, 1582, 1045, 1285, 1793, 1155, 1716, 1161, 1402, 1700, 1596, 1704, 1601, 1237, 1597, 1706, 881, 956, 955]. **Bases** [493, 1407, 1139]. **Basic** [1687, 309, 713, 1459, 628, 591, 931, 1064, 1577, 581, 1550, 1714, 1407, 1038, 431, 1061, 1060, 397, 408, 714, 592, 664, 663, 238, 237, 609]. **Basis** [99, 367, 1439, 750, 749, 892, 1130]. **Batch** [815, 1492]. **Batched** [1687, 1598, 1776]. **Bayesian** [1770, 1729, 1682]. **BBCPOP** [1616]. **BBVSCG** [496]. **BDFs** [445]. **Be** [86, 1118]. **BEM** [1437]. **benchmark** [1005, 955]. **Benchmarking** [1510, 1254]. **Berlekamp** [1522]. **Bernstein** [840, 1044]. **Bertini_real** [1544]. **Bessel** [126, 125, 207, 551, 694, 871, 770, 781, 313, 144, 414, 635, 6, 1111, 1110, 150, 332, 1414, 58, 1190]. **Best** [457, 142, 159, 600, 1258]. **Beta** [802, 834, 763, 4, 94, 1186]. **Between** [985, 1859, 1059, 884]. **Beware** [995]. **Bézier** [840]. **BFGS** [1349, 940, 1428]. **BFO** [1540]. **BHESS** [1138]. **Bi** [1760]. **Bi-cubic** [1760]. **Bickley** [438, 437]. **Bicubic** [524, 525, 898, 954]. **Bicubics** [638]. **Bidiagonal** [1642, 1418, 1388]. **bidiagonalization** [1236]. **BIFTOOL** [1054]. **Bifurcation** [999, 1560, 1788, 1135, 1084, 1054]. **Biharmonic** [233]. **Bilevel** [817, 816].

Billions [1514]. **bin** [1201]. **Binary** [799, 1720, 1616, 1527, 1785, 1207, 1163]. **Bindings** [1295]. **Binomial** [662, 1701]. **biographical** [1010]. **biorthogonality** [1347]. **BiqBin** [1720]. **BiqCrunch** [1527]. **birthday** [1009]. **Bisection** [475, 1025, 575, 629, 675, 571, 1671, 1092, 590]. **Bispectrum** [343]. **Bit** [724, 1239, 1565]. **Bitwise** [703]. **Bivalent** [702]. **Bivariate** [23, 181, 180, 231, 230, 1265, 505, 683, 682, 604, 975, 976, 1008]. **BIZ** [1068]. **Black** [1474, 585, 1710]. **Black-Box** [1474, 1710]. **Blackbox** [1741]. **Blanch** [1193]. **BLAS** [1061, 1060, 1446, 1546, 823, 992, 756, 1065, 1064, 1643, 1248, 581, 690, 1236, 1637, 956, 955, 1173, 1498, 1062, 1295, 1730, 1445]. **BLASFEO** [1577, 1643]. **Blended** [158, 548]. **BLIS** [1446, 1507, 1445, 1473, 1678]. **Block** [1585, 1732, 1120, 632, 823, 756, 429, 428, 610, 184, 179, 1680, 1056, 329, 1187, 1223, 1492, 750, 749, 1681, 688, 851, 456, 1526, 268, 1219, 949, 1202, 1285]. **Block-diagonal** [851]. **Block-Jacobi** [1681, 1680]. **Block-Tridiagonal** [1056, 1219]. **Blockability** [929]. **Blocked** [998, 992, 1074, 1587, 1073]. **Blocking** [1742]. **Blocks** [9, 115, 1550, 1714, 1287]. **Bodies** [1769]. **body** [1318, 1180]. **Boltzmann** [1542]. **Boolean** [1477, 1821]. **Boosting** [1751, 1814, 1648]. **BootCMatch** [1574]. **Bootstrap** [1574]. **Bordered** [851, 1191]. **Bordering** [968]. **Both** [1847]. **Bound** [1527, 358, 1540, 940, 1720, 1349, 1221]. **Bound-constrained** [1540]. **Boundaries** [151, 684]. **Boundary** [334, 333, 967, 1632, 1368, 1767, 1387, 924, 923, 554, 1755, 1437, 1043]. **Boundary-Value** [334, 1368, 554]. **Boundary-Valued** [924, 923]. **Bounded** [701, 337, 1163]. **bounded-error** [1163]. **Bounds** [53, 784, 785, 465, 1550, 1529, 1576, 1714, 1297, 1178, 1089, 32]. **Box** [936, 935, 1616, 1474, 571, 585, 1496, 1710, 590]. **Box-Bisection** [571, 590]. **Box-Shaped** [1496]. **BPOLY** [1044]. **Bracketed** [497, 536]. **Braid** [1584]. **Branch** [1720, 1253, 1527, 358, 1594]. **Branch-and-Bound** [1527, 358, 1720]. **Breakdown** [1802]. **Breakthroughs** [41]. **Brent** [276]. **BRENTM** [285]. **Bringing** [1713]. **BRKF45** [633, 725]. **Brute** [1540]. **BTN** [767]. **BTPEC** [662]. **buffers** [1417]. **Builder** [1476]. **Building** [1550, 1714]. **bulges** [1412]. **bundle** [1275]. **Butterfly** [1819]. **BVODE** [1383]. **BVODEs** [1016]. **BVP** [1045]. **BVPs** [1134]. **bvptwp.m** [1387]. **BVSPIS** [924].

C [911, 772, 1653, 1477, 1641, 1245, 1268, 1431, 1771, 1622, 1816, 986, 887, 1426, 1578, 996, 1340, 1216, 1836, 1295, 1748, 1596, 1704, 1298, 1227, 1694, 1570]. **C.** [1861]. **C/C** [887, 1227]. **C1** [328]. **C2** [49]. **C364** [1859]. **C5** [78, 327, 286]. **C6** [256]. **Cache** [1742, 1776, 1359, 1236, 1564, 1302, 1394]. **Cache-Efficient** [1359, 1564]. **Cache-oblivious** [1742]. **Cache-optimal** [1302]. **Calculate** [803, 938]. **Calculating** [1652, 860, 381, 541, 1342, 101]. **Calculation** [727, 1646, 981, 187, 242, 530, 1754, 706, 1636, 430, 341, 390, 1407]. **Calculations** [1646, 874, 1455, 1340, 828]. **Calculus** [1375]. **CALGO** [1860, 848, 1066, 811]. **CAMP** [549]. **can** [1118]. **Cancellation** [743].

Canonical [1739, 493]. **Capabilities** [1763, 673]. **Capacitance** [210]. **Carefully** [1559]. **Carlo** [1769]. **Cartesian** [1567]. **Case** [831, 1256, 1427, 97, 1516, 1049, 32, 1159]. **Cases** [425, 424]. **Cause** [1606]. **Cayley** [1458]. **CayMos** [1458]. **CD** [1860]. **CDC** [126, 125, 207, 62]. **CDT** [873]. **CELEFUNT** [773]. **Cell** [789, 1723]. **Cells** [1514]. **Certain** [197, 635, 429, 428, 610, 806, 1353]. **Certification** [69, 834, 1297, 961, 151, 68, 731, 241]. **Certified** [1529, 1445, 1345]. **Certifying** [48, 1764, 1370]. **CG_DESCENT** [1166]. **CGALmesh** [1454]. **CGMN** [1262]. **CGPOPS** [1653]. **CHABIS** [622]. **Chain** [1524]. **Chains** [1803, 806, 1412]. **Changing** [789]. **Characteristic** [793, 999, 216, 1184]. **Characters** [52]. **Charter** [810, 811]. **ChASE** [1604]. **CHEBINT** [1402]. **Chebychev** [56, 173, 77]. **Chebyshev** [1528, 709, 1579, 1532, 367, 1609, 1402, 67, 353, 1596, 1704, 1824, 1604]. **Check** [1439]. **Checking** [477, 390]. **checkpointing** [1001]. **Chemical** [674]. **Chi** [10, 504, 572, 601, 116]. **Chi-Squared** [10, 504, 116]. **Choice** [410, 367]. **Cholesky** [1042, 1140, 1266, 1160, 1271, 717, 1202, 1284, 1313, 1381, 850, 849, 539, 657, 1818, 1282, 1104, 1424]. **CHOLMOD** [1266]. **Choose** [159]. **Chopping** [1528]. **Chow** [286]. **Chow-Yorke** [286]. **Christoffel** [888, 1142, 957]. **Chvátal** [1719]. **Circuit** [1331]. **Circuits** [406]. **circular** [1417]. **Clarke** [1395]. **Class** [1646, 1816, 1056, 1596, 1704, 279, 192, 191, 1152, 1211]. **Classes** [1477, 986, 1842, 1194, 1213, 1214, 1102]. **Classfiles** [1504]. **Classical** [1580]. **Clawpack** [1654]. **Clenshaw** [229, 17]. **Client** [1602]. **Client-side** [1602]. **Closest** [312, 703, 686]. **Closest-Point** [686]. **Clustering** [1793, 571, 590, 26, 606, 81]. **Coarsening** [1635]. **Coates** [72]. **Cochran** [1555]. **Code** [1040, 832, 745, 1387, 864, 209, 969, 1320, 937, 1530, 707, 1672, 1623, 168, 1017, 1608, 1761, 875, 1424, 754, 1301, 1132, 896, 634, 889, 882, 997, 1109, 1118, 961, 1303, 1398, 1189, 1232, 1007, 1221, 1624]. **Coded** [131]. **Codes** [626, 644, 1849, 1748, 199, 232, 1453, 247, 1240, 580, 939, 1356, 1215, 402, 1290, 1066, 953]. **Coding** [1471, 643, 1118]. **CoDiPack** [1620]. **Coefficient** [311]. **Coefficients** [363, 567, 119, 1554, 1176, 1089, 1193, 1715]. **Coerror** [153, 145, 1470]. **COLAMD** [1122]. **collapsed** [1300]. **collapsed-coordinate** [1300]. **Collected** [811, 518, 693, 1057, 473]. **Collection** [759, 792, 1379, 1796, 716, 1551, 1145, 1343, 1146, 958]. **Collocation** [1653, 334, 333, 708, 554, 760, 524, 525, 523, 239, 750, 749, 1432, 1486, 1016, 1127, 1237]. **Colored** [1610]. **Coloring** [1628, 1401]. **ColPack** [1401]. **COLROW** [429, 610]. **COLSYS** [334, 554]. **Colt** [1326]. **Column** [429, 428, 610, 917, 1749, 1526, 1230, 1122, 1121, 1112]. **columns** [897]. **Combination** [321, 553, 500, 221]. **combinations** [1209]. **Combinatorial** [1582]. **Combined** [972, 1301]. **Combining** [1757]. **Combustion** [559]. **Comment** [983, 1066]. **Comments** [1861, 74, 1714]. **Common** [1498, 909, 852]. **Communication** [455, 506]. **Community** [1808]. **Commuting** [1425]. **Compact** [297, 539, 1558]. **Compactly** [1466]. **Comparative** [263]. **Comparison**

[321, 1051, 98, 262, 793, 107, 1439, 108, 133, 658, 1433, 42, 1859]. **Comparisons** [1575, 723]. **Competitive** [1474]. **Compilation** [681, 1211]. **Compiled** [1829]. **Compiler** [929, 1254, 40, 1549, 1182, 1153]. **Complement** [464, 1588, 1378, 897]. **Complementarity** [411, 1616]. **Complementary** [665]. **Complete** [1709, 863, 3, 174, 1390, 1250, 1664]. **Completely** [1584]. **Complex** [551, 678, 677, 694, 871, 773, 359, 984, 363, 1257, 206, 396, 486, 986, 626, 644, 825, 928, 303, 298, 57, 118, 1770, 1244, 1342, 1450, 1362, 1610, 461, 761, 1196, 42, 110, 667, 666, 1536, 719, 1594, 963, 1677, 511, 555, 512, 1813, 1541, 1606, 1408, 1128, 1093, 1141, 1068, 1075, 1864, 1088, 1124]. **complex-step** [1088]. **Complexity** [1467, 1780, 455, 506, 841, 1373, 1406]. **Component** [1523, 1324, 1788]. **Components** [1789]. **Composing** [1519]. **Composite** [1777, 186, 201, 1395]. **Composition** [710, 907]. **Composition-Alias** [907]. **Compounding** [72]. **Comprehensive** [395]. **Compressing** [1417]. **Compression** [1774, 1641, 1586, 1777, 1046, 1163]. **Compromise** [1751, 1814, 1648]. **Computable** [53]. **Computation** [772, 1651, 1020, 294, 677, 1137, 309, 356, 834, 144, 561, 763, 771, 809, 1128, 1605, 1555, 1026, 947, 226, 1420, 1521, 863, 1640, 303, 298, 1358, 455, 506, 902, 343, 1634, 1642, 463, 666, 482, 795, 1717, 122, 1788, 1589, 191, 1663, 1372, 775, 1021, 1184, 1354, 1318, 1353, 1344, 1157, 1068, 1075, 1133, 1022, 1625]. **CompuTational** [1145, 1146, 410, 1708, 1463, 1655, 798, 262, 224, 1713, 490, 701, 165, 1719, 1575, 252, 1444, 1572, 1744, 926, 1624, 1602, 1489, 556, 42, 1681, 1783, 1710, 1445, 1446, 1001]. **Computations** [732, 1239, 291, 652, 1365, 1698, 1649, 1490, 342, 1600, 1489, 1540, 1385, 1488, 1620, 1497, 1833, 1301, 32, 1177]. **Compute** [415, 1762, 850, 1495, 552, 796, 1408, 1411, 894]. **Computed** [393]. **Computer** [376, 227, 400, 788, 277, 147, 62, 86, 549, 47, 120, 132, 261, 222, 881]. **Computer-Aided** [549]. **Computer-Assisted** [400, 788]. **Computers** [1051, 1257, 838, 945, 1205, 1141]. **Computing** [1584, 1707, 786, 1708, 297, 952, 918, 1174, 1376, 916, 1345, 139, 371, 370, 1805, 924, 582, 765, 1545, 783, 877, 836, 1427, 403, 1110, 1164, 567, 329, 1410, 1319, 1559, 1726, 611, 1572, 1612, 151, 876, 1766, 1842, 1299, 1264, 310, 1587, 346, 399, 1438, 64, 686, 1849, 1701, 458, 688, 484, 1761, 250, 1848, 875, 948, 779, 1683, 394, 649, 1225, 192, 905, 1326, 1357, 1487, 1570, 1094, 1003, 1179, 1063, 1089, 1193, 1053, 1401, 1405, 1169, 957, 1864, 1130, 1315, 1389, 1235, 1116, 1143, 1190]. **Concave** [861, 1769, 1008, 1036]. **conceptual** [1148]. **concise** [1160]. **Concurrency** [1373]. **Concurrent** [1739]. **Condensed** [1374]. **Condition** [786, 139, 1328, 1327, 626, 644]. **Conditioned** [1737]. **Conditions** [1618, 1494, 1176]. **Condor** [1000]. **Confidence** [138, 1676]. **Configurable** [1735]. **Configuration** [1583, 1458]. **Conflict** [1845]. **Confluent** [761]. **conformal** [957]. **Conforming** [1735]. **Congruence** [163, 161]. **Congruential** [995, 925]. **CONHYP** [761]. **Conjecture** [1719]. **Conjugate** [280, 1166, 1037]. **Conn** [908]. **connected** [957]. **Connections** [1575]. **Conquer** [757, 821, 1056, 1474, 1862, 1219]. **Consensus** [1793].

Conservation [1790]. **Considerations** [585, 996]. **consistent** [1663]. **Constant** [1745, 1554, 1715]. **Constants** [1762, 983, 1824]. **CONSTR** [509]. **Constrained** [283, 316, 315, 858, 1804, 650, 936, 935, 1822, 388, 908, 648, 1583, 636, 152, 940, 1228, 1097, 1349, 1540, 879, 878, 1047]. **constraint** [1167]. **Constraints** [302, 297, 1686, 766, 465, 1720, 742, 1616, 862, 512, 1221]. **Construct** [1618]. **Constructing** [48, 1162, 1476, 493]. **Construction** [1459, 1691, 969, 1509, 702, 1755, 1723, 1307]. **containment** [1177]. **CONTEST** [1270]. **Context** [1530]. **Context-Specific** [1530]. **Contingency** [79, 804, 19, 542]. **Continuation** [1469, 1360, 968, 413, 412, 1043, 989]. **continued** [1288]. **Continuous** [867, 1674, 579, 653, 947, 722, 1540, 1810, 1036, 1012, 922]. **Continuum** [1494]. **Contour** [485, 638, 594, 593, 672, 193]. **Contouring** [1241, 1099]. **Contours** [484]. **contraction** [1100]. **Control** [1653, 1383, 766, 1591, 736, 843, 985, 828, 355, 1432, 1760, 1486, 1661, 1195, 1045, 1317, 1351, 1237]. **Controllable** [1270]. **Controlling** [402]. **Controls** [566, 619, 1309]. **Convective** [90]. **Convergence** [63, 149, 892]. **Convergent** [580, 939, 1309]. **Conversion** [831, 1359]. **Conversions** [1562, 1039]. **Converting** [598]. **Convex** [906, 1655, 1769, 1483, 164, 162, 1728, 1738, 1403, 164, 1047]. **Convex-Constrained** [1047]. **convexity** [1114]. **convexity-preserving** [1114]. **Convolution** [1665]. **Convolutions** [392, 391]. **Cooley** [1639]. **coordinate** [1300, 1281]. **coordinate-free** [1281]. **Core** [550, 1367, 1581, 1133, 1183, 1282, 1104, 1314, 1724]. **Cornea** [1480, 1438]. **Correct** [1475, 1207]. **Corrections** [487, 1762, 506, 1617]. **Correctly** [1517, 724, 1299]. **Correctness** [70]. **Correlative** [1747]. **Corresponding** [598, 329]. **Corrigenda** [846, 653, 628, 654, 629, 655, 261]. **Corrigendum** [821, 781, 408, 809, 877, 619, 340, 820, 644, 826, 583, 1032, 601, 590, 1351, 1703, 555]. **Cosine** [976, 869]. **Cost** [40]. **Costas** [1336]. **CoStLy** [1196]. **Costs** [290]. **Coupled** [1572, 1033, 1073]. **Coupling** [1572, 1844]. **Covariance** [1494, 649]. **Covariate** [1809]. **Covariate-Dependent** [1809]. **CPFloat** [1771]. **CPSC** [363]. **CPU** [1505]. **CPUs** [1724]. **CRAY** [460, 754]. **Criteria** [1019]. **Cross** [541, 343]. **Cross-Bispectrum** [343]. **Cross-Validation** [541]. **Crosscap** [1376]. **Cryptography** [1477, 1607, 1621]. **Crystals** [1692]. **CS** [1747]. **CS-TSSOS** [1747]. **CSHEP2D** [975]. **CSRFPACK** [1114]. **Cubature** [759, 792, 911, 535, 380, 1330, 1090, 958, 1091, 1058]. **Cubic** [270, 136, 1461, 566, 619, 541, 135, 1727, 975, 899, 1002, 1760]. **CUBPACK}** [1090, 911]. **CUBTRI** [535, 380]. **CUDA** [1542]. **Cumulative** [630, 1468, 1779, 29, 82]. **Current** [1731]. **Curtis** [229, 17]. **Curvature** [999]. **Curve** [18, 1742, 95, 265, 136, 1607, 173, 435, 135, 778, 172, 1596, 1704, 77, 950, 1280, 893]. **Curve-based** [1742]. **Curve-Fitting** [778]. **Curved** [1631, 100]. **Curves** [1584, 1544, 1459, 547, 1855, 1136]. **Customized** [1622]. **Cut** [301, 296, 1092]. **CUTE** [858]. **CUTEr** [1097]. **Cuts** [1594]. **Cyber** [609]. **Cycles** [368, 143]. **Cyclic** [201, 514]. **cylinder** [1165, 1164, 1348]. **Cylinders** [1647]. **Cylindrical** [1244, 1342].

D
[1590, 1758, 1059, 1265, 1228, 1590, 1406, 1403, 1466, 1226, 1783, 1595, 92, 1127]. **D/** [1590]. **D2** [334, 554, 66, 205]. **D3**
[182, 760, 254, 239, 326, 337, 55, 241, 240, 284]. **D4** [363]. **D5** [91, 117, 471]. **DAE** [1811]. **DAESA** [1443, 1440]. **DAFNE** [467]. **DAG** [1434]. **Dagwood** [612]. **Dangers** [918]. **Dantzig** [1393]. **Data**
[181, 180, 231, 1786, 1774, 1641, 1277, 1660, 1804, 856, 136, 1427, 9, 581, 1796, 375, 115, 1261, 901, 1770, 1735, 1644, 1324, 845, 1603, 505, 479, 604, 605, 603, 934, 977, 975, 976, 278, 462, 1749, 1329, 606, 502, 114, 898, 899, 1356, 1002, 1200, 1011, 1250, 1249, 1163, 879, 1114, 1280, 1210, 1046]. **Data-flow** [1796]. **Data-level** [845]. **Data-Structure-Neutral** [1324]. **database** [1011]. **Datasets** [1805]. **Davidson** [1413]. **DCUHRE** [728]. **DCUTRI** [759, 958]. **DDE** [1054]. **DDE-BIFTOOL** [1054]. **Dead** [358]. **deal.II** [1218, 1844]. **Deciding** [149]. **Decision** [696]. **Decomposition**
[1641, 1544, 371, 370, 1721, 1325, 784, 785, 1795, 1794, 919, 573, 310, 1862, 691, 1743, 876, 1022, 1163, 1226, 1393]. **Decompositions** [1739, 779]. **Decrease** [830]. **Deep** [1665, 1803, 1840, 1693, 1092]. **deep-cut** [1092]. **Defect** [1383, 1195, 402]. **Deferred** [1617]. **Deficient** [735, 1168]. **Defined** [1631, 1548]. **Definite** [584, 127, 553, 448, 997, 1109, 1247]. **Definition** [684]. **Deflating** [458, 394]. **Deflation** [1679, 1658, 1460, 1716]. **Deformation** [1826]. **Degree**
[721, 720, 292, 499, 571, 590, 640, 641, 1723, 1625, 1717, 621, 1123, 1122, 1121]. **Degree-of-Freedom** [1723]. **Delaunay**
[1666, 1228, 1817, 1454, 1450, 686, 1615, 878, 933, 1442]. **Delaunay-Based** [1442]. **DELAUNAYSPARSE** [1666]. **delay** [1054]. **Dense**
[1479, 564, 929, 1598, 1263, 1575, 613, 1684, 249, 1489, 1551, 1385, 1488, 1667, 1664, 649, 1372, 1304, 897, 1131, 953, 952, 1199, 1352, 885, 1710]. **Density** [947, 1817]. **Dependence** [78]. **Dependency** [502]. **Dependent** [668, 824, 1809]. **derivation** [1087]. **Derivative**
[1614, 1822, 1792, 513, 655, 1540, 1711, 1620, 1746, 1348, 1185, 1088]. **Derivative-Free** [1822, 1792, 513, 655, 1746, 1614, 1540, 1185]. **Derivatives** [1651, 439, 1572, 1358, 1361, 747, 44, 1137, 900, 1389, 1220]. **Derived** [1262]. **deriving** [1131]. **Descendants** [24, 140]. **descent** [1166]. **Described** [595]. **Description** [400, 896, 1090, 1316]. **DESI** [903]. **Design**
[914, 1804, 209, 1355, 220, 234, 945, 168, 1062, 357, 1293, 1608, 1373, 1291, 462, 1298, 1563, 1581, 1497, 208, 1188, 889, 882, 996, 1308, 1280, 1104, 1231]. **Designing** [1502, 669]. **Detecting** [121]. **Detection** [1808, 964, 1555, 1533]. **Determinants** [97, 385]. **Determine** [620]. **Determining** [358]. **Deterministic** [1682]. **Developing** [85]. **Development** [1589, 1181]. **Deviates** [376, 11, 147, 372]. **Devito** [1634]. **DFTI** [1154]. **Diagnostic** [1817]. **Diagonal** [429, 428, 610, 350, 750, 749, 456, 1526, 268, 890, 851]. **Diagram** [933]. **Diagrams** [1425, 1509]. **Dichotomy** [1363]. **Dictionaries** [1690, 1810]. **Difference** [148, 1558]. **Differences** [856]. **Different** [85]. **differentiable** [1395]. **Differential**

[1377, 696, 467, 466, 624, 1825, 668, 1652, 824, 737, 932, 1579, 43, 633, 746, 1268, 374, 568, 178, 1013, 446, 1736, 444, 1241, 1262, 725, 760, 254, 523, 1815, 445, 1033, 216, 596, 595, 913, 307, 239, 326, 325, 1433, 1832, 1699, 1443, 66, 65, 355, 814, 1440, 646, 801, 1553, 585, 669, 92, 89, 121, 796, 795, 55, 54, 1554, 1715, 476, 241, 240, 246, 1409, 1099, 1152, 1054, 1128, 1110, 1150, 996, 1310, 205, 1307]. **Differential-Algebraic** [1443, 1440, 996]. **Differential-Equations** [467, 466]. **Differential/Algebraic** [1736, 1150]. **Differentiation** [1829, 1368, 1756, 1006, 1431, 864, 360, 1426, 1530, 1712, 1637, 277, 1017, 1457, 1748, 454, 1504, 1240, 1024, 1472, 1556, 1245, 1172, 1410, 887, 1001, 1392, 1399, 1153, 1225]. **differentiation-enabled** [1153]. **Diffpack** [914]. **Diffusion** [1788]. **Digit** [834, 763, 1078]. **Digital** [1466, 1077, 1082]. **Dilogarithm** [31, 83]. **Dimension** [1322]. **Dimensional** [1539, 792, 994, 824, 911, 827, 59, 340, 322, 1591, 213, 1330, 326, 325, 1560, 337, 1615, 1291, 483, 482, 669, 684, 476, 1542, 27, 1136, 1738, 1692, 1201, 1699, 1800, 878, 1058]. **Dimensions** [1798, 494, 576, 1666, 1451, 1447, 1783]. **Dirac** [863, 942]. **Direct** [1463, 577, 1331, 1752, 1067, 1462, 1434, 1693, 1763, 889, 890, 1108, 1119, 1204, 1290, 1083, 1231, 1212, 1314, 1453, 1746]. **DIRECT-Type** [1746]. **Directed** [406]. **DIRECTGO** [1746]. **Directions** [489, 336]. **Directory** [1858]. **Dirichlet** [337]. **Discontinuities** [444, 818]. **Discontinuous** [1825, 1672, 1611, 1447, 1790, 1662, 1217]. **discrepancy** [842, 926]. **Discrete** [316, 315, 1467, 531, 270, 766, 173, 317, 314, 1812, 908, 1495, 1540, 1493, 869, 77, 835, 1513, 146, 1152, 1036, 1101, 1306, 1595]. **Discrete-Time** [766, 835]. **Discretisations** [1632]. **Discretization** [1375]. **Discretizations** [1758]. **Discretized** [708]. **Disk** [614]. **Disks** [1509]. **DISODE45** [1520]. **DISPMODULE** [1279]. **Distance** [659, 301, 296, 1583, 1761, 1221]. **distillation** [1125]. **Distributed** [181, 180, 231, 1051, 1767, 945, 1284, 919, 1516, 1735, 1763, 1512, 1489, 739, 1385, 505, 1761, 481, 1488, 1601, 1083, 1229, 1081]. **Distributed-Memory** [945, 1763, 1512, 1489, 1488, 1761, 1601, 1083, 1229]. **Distribution** [802, 35, 274, 854, 1468, 1779, 946, 14, 150, 338, 1582, 93, 87, 627, 662, 1464, 1264, 1849, 1701, 29, 82, 1513, 775, 228, 1865, 1175, 1186]. **Distributions** [376, 416, 531, 336, 861, 146, 1008, 1036]. **Divide** [757, 821, 1056, 1474, 1862, 1219]. **Divide-and-Conquer** [1056, 1474, 1219]. **Divided** [856]. **Division** [33, 941, 468, 511, 555, 1124]. **DMNetwork** [1633]. **DNSPLIN1** [1101]. **Do** [44, 1411, 558]. **DOLFIN** [1315]. **Domain** [1325, 1697, 1569, 1254, 483, 684, 1409, 1226, 1678]. **Domain-Specific** [1569, 1254, 1409]. **Domains** [1265, 827, 1548, 100, 524, 525, 482, 1496]. **Dominant** [938, 964]. **Double** [912, 322, 968, 1550, 1362, 1754, 1714, 122, 340]. **Double-Hopf** [968]. **Double-Precision** [1362]. **Double-Word** [1550, 1714, 1754]. **Doubled** [342]. **Doubled-Precision** [342]. **Doubly** [1616, 1215, 957]. **Downdate** [1266, 1271]. **downdating** [1346]. **Driven** [790, 642, 692, 751, 1235]. **driver** [1135]. **Drivers** [774]. **DSDP5** [1238]. **DSDP5-software** [1238]. **DSUBSP** [458, 394]. **Duality** [1425]. **Duration** [835]. **Dyadic** [1842]. **Dynamic**

[1271, 1795, 1794, 1807, 1471, 686, 1856, 643]. **Dynamically** [620, 1567, 1597]. **dynamics** [1117].

E1 [181, 231, 270, 389, 102, 349, 505]. **E2** [95, 136, 173, 349, 172, 77, 114]. **E3** [270]. **E4** [302, 104, 348, 130, 327, 76, 318]. **Early** [1460, 1716]. **Easy** [1842]. **Economical** [531]. **Edges** [1539]. **Edition** [1860]. **Editor** [1569, 243]. **Editorial** [782, 1009, 1444]. **EDOLAB** [1856]. **Education** [1856]. **EFCOSS** [1308]. **effectively** [1120]. **Effects** [187, 242, 341]. **Efficiency** [1751, 178, 560, 1814, 556, 1648, 1487, 1301]. **Efficient** [1650, 1213, 1688, 1391, 1579, 1797, 880, 63, 597, 930, 1721, 1309, 411, 1483, 1484, 1605, 1461, 1055, 1241, 123, 1262, 1455, 1359, 570, 1571, 304, 707, 75, 1211, 215, 214, 187, 530, 513, 655, 1495, 1518, 1811, 1514, 1699, 1862, 747, 1583, 358, 1615, 666, 682, 1124, 1790, 1636, 718, 1311, 1564, 385, 1424, 241, 240, 679, 423, 1513, 565, 146, 1372, 1557, 222, 1174, 1118, 1172, 1168, 1236, 1136, 583, 1389, 1304, 1726, 242, 261]. **Efficiently** [41, 1570, 1063, 1347]. **Eigenfunction** [732]. **Eigenmodes** [1034, 1035]. **eigenpairs** [1094]. **Eigenproblem** [757, 821, 786, 1642]. **Eigenproblems** [1485, 1056, 1251]. **Eigensolver** [1604, 1316]. **eigensolvers** [1252]. **Eigensystem** [192, 191]. **EIGENTEST** [1251]. **Eigenvalue** [732, 1379, 1689, 1658, 1709, 1242, 206, 396, 486, 1499, 613, 797, 57, 118, 124, 447, 1025, 866, 1862, 1663, 1604, 1286, 1093, 1390, 1149, 1144, 1413]. **Eigenvalues** [139, 393, 765, 1658, 783, 877, 381, 1371, 787, 217, 875, 796, 795, 101, 1003, 1179]. **Eigenvectors** [139, 765, 217]. **Eight** [262]. **EIGIFP** [1144]. **elegant** [1347]. **Element** [1758, 1767, 1697, 1260, 1696, 1778, 1698, 1371, 1425, 1839, 1382, 1611, 1537, 1783, 1615, 1519, 278, 462, 1723, 1683, 1724, 1497, 208, 420, 1301, 1218, 1277, 1356, 1137, 997, 1395, 1130, 1315, 1699, 1303, 1217, 1398]. **Elemental** [1385]. **Elementary** [474, 773, 1656, 1517, 698, 825, 839, 902, 86, 724]. **Elementary-Function** [474]. **Elements** [105, 1843, 30, 1845, 1623, 1137, 1139, 1624]. **Elimination** [429, 428, 610, 499, 539, 385, 384, 204, 200, 1118, 1246]. **ellipFor** [1828]. **Ellipsoids** [837, 836]. **Elliptic** [1568, 709, 352, 827, 568, 272, 1607, 1262, 248, 523, 689, 3, 658, 1433, 646, 801, 174, 241, 240, 1828, 1012]. **Elliptic-Parabolic** [709]. **ELLPACK** [568]. **elrint3d** [1330]. **Embedded** [1577, 1330, 1560]. **Emerging** [1748]. **emgr** [1784]. **empi** [1810]. **Empirical** [1366, 1216, 1784]. **Enabled** [1497, 1153]. **Enabling** [1775, 1736, 1373]. **Encapsulated** [1752]. **Enciphering** [215, 214]. **Enclosing** [867, 1609]. **Enclosure** [853]. **Enclosures** [1576]. **Encryption** [1580]. **end** [893]. **Energy** [435, 547, 1790]. **Enhance** [1239]. **Enhanced** [922]. **Enhancement** [1671]. **Enhancements** [788]. **Enough** [1507]. **Ensemble** [515]. **Entries** [97]. **Entropy** [1790]. **Entry** [913]. **Enumerative** [406]. **Envelope** [737, 705, 1092]. **Environment** [858, 309, 1590, 568, 176, 944, 853, 1097, 1155, 1308, 1052]. **EPDCOL** [707]. **Equality** [636]. **Equation**

[494, 967, 577, 576, 932, 415, 359, 233, 1, 1461, 753, 752, 1736, 248, 216, 596, 503, 337, 210, 404, 121, 796, 795, 61, 1128, 1110, 1150, 1071, 884, 1087]. **Equations** [282, 281, 696, 467, 466, 624, 1758, 668, 91, 88, 1243, 1652, 197, 584, 56, 288, 98, 127, 1566, 708, 824, 227, 920, 737, 492, 1579, 43, 163, 161, 633, 746, 148, 1334, 374, 490, 1751, 344, 362, 361, 359, 568, 748, 475, 178, 1013, 134, 1831, 446, 444, 1241, 1262, 1328, 1327, 1067, 366, 725, 760, 254, 523, 1074, 689, 853, 1815, 1498, 445, 1033, 513, 655, 595, 1692, 913, 307, 239, 133, 119, 326, 325, 1814, 1433, 461, 1832, 212, 285, 399, 1699, 280, 1457, 1443, 66, 65, 355, 1648, 379, 369, 1853, 814, 484]. **Equations** [1440, 851, 1536, 646, 801, 585, 669, 1435, 92, 89, 55, 54, 1554, 1715, 476, 540, 533, 241, 132, 512, 240, 1683, 284, 279, 622, 621, 330, 246, 1409, 1099, 1416, 889, 1054, 1119, 1204, 1073, 996, 1223, 1310, 1156, 1224, 1189, 205, 1307, 1007, 1283, 1377]. **Equidistributed** [1565]. **Equilibrium** [516, 545, 674, 1540, 588]. **Errata** [242]. **Erratum** [207]. **Error** [53, 1568, 1665, 712, 1383, 1639, 665, 1752, 784, 785, 1178, 1575, 912, 1591, 1480, 1550, 405, 1529, 1438, 1714, 355, 1486, 667, 666, 92, 89, 247, 120, 1813, 1606, 1176, 1103, 1864, 1163, 32, 1237]. **Errors** [1847, 487, 806, 743, 187, 242, 1576, 341, 1396]. **ESOLVE** [163]. **Essential** [904]. **Estimate** [403, 1285]. **Estimates** [912, 138, 89]. **Estimating** [1268, 470, 469, 521, 626, 644, 1361, 522, 884]. **Estimation** [712, 780, 266, 1806, 964, 1494, 1328, 1327, 815, 626, 644, 1582, 343, 1034, 92, 247, 1035]. **Estimator** [463]. **estimators** [1103]. **Euclidean** [1674, 166, 223, 1559, 1754, 1226]. **EVAL** [509]. **Evaluate** [1752]. **Evaluating** [1821, 1249, 1395, 1364, 622]. **Evaluation** [1638, 1847, 770, 781, 1797, 635, 665, 699, 489, 1654, 1656, 838, 446, 1242, 145, 1470, 945, 670, 319, 366, 332, 156, 818, 1425, 1611, 1362, 747, 1421, 840, 667, 84, 354, 1542, 514, 1557, 1606, 420, 724, 1119, 1204, 955, 1300, 1274]. **Evaluator** [761]. **Event** [1756, 697, 1235]. **Event-Based** [1756]. **event-driven** [1235]. **Evolutionary** [1856]. **Exact** [735, 734, 79, 163, 161, 873, 872, 804, 748, 648, 19, 133, 119, 542, 110, 29, 82, 540, 533, 1332, 1318, 1865, 1249, 1250]. **Exactly** [1464, 1725, 1818, 1701]. **Example** [1033]. **Examples** [1295, 468, 741]. **Exception** [611, 825, 928]. **Exchange** [1847, 236, 434, 1072]. **EXCHNG** [381, 101]. **EXCHQZ** [458, 394]. **Execution** [791]. **existing** [402]. **Expanded** [274]. **Expanding** [588]. **Expansion** [802, 71, 1193]. **Expansions** [437, 1609]. **Expected** [312, 142]. **Expected-Time** [312]. **Experience** [48, 918, 636]. **Experiences** [1212]. **Experimental** [213, 1028, 1491, 1308]. **Experiments** [916, 1804, 224, 1473]. **Expert** [776]. **EXPINT** [1198]. **Explicit** [964, 1321, 736, 596, 723, 943, 1554, 1715, 284, 279]. **Exploiting** [1344, 890, 244, 690, 1745, 1711, 718]. **exploits** [1347]. **Exploration** [358, 1491]. **Exploratory** [375]. **Expm1** [751]. **EXPOKIT** [948]. **Exponential** [299, 294, 441, 437, 678, 677, 1323, 946, 537, 1364, 1341, 642, 679, 1198, 1307, 886]. **Exponentials** [948]. **Expression** [1426, 1421, 1246, 1281]. **expressions** [1297]. **Extendable** [1791]. **Extended** [1532, 592, 628, 591, 1591, 328, 1596, 1704, 324, 96, 1062]. **Extended-Range**

[328, 324]. **Extending** [1839]. **Extensible** [1786, 1804, 1682]. **Extension** [1056, 1192]. **Extensions** [713]. **Exterior** [1375]. **External** [1295]. **Extra** [1272, 1178]. **Extra-Precise** [1272, 1178]. **Extrapolation** [386, 442, 443]. **Extremal** [430].

F [900, 1240]. **F1** [128, 371, 112, 397, 184, 350, 113, 238, 258, 382]. **F2** [139, 381, 206, 396, 486, 303, 57, 118, 217, 101, 335, 192]. **F4** [282, 56, 283, 351, 127, 163, 362, 195, 306, 204, 154, 255, 269]. **F5** [364, 398, 285]. **Face** [1718]. **Face-off** [1718]. **facilitating** [1308]. **Facilities** [704]. **Factored** [1441]. **Factoring** [109]. **Factorization** [1585, 1732, 930, 1266, 1737, 1777, 1256, 1575, 717, 1535, 1381, 1726, 849, 532, 1338, 550, 657, 705, 1725, 1587, 819, 40, 1255, 718, 1424, 1552, 1042, 1160, 1350, 1076, 1133, 1202, 1284, 1313, 1183, 1352, 1104]. **Factorizations** [1757, 364, 398, 929, 850, 1802, 953, 952]. **FACTORIZE** [1400]. **Factors** [539]. **Faddeyeva** [1487, 1357, 1557]. **Failure** [1256]. **Faithful** [1466]. **Faithfully** [1455, 1649]. **FAME** [1692]. **Families** [1323, 1247, 1374]. **Family** [1799, 1503]. **Fans** [984, 1677]. **FARB** [638]. **FARB-E-2D** [638]. **Fast** [1638, 564, 392, 391, 577, 1099, 1639, 1721, 1484, 756, 1580, 1555, 852, 292, 1705, 189, 1684, 690, 1426, 254, 248, 541, 1728, 1611, 1733, 768, 1692, 1512, 463, 1690, 646, 869, 122, 886, 724, 1194, 1312, 1177, 1402, 1292, 909, 1154]. **Fast-Direct** [577]. **Fast2Sum** [1538]. **Faster** [1807]. **FastSpline** [1765]. **FaVeST** [1705]. **FdeSolver** [1815]. **FE** [1670]. **Feasibility** [420, 1197]. **Feature** [1664]. **Feature-complete** [1664]. **Features** [209, 1017]. **Feedback** [866, 1053, 1169]. **Fejér** [1532]. **FEM** [1059, 1673]. **FEM/FVM** [1059]. **FEM/FVM-based** [1059]. **FEMLAB** [1139]. **FEMSTER** [1152]. **FEniCS** [1683]. **fenicsR13** [1683]. **Fermi** [863, 942]. **few** [1094]. **FEXACT** [804, 542]. **FFLAS** [1263]. **FFPACK** [1263]. **FFT** [256]. **FFT9** [254]. **FGMRES** [1823]. **FIAT** [1843, 1130, 1173]. **FIDISOL** [585]. **Fields** [1674, 1263, 1718, 1849, 109]. **FILIB** [1177]. **Filippov** [1520, 1135, 1235]. **Fill** [638]. **filling** [950, 1136]. **Filter** [649, 1197, 1306, 1126]. **filter-trust-region** [1197]. **Filtering** [1820]. **Filters** [1502, 1077]. **FILTRANE** [1197]. **Find** [802, 166, 553]. **Finder** [235]. **Finding** [105, 63, 223, 30, 142, 703, 1450, 406, 639, 497, 536, 110, 684]. **Finite** [1758, 1847, 1843, 148, 1697, 1696, 1778, 1698, 1371, 1425, 1623, 1839, 1382, 1611, 1624, 1537, 1558, 1699, 1783, 1615, 1849, 1519, 278, 462, 1723, 835, 1683, 1724, 1497, 208, 420, 1496, 1301, 1218, 1277, 1356, 997, 1130, 1315, 1303, 1217, 1398]. **Finite-Difference** [148]. **Finite-Duration** [835]. **Finite-Element** [462, 208, 420, 1699, 997]. **Finite-Precision** [1847]. **finitely** [1309]. **FIR** [1502]. **Firedrake** [1713, 1519]. **First** [1566, 633, 746, 414, 6, 725, 814, 58, 1554, 1715]. **First-Order** [1566, 633, 746, 725, 814, 1554, 1715]. **Fisher** [804, 336, 542]. **Fit** [173, 77, 1253]. **Fitting** [18, 23, 181, 180, 231, 95, 230, 509, 508, 1268, 856, 136, 135, 505, 778, 172, 1695, 898, 899, 1002, 879, 1280, 1307]. **Fittings** [265]. **Five** [630]. **Five-Year** [630]. **Fixed** [703, 311, 528, 1258, 286, 1092, 1159].

fixed-point [1159]. **FLAME** [1132, 1052, 1232]. **Flexibility** [1614, 1736]. **Flexible** [1673, 1257, 739, 1772, 1820, 1069, 1149]. **Float** [1854]. **Floating** [1650, 309, 356, 799, 1752, 852, 1622, 698, 52, 1649, 342, 1722, 909, 600, 715, 642, 692, 751, 122, 1332, 1207, 1864, 1299, 32, 1078, 1050, 1038, 1039]. **Floating-Point** [309, 356, 799, 1752, 1622, 52, 342, 909, 600, 715, 642, 692, 751, 1332, 1649, 1722, 1207, 1864, 1299, 32, 1078, 1050, 1038, 1039]. **FloatX** [1622]. **Florida** [1343]. **Flow** [1508, 1758, 262, 100, 1628, 1033, 1208, 1796]. **Flows** [1495, 845]. **Fluid** [1033]. **Focus** [1646]. **Force** [1540]. **Form** [1409, 652, 765, 184, 984, 303, 298, 995, 840, 688, 250, 1670, 1694, 1743, 1374, 1788, 1589, 1391, 998, 1138, 954, 1171, 1044]. **Formal** [64, 1087, 1052]. **Formalization** [1714]. **formally** [1311]. **Format** [1359, 1422, 1518, 1140, 1202, 1313]. **Forms** [1254, 1425, 649, 1152, 1182, 1211, 1187]. **Formula** [632, 1320]. **Formulae** [729]. **Formulas** [1481, 72, 546, 710, 289, 311, 548, 514]. **Formulation** [1655, 682, 1042]. **formulations** [1409]. **Fortran** [1559, 901, 1534, 1349, 282, 438, 439, 678, 938, 733, 791, 351, 492, 364, 398, 817, 633, 746, 774, 522, 582, 429, 428, 610, 408, 713, 393, 460, 628, 591, 765, 270, 589, 562, 654, 936, 1053, 403, 446, 608, 695, 753, 755, 820, 581, 1169, 626, 644, 725, 304, 387, 609, 750, 542, 787, 327, 458, 691, 430, 453, 715, 758, 394, 649, 754, 131, 1191, 1419, 870, 182, 860, 1003, 1179, 1485, 166, 932, 171, 170, 257, 832, 831, 1318, 470, 558, 1325, 991, 856, 1200, 864, 397, 1065, 1193, 1408, 1365, 381, 173, 983, 917, 1068]. **Fortran** [1075, 234, 1096, 1197, 1202, 1070, 961, 1071, 1095, 1005, 1279, 1637, 850, 839, 853, 828, 1415, 238, 237, 1017, 913, 866, 1037, 285, 1153, 921, 1278, 885, 966, 993, 1224, 1298, 219, 204, 1594, 77, 1050, 241, 101, 240, 1828, 1240, 939, 988, 96, 1487, 940]. **FORTRAN-77** [753, 1071, 839]. **Fortran-90** [870]. **Forum** [1064]. **Forward** [1829, 1172]. **Forward-Mode** [1829]. **Fourier** [1639, 1292, 1595, 1154, 576, 991, 990, 567, 1210, 122]. **Fourth** [576, 937]. **Fourth-Order** [937]. **Fourth-Order-Accurate** [576]. **Fractional** [144, 1815]. **fractions** [1288]. **Framework** [1707, 1786, 1708, 1029, 519, 1719, 183, 260, 1640, 1784, 1826, 1454, 1770, 1791, 1293, 1524, 1385, 1700, 1601, 1445, 1473, 1678, 1682, 1446, 1706, 1273, 949, 1090, 1136, 1117, 1281, 1217, 1181]. **FrankWolfe.jl** [1851]. **FRB** [1318]. **Fréchet** [1368]. **Fredholm** [91, 88, 1243]. **Free** [350, 1575, 1822, 395, 1792, 1611, 513, 655, 1837, 1711, 1746, 1614, 1318, 1185, 1300, 1699, 1281, 954, 1540, 1224, 1694, 1567]. **free-form** [954]. **Free-Space** [1837]. **Freedom** [1723]. **Frequencies** [1294]. **Frequency** [530, 1493, 1354]. **Fresnel** [1703, 1031, 800, 910]. **Freudenthal** [1192]. **friendly** [1833]. **frontal** [882, 997, 1098]. **FROSch** [1844]. **FSAIPACK** [1441]. **Fujitsu** [1776]. **Full** [160, 1658, 361, 1621, 1369, 1313]. **Fully** [462, 1140]. **FunC** [1836]. **Function** [1638, 439, 860, 859, 302, 297, 474, 770, 781, 496, 63, 313, 38, 699, 700, 774, 194, 104, 1465, 561, 582, 763, 1656, 838, 20, 153, 145, 1470, 1420, 1521, 1468, 31, 2, 150, 537, 839, 1727, 1340, 1362, 21, 119, 83, 761, 42, 86, 667, 666, 1596, 1704, 196, 594, 593, 672, 642, 692, 751, 1813, 1824, 775, 1557, 1606, 1570, 1348, 1395, 1800].

Functional [999, 400, 66, 65]. **Functionalities** [1458]. **Functionality** [1445, 1446]. **Functions** [867, 1020, 1477, 126, 125, 207, 438, 437, 551, 694, 871, 236, 309, 144, 414, 635, 665, 773, 799, 579, 653, 1532, 1459, 130, 272, 1129, 360, 1517, 947, 6, 8, 253, 252, 987, 981, 1779, 332, 825, 928, 141, 1744, 1612, 1244, 1342, 68, 942, 750, 749, 1518, 1364, 1447, 640, 641, 67, 353, 822, 684, 76, 318, 1594, 922, 58, 963, 1341, 679, 1386, 1828, 1472, 1556, 1487, 724, 1021, 1288, 1213, 1214, 1137, 1353, 1089, 1193, 1408, 1128, 1069, 1102, 1068, 1075, 1111, 1165, 1164, 1130, 1285, 894, 1196, 1389, 1414, 1050, 13, 1190, 1357]. **Fundamental** [368, 143]. **FUNPACK** [38]. **fused** [1078]. **Fusion** [1506]. **Fuzzy** [1518, 1695]. **fuzzyreg** [1695]. **FVM-based** [1059].

G1 [138]. **G2** [79]. **G6** [137]. **GA** [1205]. **Gabor** [1069, 1690]. **GALAHAD** [1096]. **Galerkin** [1632, 1672, 1611, 1217, 1790, 1662]. **Gallery** [1511]. **game** [893]. **Gamma** [1638, 699, 561, 582, 838, 20, 253, 252, 981, 1521, 1018, 615, 42, 907, 196, 1050, 416, 1386]. **GAMS** [519]. **Garbage** [1796]. **Gauss** [1351, 1213, 1214, 813, 962, 987, 1470, 1320, 1571, 1317, 614]. **Gauss-related** [1213, 1214]. **Gauss-Type** [813, 962]. **Gaussian** [1653, 1674, 1809, 1138, 750, 749, 1432, 385, 384, 204, 200]. **GCD** [857]. **GEARB** [326]. **GEMM** [956, 955, 1563]. **GEMM-based** [956, 955]. **GEMM-like** [1563]. **GENCOL** [524]. **General** [1051, 386, 765, 766, 465, 755, 820, 760, 524, 1476, 239, 325, 337, 640, 641, 482, 540, 533, 146, 1496, 1184, 1218, 1393, 1189, 989, 1201]. **general-purpose** [1218, 989]. **Generalization** [1028]. **Generalized** [1638, 586, 1808, 182, 477, 784, 785, 538, 206, 396, 486, 613, 1074, 57, 118, 124, 575, 629, 1498, 168, 705, 706, 552, 217, 1848, 1828, 1391, 998, 884, 1395, 1187, 1144]. **Generalizing** [1819]. **Generally** [1623, 1624]. **Generate** [842]. **Generated** [448, 1118]. **Generating** [293, 817, 816, 531, 368, 72, 936, 935, 789, 813, 464, 1018, 615, 572, 601, 640, 822, 907, 146, 1214, 950, 1176, 962, 960]. **Generation** [376, 321, 1688, 137, 1517, 1765, 143, 1454, 1672, 147, 1623, 1436, 1610, 1624, 1836, 1449, 569, 641, 943, 1301, 951, 1228, 1102, 1136, 1023, 1032, 1303, 1398, 1209]. **Generator** [73, 599, 495, 587, 317, 314, 805, 807, 1857, 769, 768, 264, 1615, 219, 1442, 754, 1859, 1008, 1079, 1251, 1036]. **Generators** [1799, 1702, 1861, 1580, 409, 560, 500, 1565, 995, 221, 1491, 1216, 1161, 886, 925]. **Generic** [1268, 1778, 1454, 1670, 1356, 1059, 1275]. **Genome** [1427]. **Genome-Wide** [1427]. **Genus** [1495]. **Geometric** [1758, 1673, 165, 1548, 1668, 1536, 1833, 1482, 1226]. **Geometry** [1698, 1787]. **Geomstats** [1855, 1787]. **GERK** [92]. **GetFEM** [1670]. **GF** [1304]. **GFUN** [822]. **gHull** [1403]. **GHWs** [1848]. **Gibbs** [378, 377]. **Gibbs-King** [378, 377]. **Gibbs-Poole-Stockmeyer** [378, 377]. **Ginkgo** [1681, 1707, 1708, 1680]. **Given** [612]. **Givens** [1063, 1107]. **GIZ** [1075]. **Global** [625, 624, 1383, 853, 46, 569, 862, 92, 89, 451, 1453, 247, 1746, 1102, 1290, 1085]. **Globally** [922, 580, 939, 1215]. **GloptiPoly** [1085]. **glsurf** [1115]. **GMRES** [1141, 1257]. **GNU** [1493]. **Goal** [300, 295]. **Goliath** [735]. **gonal** [1584].

Governed [1682]. **GPGPUs** [1525]. **GPOPS** [1351, 1432, 1317]. **GPOPS-II** [1432]. **GPU** [1479, 1463, 1840, 1456, 1517, 1403, 1854, 1462, 1735, 1832, 1810, 1505, 1706, 1552]. **GPU-Accelerated** [1517, 1832, 1810]. **GPUs** [1586, 1598, 1841, 1629, 1382]. **GQRAT** [987]. **Gradient** [401, 1773, 168, 1166, 1250, 1249, 1037, 454]. **Gradient-based** [1773]. **Gradients** [280, 390]. **Gram** [255, 251]. **GRamian** [1784]. **Graph** [1574, 1626, 1635, 1781, 368, 143, 647, 406, 1644, 1373, 423, 1706, 1401, 993, 1628]. **Graph-Based** [1373]. **Graph-Theoretical** [143]. **GraphBLAS** [1626, 1781]. **GraphBLAST** [1706]. **Graphic** [1384]. **Graphical** [1809]. **Graphics** [1506]. **Graphs** [292, 1744, 807, 1246]. **GRASP** [1053, 1169, 1095, 921, 885, 966, 993]. **Graycode** [7, 527, 60]. **Greater** [907]. **Grid** [824, 1514, 646, 1597, 898, 895, 896, 1137, 1406, 1158, 1224, 1435]. **grid-free** [1224]. **Grids** [602, 1800, 1567]. **Group** [1842, 671]. **Growth** [1568]. **Guaranteed** [63, 830, 1166]. **Guarantees** [1548]. **guided** [1654].

H [300, 271, 301, 1640, 305, 152]. **H-Revolve** [1640]. **H2Pack** [1669]. **H2PEC** [627]. **Hager** [1072]. **Half** [1470]. **Half-Range** [1470]. **Halley** [490]. **Hamilton** [1832]. **Hamiltonian** [1003, 1179, 1485, 1769, 406]. **Hamiltonian/Hamiltonian** [1485]. **Hammarling** [1223]. **Hamming** [1848]. **Hand** [680, 1118]. **hand-coding** [1118]. **Handling** [611, 825, 928, 897]. **Hanging** [1845]. **Hankel** [392, 391, 988]. **Hardware** [1501, 420]. **Harmonic** [1267, 1705]. **Harmonics** [1435]. **Harrison** [1480, 1438]. **Having** [904, 1378]. **HAZniCS** [1789]. **HDG** [1451]. **HDSDP** [1834]. **Heap** [304]. **Heat** [100, 1033]. **Helmholtz** [577, 576, 254, 1371, 337, 210, 404, 1536]. **Helmholtz-Type** [254]. **HERMCOL** [525]. **Hermite** [99, 652, 1470, 524, 525, 682]. **Hermitian** [1094, 1416, 1795, 134, 1604]. **Hessenberg** [1354, 1391, 1093, 381, 1138, 1171, 1730, 101, 649]. **Hessian** [522, 521, 1831]. **Hessians** [1410, 1225]. **Heteroclinic** [1360]. **Heterogeneity** [1555]. **Heterogeneous** [1803, 918, 1572]. **Heuristic** [1439]. **Heuristics** [451]. **Hexahedral** [1845, 1755]. **HFFT** [577]. **Hierarchical** [1586, 798, 1640, 1434, 1422, 686, 1158, 1139, 1046]. **Hierarchically** [1489, 1488, 1482]. **Hierarchy** [718]. **HIFIR** [1737]. **High** [1651, 1707, 1630, 1708, 994, 577, 730, 1843, 1666, 1631, 1840, 874, 1545, 1561, 1607, 1680, 1257, 1248, 248, 1669, 1441, 534, 941, 1672, 1425, 1358, 1738, 1507, 1388, 1699, 1449, 1681, 1801, 1853, 718, 1620, 943, 1549, 1563, 1593, 1501, 1346, 1541, 1326, 1706, 673, 1140, 1152, 1141, 1234, 955, 1800, 1237, 1005, 1229]. **High-Accuracy** [534]. **High-Dimensional** [994, 1738, 1699, 1800]. **High-Level** [730, 673]. **High-Order** [577, 1843, 248, 1358, 1651, 1631, 1801, 943, 1152, 1237]. **High-Performance** [1840, 1561, 1257, 1441, 1425, 1507, 1449, 1853, 718, 1620, 1549, 1563, 1593, 1326, 1706, 1607, 1248, 1669, 1672, 1388, 1346, 1541, 1234, 955, 1229]. **High-Precision** [941]. **Highest** [640, 641]. **Highly** [722, 1108]. **Hilbert** [1742, 950]. **HiPPIS** [1801]. **hIPPYlib** [1770, 1682]. **hIPPYlib-MUQ** [1770]. **HIZ** [1075]. **Hodges** [463]. **Hodges-Lehman** [463]. **Hodograph**

[1459]. **Holonomic** [822]. **Homoclinic** [1360, 1560]. **Homogeneous** [1735, 1388]. **Homotopy** [580, 939, 893, 1189, 989, 1007]. **HOMPACK** [639, 580]. **HOMPACK90** [939]. **honor** [1009]. **Hopf** [968]. **Householder** [930, 1170, 249, 1346]. **Householder-like** [1346]. **Hp** [1845, 1277, 1778]. **hp}-Adaptive** [1778]. **Hp-Hexahedral** [1845]. **HPFBench** [1005]. **hpGEM** [1217]. **HQR3** [381, 101]. **HSL** [1119]. **HSL_MI28** [1424]. **htucker** [1422]. **Huffman** [1471, 643]. **Hull** [164, 162, 1728, 1403]. **Hulls** [906]. **HURRY** [427, 426]. **Hybrid** [1245, 1737, 1483, 113, 382, 1659, 1567, 1140, 1202]. **Hybrid-Parallel** [1659]. **Hydrodynamics** [1700]. **hyper.deal** [1699]. **Hyperbolic** [1654, 1832]. **hypercubes** [1402]. **Hyperelliptic** [837, 836]. **Hypergeometric** [1612, 627, 761, 775, 1353]. **HyperNOMAD** [1693]. **Hyperparameter** [1693]. **hypot** [1675]. **hypre}** [1148].

IBESS [126, 125, 207]. **Ideals** [493]. **Identities** [1465]. **IDR** [1347]. **IEEE** [799, 698, 1588, 1785, 642, 692, 751]. **IEEE-754** [1785]. **IEEE754** [1515]. **IFISS** [1208, 1783]. **II** [37, 1179, 896, 520, 785, 1328, 545, 1011, 1074, 425, 424, 202, 1432, 741, 121, 1039]. **IIA** [1661]. **III** [70]. **IIPBF** [1414]. **Iisignature** [1636]. **ILDL** [1535]. **Ill** [1737]. **Ill-Conditioned** [1737]. **ILLIAC** [310]. **ILU** [1274]. **ILU-type** [1274]. **Image** [1655, 1326]. **Imaginary** [1646, 1111, 1110]. **imaging** [1210]. **Implementation** [757, 821, 1674, 182, 597, 798, 490, 990, 823, 992, 714, 1260, 592, 664, 1794, 179, 616, 90, 912, 1607, 1502, 560, 1242, 607, 235, 292, 968, 945, 1773, 1559, 1826, 289, 808, 570, 1571, 304, 1610, 377, 1523, 557, 1790, 311, 741, 384, 373, 1594, 1581, 642, 692, 751, 279, 1139, 1188, 1065, 1355, 1069, 1172, 1055, 1248, 1001, 892, 583, 1062, 1147, 1196, 1800, 1393, 1413, 1104, 1126, 826]. **Implementations** [1429, 764, 1498, 1761, 423, 1505, 955, 996]. **Implemented** [1785]. **Implementing** [1508, 599, 1565, 825, 928, 704, 1072, 1541, 1082, 1079]. **Implicit** [597, 843, 210, 1103]. **Implicitly** [1631, 1548]. **Improve** [558, 1381]. **Improved** [1851, 1675, 160, 371, 370, 637, 850, 849, 685, 1161, 1677, 1813, 1865, 1657]. **Improvements** [1839, 1782, 1487, 1142]. **Improving** [1665, 73, 1843, 1614, 393, 178, 711, 1171, 1859]. **In-Place** [1359]. **In-Situ** [128, 258]. **Incomplete** [1638, 834, 352, 1737, 561, 582, 763, 838, 20, 253, 252, 981, 1521, 863, 1535, 150, 850, 849, 1338, 4, 94, 196, 1424, 1802, 1386, 1250, 1249]. **incompressible** [1208]. **Incorporated** [86]. **Increasing** [1321, 451]. **Incremental** [1509]. **Indefinite** [98, 1463, 661, 422, 1535, 1462, 1547, 578, 1337, 890, 1109, 1404, 1183, 1352]. **Independent** [1480, 966, 1038, 1039]. **Index** [630, 971, 137, 1209]. **Induced** [1081]. **Industry** [474]. **Inference** [1770, 1682]. **Infinite** [1658, 529, 1066, 1414, 1190, 1105]. **infinity** [1159]. **infinity-norm** [1159]. **Influence** [656, 40, 1396]. **Information** [1698, 1787, 649]. **Infrastructure**

[1478, 1772, 1252]. **Inherited** [1515]. **Initial** [696, 932, 903, 633, 632, 680, 746, 745, 777, 562, 654, 245, 1320, 725, 776, 1554, 1715, 402]. **Initial-Value** [1554, 1715, 402]. **Initialization** [1360]. **Initiative** [1444]. **Input** [787, 1828]. **Inputs** [1821]. **Insertion** [93, 87]. **Instantiating** [1445, 1446]. **Instruction** [86]. **Instructions** [1607, 1078]. **INTBIS** [675]. **INTCOL** [525]. **Integer** [1020, 1376, 163, 161, 1719, 450, 1725, 250, 468, 796, 533, 1823, 1511, 857, 1021, 1048, 1299]. **Integer-preserving** [1725]. **Integers** [52, 111, 1311]. **Integral** [91, 88, 494, 967, 1243, 197, 1632, 708, 227, 492, 771, 809, 1470, 863, 10, 504, 1727, 3, 1636, 174, 1437, 1341, 132, 116, 1414]. **Integrals** [299, 294, 441, 437, 678, 677, 727, 728, 1797, 352, 837, 836, 153, 145, 818, 1727, 800, 910, 1828, 1031, 1190, 1703]. **Integrands** [1571]. **Integrate** [529, 1066]. **Integrated** [1524]. **Integrating** [673]. **Integration** [625, 728, 661, 711, 710, 323, 340, 322, 1294, 808, 826, 1770, 1382, 1537, 66, 65, 1447, 453, 201, 488, 279, 442, 443, 1750, 1402]. **Integrator** [1377, 284, 205]. **Integrators** [1364, 1503, 1198, 1180]. **INTEL** [581, 1776]. **Intelligent** [905]. **Interactive** [1360, 568, 433, 432, 308, 1308, 1115]. **Interchange** [9, 115]. **Interface** [1798, 824, 276, 730, 1006, 1631, 931, 383, 340, 322, 220, 985, 1059, 1100, 1070, 1147, 1154]. **Interface-Preserving** [1798]. **Interfaces** [790, 1132, 1148, 1231]. **Interior** [1841, 897]. **interior-point** [897]. **Internal** [267]. **Internet** [1000]. **Interoperability** [1838]. **Interoperable** [1324]. **Interpolants** [546, 1321, 722, 1765, 943, 1016]. **Interpolating** [924, 923]. **Interpolation** [18, 23, 181, 180, 231, 721, 720, 95, 230, 99, 994, 386, 1265, 1666, 270, 566, 1816, 389, 102, 417, 1759, 543, 660, 497, 536, 1486, 505, 683, 480, 481, 479, 604, 605, 603, 934, 977, 975, 976, 1329, 169, 1258, 1158, 1402, 1101, 1114, 619]. **Interpolation-Based** [1486]. **Interpolatory** [589, 710, 355, 640, 641]. **Intersection** [1830, 1846]. **Intersections** [1722]. **Interval** [1764, 477, 984, 566, 619, 675, 901, 1588, 1576, 451, 211, 1069, 1411, 1167, 1177]. **INTERVAL_ARITHMETIC** [901]. **Intervals** [1518, 138, 1583, 1676]. **INTLIB** [839]. **Intrinsic** [1594]. **Introduction** [1145]. **Invariant** [938, 1657]. **Invasive** [1836]. **Inverse** [802, 1627, 1590, 561, 582, 517, 607, 1468, 1779, 1441, 706, 552, 868, 719, 1730, 1682, 1285]. **Inverses** [1863, 336, 1592]. **Inversion** [1429, 991, 990, 1431, 793, 608, 695, 332, 1516, 117, 1335, 676, 471, 472, 28, 129, 1682, 1247, 1313]. **invert** [1663, 1203]. **Inverting** [1186]. **Investigating** [1783]. **Investigation** [198]. **Investigations** [926]. **Involved** [1639]. **Involving** [947, 806, 1297]. **IPscatt** [1627]. **IQPACK** [589]. **irbleigs** [1094]. **Irksome** [1696, 1839]. **Irregular** [827, 233, 602]. **Irregularly** [181, 180, 231, 505]. **Isolated** [639]. **Isolation** [762]. **issue** [1009, 1060, 1145]. **Issues** [1570, 956]. **Iterated** [708, 543, 1636]. **Iterated-Integral** [1636]. **Iteration** [783, 877, 1863, 149, 1014, 217, 719, 1730, 335, 331, 1592, 1604]. **Iterative** [1757, 914, 1721, 1737, 1272, 387, 556, 1506, 1337, 1659, 1511, 255, 251, 1178, 1274, 1316]. **Iteratively** [291]. **ITPACK** [387]. **IV** [563, 310]. **Ivie** [487]. **IVP** [1772]. **IVPs** [1520, 1448].

J6 [69, 80, 59, 193]. **Jacobi** [1681, 1680, 1827, 1832, 1828]. **Jacobian** [470, 469, 1118, 1395]. **Java** [1644, 1504, 1326]. **JBESS** [126, 125, 207]. **Jet_fitting_3** [1268]. **JGraphT** [1644]. **jMarkov** [1524]. **JNF** [303]. **John** [1010, 1009, 487]. **Jordan** [303, 298]. **Julia** [1786, 1815, 1853].

K2 [115]. **Kalman** [1820, 1306, 1126]. **KBLAS** [1479]. **KCC** [1793]. **Kernel** [1854, 1669, 1506]. **Kernels** [1598, 1344]. **Key** [93, 87]. **Keys** [93, 87]. **Keywords** [518, 693, 473]. **Kind** [91, 88, 1243, 708, 313, 144, 414, 6, 58]. **Kinetic** [1790]. **King** [377, 378]. **KiT** [1791, 1800]. **KiT-RT** [1791]. **KLU** [1331]. **Knapsack** [410, 1483, 498]. **Knot** [1376]. **Knowledge** [905, 1011]. **knowledge/database** [1011]. **known** [1102]. **Kohn** [1283]. **Kolmogorov** [123, 151, 29, 82]. **Kronecker** [1605]. **Kronrod** [1571]. **Krylov** [1679, 1364]. **KSSOLV** [1283]. **Kummer** [1621, 1718]. **Kutta** [634, 1320, 197, 1383, 1520, 1176, 632, 680, 964, 546, 1195, 1696, 287, 1103, 736, 843, 516, 545, 722, 1839, 121, 232, 528, 723, 943].

L [1349, 1428, 940]. **L-BFGS** [1428]. **L-BFGS-B** [1349, 940]. **L2A** [255]. **L2B** [255]. **L2CXFT** [856]. **L2WPMA** [1200]. **Laboratory** [1783]. **Lagged** [392, 391]. **Lagrange** [1265]. **Lagrangian** [1738]. **Lanczos** [1322, 329]. **Landmarks** [1855]. **Language** [1626, 1781, 1569, 1670, 673, 1409, 1409]. **Languages** [409, 1731]. **LAPACK** [1687, 881, 1394, 1794, 884, 1295]. **LAPACK-based** [881]. **LAPACK-style** [884]. **Laplace** [1429, 494, 967, 991, 990, 1431, 793, 608, 607, 695, 117, 676, 471, 472, 868, 28, 129]. **Large** [1641, 915, 873, 872, 1805, 1590, 495, 361, 1428, 1780, 1831, 613, 1826, 387, 1745, 1811, 1474, 761, 569, 1493, 603, 1596, 1704, 744, 740, 741, 614, 1710, 758, 488, 1682, 1747, 1094, 1286, 1205, 1108, 1096, 1119, 1204, 1251, 1289, 1144, 1349, 1233, 1413, 1311, 1098, 1306, 940]. **Large-Scale** [873, 1590, 495, 1428, 1780, 1831, 1474, 569, 744, 740, 741, 758, 488, 1682, 1747, 1641, 1745, 1710, 1286, 1205, 1096, 1251, 1289, 1349, 1233, 1413, 940]. **Larger** [8, 141]. **Larkin** [497, 536]. **Last** [724]. **Lattice** [1765, 808, 826, 1476, 1330, 1542, 1476]. **Laws** [1790]. **Layer** [1840, 1755]. **Layer-Parallel** [1840]. **LDL** [1818]. **Leading** [311]. **Learning** [1855]. **Least** [457, 509, 508, 920, 291, 650, 701, 856, 1272, 348, 347, 407, 1531, 388, 742, 319, 435, 648, 379, 369, 1739, 851, 1667, 1710, 255, 251, 1416, 1200, 1168, 1197]. **Least-Squares** [509, 508, 348, 407, 1531, 742, 920, 347, 1667, 1416, 1200, 1197]. **Left** [1725]. **Left-looking** [1725]. **Legendre** [8, 141, 328, 324, 1828]. **Lehman** [463]. **Length** [358, 33]. **Lengths** [305, 418]. **Level** [730, 823, 756, 664, 663, 931, 1381, 690, 1498, 673, 1248, 1014, 956, 955, 845, 1287, 1730, 1546, 992, 931, 1173]. **Level-3** [823, 756, 1381, 1498, 1248, 1730]. **LevelSetPy** [1832]. **Leverage** [1749]. **Lexicographical** [137, 1209]. **Libraries** [1295, 1731, 1154]. **Library** [1479, 1633, 1651, 1477, 1652, 1774, 51, 48, 1430, 1851, 730, 1850, 275, 1635, 1484, 344, 1459, 1561, 1771, 1026, 1622, 85, 183, 177, 260, 698, 234, 245, 1460, 1578, 839, 1292, 1668, 357, 1836, 1644,

1699, 1533, 86, 814, 1636, 1596, 1704, 1694, 1581, 1828, 1326, 96, 1218, 881, 1152, 1207, 1096, 1216, 1177, 1023, 1032, 1196, 1044, 1328, 1849, 1852]. **lifex** [1850]. **LIFO** [358]. **Like** [797, 1563, 1346]. **Likelihood** [780, 900, 1250, 1249]. **Lilliefors** [123]. **Limitations** [1667]. **Limited** [1803, 1753, 1424]. **Limited-Memory** [1424, 1753]. **LinCodeWeightInv** [1849]. **LinCodeWeightInv-Library** [1849]. **Line** [612, 1619, 830]. **Linear** [1687, 282, 281, 53, 735, 734, 1707, 300, 295, 88, 1380, 1708, 584, 56, 283, 1688, 98, 127, 302, 297, 1061, 1702, 1060, 1579, 163, 161, 1598, 553, 411, 1679, 1626, 1654, 1781, 701, 429, 428, 610, 397, 408, 714, 713, 1562, 592, 628, 591, 664, 663, 1599, 362, 361, 359, 422, 931, 1064, 1263, 1575, 134, 1026, 1680, 409, 1577, 1816, 465, 1262, 1531, 400, 788, 71, 1052, 945, 1067, 1720, 1684, 581, 742, 1565, 1609, 263, 919, 317, 314, 1547, 387, 995, 62, 238, 237, 1725, 609, 108, 750, 749, 357, 133, 119, 1818, 461, 280]. **Linear** [557, 1681, 379, 369, 1849, 1551, 845, 1731, 1761, 851, 456, 385, 1710, 158, 548, 1554, 1715, 540, 533, 512, 1683, 514, 1511, 502, 114, 1706, 246, 268, 1191, 897, 1132, 1131, 1416, 1400, 889, 890, 1108, 1406, 1119, 1204, 1312, 1083, 1274, 1199, 1281, 1161, 1098, 1189, 1307, 1007]. **Linear-quadratic** [845]. **Linearized** [1682]. **Linearly** [316, 315, 650, 388, 908, 954]. **Lines** [1621]. **Linking** [986]. **Linnea** [1688]. **Liouville** [185, 733, 732, 1040, 904, 947, 937, 1156, 1490, 731, 794, 974, 973]. **Lisp** [852, 909]. **List** [93, 87]. **Lists** [293]. **LLDRLF** [900]. **LLRANDOM** [1857]. **LMEF** [1307]. **LMI** [1618]. **Local** [18, 23, 95, 230, 668, 265, 136, 912, 1842, 46, 1102, 1398]. **Localization** [1369]. **Locally** [413, 412]. **Locating** [622, 1570]. **Location** [301, 296, 138, 463, 697]. **Log** [1769, 1636, 900, 1008, 900]. **Log-concave** [1769, 1008]. **log-F** [900]. **log-likelihood** [900]. **Logarithm** [1323, 1264, 679, 692]. **Logarithmic** [142, 1213, 1214]. **long** [1161]. **long-period** [1161]. **Longest** [358]. **looking** [1725]. **Lookup** [1836]. **Loops** [558, 1712, 1537]. **LOPSI** [335]. **Loss** [1606]. **Low** [564, 1585, 1732, 842, 1686, 1771, 926, 1802, 476, 1724, 1513]. **Low-discrepancy** [842, 926]. **Low-order** [1724]. **Low-precision** [1771]. **Low-Rank** [1585, 1732, 1686]. **Low-Space** [564]. **Low-Variance** [1513]. **Lower** [53]. **LSA** [1289]. **LSNNO** [758]. **LSQR** [379, 369]. **LSTRS** [1233]. **LU** [1230, 1338, 1725, 1255]. **Lyapunov** [1074, 1498, 1223]. **lymph** [1825]. **Lyness** [567]. **LZ** [57, 118].

M1 [105]. **M3RK** [284]. **MA48** [889]. **MA57** [1109]. **MACHAR** [620]. **Machine** [620, 85, 983, 159, 1174]. **machine-efficient** [1174]. **Machines** [447]. **Macro** [1015]. **Macroprocessor** [478, 959]. **MACSYMA** [487, 167]. **MADS** [1740, 1339]. **Magic** [1824]. **Magma** [1835]. **magnetic** [1210]. **Magnitudes** [761]. **Maintenance** [304]. **Making** [798]. **Management** [519, 538, 434]. **Managing** [1373, 1011]. **MANBIS** [1570]. **Manifolds** [1786, 1578, 1560]. **Manifolds.jl** [1786]. **Manipulating** [612]. **Manipulation** [1324, 822, 47, 120, 261, 222, 881, 880, 1398]. **Many** [1381, 1447, 922, 1581, 1570]. **Many-continuous** [922]. **Many-Core** [1581].

Manycore [1492, 1748, 1601]. **Maple** [822]. **Mapped** [1623, 1624]. **Mapping** [1801, 1731, 888]. **Maps** [1560, 1723, 286]. **Marching** [182]. **Marcum** [1420]. **Markov** [1808, 806, 1524]. **Marsaglia** [1491]. **Masked** [59, 27]. **Mass** [256]. **Massey** [1522]. **Massively** [1837, 1356]. **Matches** [142, 703]. **Matching** [1574, 1780, 1811, 1690, 1810, 1069]. **MATCONT** [1084]. **Materialization** [1803]. **Math** [583]. **Mathemagix** [1500]. **Mathematical** [131, 51, 48, 810, 224, 538, 383, 177, 698, 319, 366, 308, 738, 264, 40, 794, 801, 488, 622, 1472, 1556, 724, 1570, 892, 1389, 37]. **Mathematics** [1588]. **Mathieu** [1020, 1021, 1184, 1193, 1408, 216, 796, 795]. **MATLAB** [1351, 1800, 1194, 1094, 1198, 1753, 1627, 1387, 1006, 1400, 1360, 1084, 888, 1142, 1428, 1172, 1451, 716, 1571, 1158, 1156, 1793, 819, 1144, 1533, 1389, 1432, 1402, 1493, 1317, 1233, 1363, 1134, 1220, 1746, 1270, 1336, 1024, 1472, 1556, 1283, 1243, 1520, 1176, 1646, 1484, 1260, 1208, 1215, 1085, 1582, 1250, 1045, 1422, 1490, 1443, 1800, 1440, 1305, 1035, 1833, 1116, 1414]. **MATLAB/GNU** [1493]. **MATLAB/Octave** [1402]. **Matrices** [1732, 1767, 798, 470, 469, 521, 553, 411, 972, 783, 877, 931, 517, 1026, 1831, 1643, 206, 396, 486, 97, 917, 1535, 189, 716, 1669, 57, 118, 530, 902, 378, 602, 217, 614, 719, 875, 335, 331, 192, 191, 1372, 1304, 1048, 1120, 1003, 1179, 1143, 953, 952, 522, 1093, 1279, 1163]. **Matrix** [1479, 1768, 1799, 1742, 938, 1586, 1481, 22, 1239, 929, 139, 1598, 112, 1456, 415, 1465, 1776, 393, 765, 179, 209, 631, 1806, 1561, 178, 1365, 1525, 381, 409, 1543, 753, 752, 220, 329, 1328, 1327, 195, 1359, 306, 395, 626, 644, 690, 1669, 143, 1744, 1637, 1074, 303, 298, 249, 1611, 258, 382, 1335, 1819, 573, 16, 425, 424, 1489, 706, 1699, 552, 1449, 688, 1385, 210, 1367, 250, 718, 1488, 1363, 1730, 948, 154, 101, 1270, 1374, 1541, 1678, 1024, 1378, 1042, 1094, 1247, 1276, 998, 1344, 1343, 1234, 1071, 1073, 884, 1022, 1251, 1078]. **matrix** [1287, 1072, 1352, 1567]. **matrix-addition** [1344]. **matrix-computation** [1344]. **Matrix-Free** [395, 1611, 1699]. **Matrix-multiplication** [1344]. **Matrix-Vector** [1479, 1525]. **MATSLISE** [1156, 1490]. **Maximally** [1565]. **Maximum** [780, 262, 345, 1628, 966, 1355]. **Maxwell** [1692]. **McClellan** [1502]. **ME28** [359]. **Means** [1793]. **Measure** [837, 836, 273]. **MEBDF** [746, 745]. **Mechanics** [1655, 1826]. **Mechanism** [1458]. **Medial** [1226]. **Medium** [1627, 1666]. **Medusa** [1694]. **Membership** [1728, 1518]. **Memory** [1051, 1803, 945, 1516, 1763, 1512, 1489, 1514, 1385, 718, 1488, 1424, 1724, 1753, 1162, 1083, 1761, 1278, 1229, 1601]. **Memory-Efficient** [1514]. **memory-minimizing** [1162]. **Merge** [267]. **Mersenne** [1565, 1384]. **Mesh** [1798, 668, 1654, 1478, 1454, 1693, 1610, 1600, 1514, 1324, 1615, 278, 1442, 1694, 1228, 1013]. **Mesh-free** [1694]. **Mesh-Moving** [668]. **Meshes** [1539, 1241, 1735, 1514, 1801, 485, 1755, 1723, 1059]. **Message** [1534, 1415]. **Metadata** [1269]. **Method** [180, 720, 1758, 1429, 668, 1469, 656, 994, 576, 680, 777, 1673, 490, 991, 990, 972, 531, 1613, 1545, 475, 136, 1056, 1242, 608, 607, 695, 329, 1685, 805, 1812, 1669, 135, 1480, 1371, 808, 826, 833, 1792, 1527, 464, 513, 655, 1004, 1738, 550, 578, 657, 705, 1512, 1018, 399, 1438, 676, 747, 497, 536, 1671, 26, 110, 1519, 604, 605, 975, 976, 868, 1553, 907, 385, 1435,

335, 1813, 146, 330, 152, 1472, 81, 1322, 1496, 897, 1048, 1003, 1113, 1112, 1055, 1166, 1223, 960, 1183, 1037, 1389, 1235, 1317, 1104, 1351]. **Methods** [321, 1825, 1630, 1767, 915, 920, 1579, 914, 1753, 597, 903, 262, 844, 1777, 1713, 1841, 1697, 793, 964, 562, 654, 1696, 1691, 287, 968, 1052, 1067, 743, 736, 843, 263, 1569, 1672, 387, 1839, 556, 1457, 42, 1503, 559, 1432, 1661, 210, 1291, 1790, 1772, 121, 373, 158, 1694, 423, 201, 1662, 1258, 1541, 279, 246, 1301, 897, 1859, 1137, 1016, 1195, 1103, 1162, 996, 1274, 1217, 1072, 1413, 1316, 1307, 1046]. **MGRIT** [1685]. **midpoint** [1411]. **Mie** [1647]. **MieSolver** [1647]. **Mildly** [777]. **MIMD** [823]. **Minefield** [33]. **minima** [1102]. **Minimal** [431, 547, 26, 267, 81, 1140]. **Minimally** [1836]. **Minimization** [625, 496, 832, 104, 130, 440, 21, 44, 744, 740, 741, 526, 76, 318, 982, 961]. **Minimizing** [579, 922, 1162, 653]. **Minimum** [301, 296, 292, 450, 541, 499, 1761, 1526, 1123, 1122, 1121]. **Minimum-Cut** [301, 296]. **Minimum-Degree** [499]. **Mining** [1012]. **Minkowski** [411]. **Minmax** [1671]. **Minor** [71]. **MINRES** [1416]. **MINRES-QLP** [1416]. **Mirroring** [855]. **MISCFUN** [894]. **Mises** [150, 336]. **Mixed** [1757, 1239, 1697, 1827, 1854, 1371, 1337, 1683, 1678, 1016, 1157, 1312, 1062]. **Mixed-domain** [1678]. **mixed-order** [1016]. **Mixed-Precision** [1854, 1757, 1678, 1312]. **mixed-volume** [1157]. **MixedVol** [1157]. **Mixture** [465, 464]. **Mixture-plus-Acceptance-Rejection** [464]. **MLD2P4** [1325]. **Mode** [1829, 1795, 1794, 1426, 1637, 1172, 1001]. **Model** [1430, 356, 1614, 1804, 714, 538, 592, 664, 1543, 440, 742, 532, 1065, 1392, 955, 1232]. **Model-based** [1614]. **Model-Constrained** [1804]. **Model/Trust** [440]. **Model/Trust-Region** [440]. **Modeling** [1100, 1776, 409, 1809, 1507, 1600, 1524, 1670, 1596, 1704, 549, 673, 1298]. **modelling** [1208]. **Models** [780, 1494, 1780, 400, 1572, 1770, 530, 1811, 1034, 1695, 900, 1035]. **Moderate** [450]. **Modern** [1707, 1708, 1559, 1672, 1790]. **Modification** [499, 868]. **Modified** [376, 994, 313, 777, 414, 429, 428, 610, 717, 20, 332, 1553, 196, 1329, 255, 251, 897, 1110, 1107, 1111]. **modred** [1430]. **Modular** [1481, 526, 1240, 1500]. **Module** [1689, 901, 1342, 1279]. **Modules** [828]. **moduli** [1311]. **Modulo** [1863, 1592, 1161]. **modulus** [925]. **molecular** [1117]. **Moment** [1494, 1435]. **Mongoose** [1635]. **Monitoring** [51]. **Monodromy** [1584]. **Monomial** [750, 749]. **Monotone** [1759]. **monotonic** [1200]. **Monte** [1769]. **Montgomery** [1718]. **Monty** [960]. **MOOSE** [1826]. **Morse** [1467]. **Most** [460]. **motions** [1318, 1235]. **Moving** [1798, 668, 824]. **Moving-Grid** [824]. **MP** [171, 257]. **MPFR** [1207]. **MPGENR** [264]. **MPI** [1641, 1840, 1436, 1838]. **MQSI** [1759]. **MQSI-Monotone** [1759]. **MRRR** [1188, 1296]. **MSS** [1428]. **MTIEU1** [796]. **MTIEU2** [796]. **Multi** [1825, 1014, 1261, 1716, 1690, 1625, 1717, 1724, 1136]. **Multi-Adaptive** [1261]. **Multi-core** [1724]. **Multi-Degree** [1625, 1717]. **multi-dimensional** [1136]. **Multi-Gabor** [1690]. **Multi-level** [1014]. **Multi-Physics** [1825]. **Multi-shift** [1716]. **Multicolor** [602]. **Multicommodity** [845]. **Multicomplex** [1651, 1646, 1358, 1646]. **Multicomputer** [944]. **Multicore**

[1508, 1585, 1599, 1561, 1581, 1497, 1505, 1388]. **Multicore-Enabled** [1497]. **Multidimensional** [1774, 728, 606]. **Multidisciplinary** [1293]. **Multidual** [1651]. **Multifacility** [301, 296]. **Multifrontal** [1508, 1585, 656, 1777, 972, 422, 550, 578, 657, 1482, 1230, 1113, 1112, 1162, 1350]. **Multigrid** [1758, 1673, 1691, 462, 1567]. **Multiinput** [866]. **Multilevel** [1841, 1325, 1536, 1181]. **multilinear** [1158]. **multimethod** [1316]. **Multimodal** [579, 653]. **Multinomials** [509, 508]. **Multiobjective** [1741]. **Multiphysics** [1633, 1789, 1373, 1670, 1298]. **Multiple** [1653, 1798, 410, 1652, 727, 171, 170, 257, 276, 33, 323, 587, 1530, 808, 826, 449, 1340, 499, 498, 1432, 1739, 715, 963, 1341, 1207, 1317, 1351, 1050]. **Multiple-Choice** [410]. **Multiple-length** [33]. **Multiple-Phase** [1653, 1432, 1317, 1351]. **Multiple-Precision** [171, 170, 257, 449, 1340, 715, 963, 1341, 1207]. **Multiplication** [1479, 1799, 1586, 1481, 1456, 1776, 1561, 1525, 623, 189, 690, 1563, 1541, 1678, 1304, 1344, 1234]. **multiplications** [1276]. **Multiplicative** [1863, 1592, 925]. **multiplicities** [1116]. **multiplicity** [1405]. **multiplier** [925]. **Multipliers** [995]. **multiply** [1078]. **multiply-add** [1078]. **Multiplying** [564]. **Multipoint** [169]. **Multipole** [1512]. **Multiprecision** [791, 870, 468, 1227]. **multiprocessor** [1344]. **Multiscale** [1808, 1591]. **Multishift** [1460, 1412]. **Multistep** [1630, 287, 289, 158, 548, 514, 246, 1307]. **Multithreaded** [1367, 1350]. **Multivariate** [564, 490, 771, 809, 130, 1571, 1034, 840, 603, 76, 318, 1329, 502, 1402, 1035]. **MultiZ** [1651]. **MultRoot** [1116]. **MUMPS** [1295]. **MUQ** [1770].

NAG [730, 245, 814]. **Narrow** [515]. **National** [431]. **Natural** [389, 102, 417]. **Nature** [74]. **Naval** [1857]. **Navier** [1758, 1224]. **Ncpol2sdpa** [1452]. **NDA** [1041]. **Near** [1258, 1606, 1284]. **Near-Best** [1258]. **near-optimal** [1284]. **Nearest** [223]. **Nédélec** [1845]. **Need** [474]. **Negative** [1521, 1386]. **Neighbors** [223]. **NEOS** [1000]. **NEP** [1689]. **Nested** [323, 919]. **Nets** [1760]. **Network** [1633, 401, 262, 41, 1369, 845, 758, 488, 152, 673, 1155]. **network-based** [1155]. **Networks** [586, 1665, 1803, 637, 1840, 5, 1693, 155]. **Neumann** [194, 2]. **Neural** [1665, 1803, 1840, 1693]. **Neutral** [1324]. **Newly** [1763]. **Newton** [1645, 1863, 72, 743, 1812, 675, 648, 744, 740, 741, 1592, 982]. **Newton-Coates** [72]. **Newton/Bisection** [675]. **NFFT** [1292]. **Niederreiter** [842]. **NIST** [1522]. **NITPACK** [433, 432]. **NL2SOL** [348, 407]. **NLEVP** [1379]. **No** [1751, 1814, 1648, 583]. **Node** [235, 532, 647]. **Node-Addition** [532]. **Nodes** [1845, 640, 641]. **Noisy** [1253, 1361]. **NOMAD** [1740, 1339]. **Non** [1660, 1555]. **Non-Asymptotic** [1555]. **Non-Standard** [1660]. **Nonadaptive** [1330]. **Noncommuting** [1452]. **nondifferentiable** [1041]. **Nonempty** [904]. **Nonequispaced** [1292]. **Nonic** [683, 682]. **Noninteger** [796, 795]. **Noniterative** [812]. **Nonlinear** [1653, 586, 467, 466, 1740, 401, 1379, 708, 920, 832, 780, 1689, 490, 1590, 348, 347, 748, 475, 1736, 1499, 407, 1822, 742, 319, 366, 156, 375, 853, 1019, 78,

168, 513, 655, 1339, 648, 326, 325, 212, 285, 1457, 1853, 1432, 1540, 636, 54, 476, 758, 622, 621, 442, 443, 1043, 1096, 1197, 1405, 1150, 961, 1206, 1101]. **NonlinearSolve.jl** [1853]. **nonmatching** [1406]. **Nonnegative** [551, 694, 871, 856, 1616, 1244]. **Nonnegativity** [1686]. **Nonorthogonal** [1163]. **Nonprocedural** [865]. **Nonrectangular** [404]. **Nonstandard** [225]. **Nonstiff** [633, 632, 725, 121, 777]. **Nonsymmetric** [786, 938, 797]. **nonuniform** [1175, 1210]. **Nonzero** [621]. **Norm** [56, 166, 626, 644, 512, 1526, 1159, 1559]. **Normal** [376, 11, 1376, 652, 771, 809, 303, 298, 1464, 769, 768, 1264, 159, 250, 1743, 372, 1788, 1865, 886]. **Normalized** [127, 328, 324]. **Norms** [1455, 1754]. **normwise** [1396]. **Note** [500, 981, 243, 1510, 290, 1603, 1028, 548, 893, 511, 555, 1354]. **notes** [1010]. **Novel** [1851, 1117]. **NSDTST** [563]. **NSPIV** [204]. **Null** [833, 1407]. **Null-Space** [833]. **Number** [73, 1702, 1861, 1376, 1646, 1580, 1562, 587, 805, 704, 1857, 769, 768, 219, 109, 1859, 1216, 1023, 1032, 925]. **Numbers** [1651, 786, 293, 139, 52, 159, 1184]. **Numeric** [581]. **Numerical** [696, 1429, 790, 1368, 918, 1544, 1797, 43, 1387, 275, 1631, 991, 990, 1658, 1795, 793, 999, 1269, 1, 1054, 178, 85, 176, 360, 323, 608, 695, 1294, 100, 985, 1572, 808, 826, 303, 298, 776, 117, 1448, 731, 674, 212, 285, 761, 1457, 747, 1560, 503, 1447, 471, 472, 210, 482, 636, 723, 453, 865, 169, 28, 129, 421, 988, 1372, 1286, 1084, 1407, 1091, 1119, 1204, 996, 1156, 1274, 1220, 1044, 1307]. **Numerically** [1579, 1547]. **Nyström** [634].

O [1844]. **O1** [229]. **Object** [914, 1484, 1365, 1080, 1647, 1578, 1033, 913, 1293, 1291, 1218, 1059, 1152, 949, 1400, 1117, 1206, 1181, 1044]. **Object-Oriented** [914, 1484, 1365, 1647, 1578, 1033, 913, 1293, 1291, 1080, 1218, 1059, 1152, 949, 1400, 1117, 1206, 1181, 1044]. **oblivious** [1742]. **Observation** [1025]. **Obtaining** [345, 138]. **Octave** [1571, 1402, 1493]. **Octave/MATLAB** [1571]. **ODE** [333, 290, 776, 354]. **ODEs** [334, 1566, 1084, 554, 697, 514, 289, 311]. **ODESSA** [596]. **odeToJava** [1448]. **ODEXPERT** [776]. **ODRPACK** [659]. **ODRPACK95** [1221]. **Off** [1013, 1718]. **Off-mesh** [1013]. **One** [824, 344, 340, 322, 8, 1591, 626, 644, 135, 141, 215, 214, 108, 1560, 1772, 822, 669, 684, 1073]. **One-Dimensional** [824, 340, 322, 1591, 1560, 669, 684]. **One-Norm** [626, 644]. **One-Pass** [135]. **one-sided** [1073]. **One-step** [1772]. **One-Way** [215, 214]. **Online** [1564, 1332]. **OpDiLib** [1756]. **Open** [1652, 1735, 1240]. **Open-Source** [1652, 1240, 1735]. **OpenAD** [1240]. **OpenAD/F** [1240]. **OpenGL** [1115, 1596, 1704]. **OpenGL-** [1596, 1704]. **OpenMP** [1756, 1599, 1712, 1838]. **Operands** [1475]. **Operation** [1475, 1589]. **Operations** [1586, 1639, 178, 1637, 1394, 1038]. **Operator** [1707, 1708, 1472, 1556]. **Operators** [1632, 1611, 1106, 1297, 1236]. **OPT** [1206]. **Optimal** [1653, 1803, 312, 1804, 710, 766, 403, 985, 1812, 828, 1246, 1421, 1432, 452, 1337, 1824, 1589, 1284, 1317, 1351, 1308, 1302]. **Optimality** [1439, 1671]. **Optimally** [1412]. **Optimisations** [1724]. **Optimization** [624, 1645, 1740, 1775, 915, 1614, 1741, 844, 489, 495, 1776, 1428, 936, 935, 1577,

1822, 234, 465, 986, 985, 156, 375, 1578, 1253, 1582, 1616, 853, 1019, 1792, 1693, 1339, 1619, 1537, 1745, 1602, 1293, 1474, 327, 320, 767, 557, 569, 1856, 1729, 1540, 1711, 862, 1453, 47, 1746, 758, 1259, 1747, 1452, 673, 940, 1049, 1205, 1000, 1102, 1096, 1185, 1290, 1085, 956, 996, 1041, 1289, 1206, 1349, 1281, 1047]. **Optimizations** [1254, 1303, 1344]. **Optimized** [1479, 256, 1398]. **Optimizer** [1540]. **Optimizing** [1847, 1456, 1643, 1173, 1522]. **option** [1302]. **Oracle** [1728]. **Orbits** [1652, 1360, 1560, 671]. **Order** [551, 694, 871, 1630, 1566, 577, 576, 1843, 633, 680, 746, 144, 1543, 1320, 937, 725, 248, 523, 1244, 1342, 1358, 942, 1718, 747, 814, 1723, 1435, 528, 796, 795, 1554, 1651, 1176, 1152, 1631, 1016, 1111, 402, 1801, 943, 1715, 1724, 1237]. **Ordered** [685]. **Ordering** [381, 5, 600, 101, 155, 1123, 1122, 1121, 1112]. **Orderings** [1547]. **Orders** [1020, 723, 1021, 1184, 1110]. **Ordinary** [696, 932, 1579, 43, 633, 746, 374, 178, 446, 444, 725, 596, 595, 92, 89, 1554, 1715, 1310, 1307]. **Oriented** [914, 1484, 1365, 1647, 1578, 1033, 1509, 913, 1293, 1291, 1218, 1059, 1152, 949, 1400, 1080, 1117, 1206, 1181, 1044]. **Orienting** [1539]. **Orthogonal** [598, 508, 659, 1721, 1532, 813, 1820, 1076, 962, 1300, 1221]. **ORTHPOL** [813, 962]. **Oscillating** [529, 1066]. **Oscillatory** [446, 1294]. **Osculatory** [346, 349]. **Other** [686, 1662, 434]. **Out-of-Core** [550, 1367, 1133, 1183, 1282, 1104, 1314]. **Outlier** [1533]. **OutlierLib** [1533]. **Overdetermined** [282, 281, 56, 1272]. **Overhead** [290]. **Overlapped** [1526]. **Overlapping** [815]. **overloaded** [1172, 1389]. **Overloading** [1472, 1556]. **overview** [1146, 1064, 1151, 1147].

P2MESH [1059]. **packable** [1201]. **Package** [551, 694, 871, 733, 1641, 915, 920, 171, 170, 257, 276, 477, 1268, 844, 38, 773, 774, 911, 924, 1325, 991, 1431, 1574, 714, 904, 433, 432, 608, 695, 753, 813, 220, 917, 567, 195, 1685, 306, 1669, 1441, 675, 1815, 387, 1244, 1835, 704, 1787, 1857, 1793, 16, 425, 424, 1489, 1832, 186, 404, 974, 973, 778, 50, 1488, 822, 1848, 744, 740, 741, 948, 154, 1695, 715, 622, 96, 982, 211, 1570, 268, 1191, 1288, 1214, 1198, 1176, 1090, 1160, 1200, 1084, 1089, 1076, 883, 1157, 962, 1197, 887, 1071, 957, 1156, 1275, 894, 878, 1280, 1035, 1306]. **package** [1116]. **Packages** [429, 428, 610, 874, 1263, 562, 654, 1096, 1119]. **packed** [1042, 1313, 1412]. **packing** [1201]. **Padé** [916, 226]. **Padua** [1265]. **Paged** [362, 361]. **Paging** [657]. **PAGP** [300, 295]. **Pair** [723, 998]. **Pairs** [517, 943, 884]. **PAMPAC** [1469]. **panel** [1394]. **PANG** [1406]. **Papers** [37]. **Parabolic** [709, 344, 1591, 186, 476, 284, 279, 1165, 1164, 1127, 1348]. **paradigm** [1130]. **Paradigms** [865]. **Parallel** [1768, 1429, 1732, 1469, 1652, 1230, 1641, 584, 1660, 1689, 190, 1673, 1840, 1325, 520, 1781, 823, 1613, 1599, 1686, 1778, 1026, 1328, 1327, 1460, 1133, 945, 1720, 1359, 1685, 1726, 1734, 1712, 1478, 1516, 1628, 1569, 1434, 1436, 455, 506, 1837, 1514, 767, 739, 1503, 1615, 845, 1729, 1761, 801, 70, 1564, 1098, 1749, 1453, 61, 1659, 1526, 330, 1482, 1597, 1663, 1378, 208, 420, 1219, 1356, 1205, 880, 1394, 1108, 1093, 1185, 1290, 1393, 1413, 1181, 1189, 1203, 1228, 1326].

Parallel-in-time [1685]. **Parallelisation** [1542]. **parallelism** [1344, 1287]. **parallelization** [1232]. **Parallelized** [1430]. **Parameter** [78, 907, 1408]. **Parameterized** [1467, 1457]. **Parameters** [457, 309, 780, 620, 1034, 1035]. **Parametric** [1787]. **Parametrization** [176]. **Parametrized** [413, 412]. **Paraperm** [1436]. **Parks** [1502]. **Parlett** [1285]. **Parser** [1618]. **Parsimonious** [1846]. **Part** [306, 896, 784, 785, 1328, 1327, 195, 545, 1073, 1074, 16, 425, 424, 154, 1682]. **Partial** [668, 824, 568, 1013, 1241, 1262, 760, 254, 523, 1033, 1338, 573, 913, 307, 239, 326, 325, 1433, 1832, 1699, 747, 814, 1352, 646, 801, 585, 669, 204, 200, 55, 54, 241, 240, 1409, 1099]. **Particle** [1569, 1291, 1700, 1046]. **Particular** [40]. **Partition** [1613, 111]. **Partitioned** [840, 1333, 1007]. **Partitioning** [300, 295, 1635, 1613, 244, 323, 647, 421]. **Partitions** [656]. **PARyOpt** [1729]. **Pascal** [454]. **Pascal-SC** [454]. **Pass** [135]. **Path** [358, 305, 418]. **Pattern** [1497, 1230, 1113, 1112, 1410, 1185]. **Patterns** [1608, 1298]. **Patterson** [729]. **PBASIC** [431]. **PC** [581, 247]. **PC-BLAS** [581]. **PC-Codes** [247]. **PCOMP** [864, 1017]. **Pcp2Nurb** [954]. **PCPATCH** [1691]. **PDE** [1633, 1059, 1591, 944, 1373]. **PDE-Based** [1633]. **PDE.Mart** [1155]. **PDECOL** [760, 707, 239]. **PDEONE** [55]. **PDEs** [709, 970, 895, 896, 1654, 1155, 1486, 1012, 1694, 1682, 1127, 1237]. **PDETWO** [326]. **PDETWO/PSETM/GEARB** [326]. **PDFIND** [553]. **PDS** [1858]. **Peano** [1597]. **PELLPACK** [944]. **Penalty** [1841, 648, 845]. **Pencil** [784, 785]. **Pencils** [1363]. **penultimate** [1078]. **Percentiles** [803, 802]. **Performance** [1585, 1707, 1708, 1843, 1239, 635, 665, 699, 558, 1840, 1654, 1776, 1561, 563, 1680, 1257, 1643, 446, 1366, 1510, 1381, 375, 1005, 1441, 1425, 1668, 24, 1507, 1634, 140, 1837, 1449, 1671, 1681, 1853, 1603, 718, 1620, 1549, 1563, 1593, 1501, 1542, 1326, 1505, 1706, 1418, 1140, 1049, 1100, 1396, 1607, 1141, 1234, 1248, 1011, 1669, 955, 1672, 1388, 1171, 1180, 1346, 1541, 1229]. **Performing** [804]. **Period** [1565, 1161]. **perm_mateda** [1582]. **Permutation** [1582]. **Permutation-based** [1582]. **Permutations** [184, 350, 1436]. **Permuted** [189]. **Perspective** [1593]. **PERT** [155, 5]. **Perturbed** [1294, 1043]. **PERUSE** [308]. **Petaflops** [1427]. **PETSc** [1633]. **Pfaffian** [1372]. **PGAS** [1542]. **Phase** [1653, 1432, 1738, 1317, 1351]. **PHCPACK** [989]. **PHIST** [1659]. **Photonic** [1692]. **PHquintic** [1459]. **Physical** [1461]. **Physics** [1825]. **Picture** [106]. **Piecewise** [1520, 135, 106, 157, 114, 1200, 1395, 1158]. **Pipelined** [1506, 1659, 681]. **pipelining** [1344]. **Pivoting** [1404, 1338, 573, 578, 1255, 204, 200, 1314]. **Place** [22, 1359, 258]. **Planar** [967, 1459, 164, 162, 404]. **planarization** [993]. **PLANC** [1686]. **Plane** [547, 481, 977]. **Planning** [549]. **PLASMA** [1599]. **Platform** [1630, 1856, 1683]. **Platforms** [1561, 1640, 944]. **Plot** [59, 485, 638, 27]. **Plotting** [69, 80, 594, 593, 672, 193, 25, 259, 1115]. **plus** [464]. **Point** [1650, 236, 312, 302, 297, 309, 356, 1387, 799, 1752, 852, 1622, 566, 619, 698, 52, 1669, 342, 138, 1583, 686, 909, 600, 715, 642, 692, 751, 122, 1332, 897, 1207, 1864, 1299, 32, 1649, 1722, 1078, 1159, 1050, 1038, 1039]. **Point-Sets**

[1583]. **Points** [181, 180, 231, 1265, 1013, 750, 749, 505, 481, 286, 1137, 1092]. **Poisson** [376, 416, 1468, 1837, 1701]. **Poisson-Binomial** [1701]. **Polar** [984, 1589]. **Pole** [1258]. **Policy** [36, 175, 218, 365, 419, 459, 507, 544, 574, 618, 645, 687, 726, 50, 84]. **POLSYS_GLP** [1189]. **POLSYS_PLP** [1007]. **Polyadic** [1739]. **Polyalgorithm** [43]. **Polygamma** [68, 13]. **Polygonal** [1723, 957]. **Polyhedral** [1773, 1760, 1723]. **Polyhedron** [273]. **Polynomial** [721, 720, 1847, 99, 709, 1821, 1764, 1268, 1, 1656, 97, 917, 670, 1370, 135, 1616, 49, 39, 1745, 556, 639, 503, 110, 484, 682, 430, 1259, 1747, 493, 1452, 898, 899, 1174, 1002, 892, 1189, 989, 1007, 1116, 1484]. **Polynomials** [564, 1484, 612, 623, 813, 1319, 524, 525, 1835, 328, 399, 683, 762, 324, 1824, 109, 962, 1085, 1300, 1044]. **Polytopal** [1825]. **Polytope** [1573, 1657]. **Poole** [378, 377]. **Poor** [73]. **PORT** [177]. **Portability** [131, 1473, 956]. **Portable** [438, 439, 551, 678, 694, 871, 166, 770, 781, 773, 774, 183, 260, 1858, 805, 675, 839, 1340, 1668, 1837, 219, 754, 96, 211, 1140]. **Positive** [584, 127, 1247, 553, 448, 997, 1111, 1110]. **positive-definite** [997]. **Positivity** [1801]. **Positivity-preserving** [1801]. **POSIX** [1070]. **Possible** [1821]. **Postgraduate** [1857]. **postprocessing** [1305]. **Potentials** [1512]. **Power** [363, 64, 1475]. **Powers** [1863, 1592, 1299]. **Practical** [584, 918, 190, 1573, 1511]. **Practice** [1713]. **pre** [1112]. **pre-ordering** [1112]. **Preassigned** [640, 641]. **Precise** [772, 1272, 421, 1178]. **Precision** [1847, 171, 170, 257, 276, 1239, 874, 1806, 1680, 1827, 1854, 510, 537, 449, 941, 1340, 1362, 68, 342, 1681, 640, 641, 1515, 1785, 1802, 715, 963, 1341, 122, 96, 1757, 1771, 1207, 1312, 1062, 1050, 13, 1678, 1038, 1039]. **Precision-** [1515, 1785, 1038, 1039]. **Precompiler** [225, 96, 1227]. **Preconditioned** [914, 1545, 280, 1823, 1316]. **Preconditioner** [1844]. **Preconditioners** [1325, 1366, 1531, 1274, 1181]. **Preconditioning** [1737, 1680, 1441, 1681, 949, 1037]. **Predictive** [1770]. **Preface** [1060]. **preordering** [1230]. **preprocessing** [1274]. **PREQN** [1037]. **presentation** [1066]. **Preserving** [1798, 924, 923, 346, 349, 1671, 1790, 1725, 1801, 1114]. **pretty** [1279]. **pretty-printing** [1279]. **pricing** [1302]. **Priest** [1125]. **Primal** [637, 833, 488]. **Prime** [1263, 1863, 587, 1565, 1718]. **primitives** [951]. **PRIMME** [1316]. **Principal** [1523]. **Principles** [1392, 39]. **printing** [1279]. **priori** [32]. **Probabilities** [79, 617, 789, 151, 19, 12]. **Problem** [185, 283, 160, 1627, 271, 301, 262, 296, 650, 1483, 495, 1709, 568, 90, 340, 322, 206, 396, 486, 1684, 797, 388, 317, 314, 944, 534, 1628, 57, 118, 124, 1025, 807, 1845, 498, 138, 787, 866, 571, 590, 676, 337, 559, 1711, 1731, 1511, 436, 1378, 1201, 1155]. **Problem-Solving** [568, 534, 1155]. **Problems** [1653, 1825, 300, 295, 1568, 733, 732, 316, 315, 401, 312, 1379, 1368, 1655, 920, 932, 386, 1789, 903, 817, 816, 1689, 873, 872, 633, 632, 680, 746, 745, 777, 1387, 1741, 411, 827, 1590, 1331, 701, 1272, 1658, 631, 793, 904, 936, 935, 766, 947, 1242, 1499, 465, 41, 1320, 1531, 937, 613, 1720, 100, 742, 985, 319, 725, 263, 317, 314, 1812, 1582, 1616, 1369, 908, 1527, 448, 1738, 731, 674, 658, 379, 686, 569, 702, 921, 1432, 186, 794, 1670, 966, 1553, 744, 740, 741, 1667, 1710,

697, 1437, 758, 1682, 1259, 251, 1604, 1452]. **problems** [1286, 1205, 1043, 1416, 1000, 1053, 1168, 1401, 1197, 1390, 402, 1169, 1149, 1095, 1144, 1317, 1351, 885, 993, 1413, 1306]. **Procedure** [323, 252, 541, 143]. **Procedures** [18, 23, 95, 230, 197, 165, 465, 389, 102, 417]. **Process** [413, 412, 201]. **Processing** [1655, 637, 852, 106, 909, 1506, 1326, 1086]. **Processor** [581, 483, 1015, 1415, 1534]. **Processors** [930, 823, 992, 1776, 1384]. **Produce** [1779, 1078]. **Product** [1768, 1632, 72, 779, 1189, 1190, 1007]. **Product-Type** [72]. **Products** [1605, 261, 222, 881, 880, 1414]. **professional** [1010]. **Profile** [112, 113, 107, 382, 1072]. **Profiles** [1510, 1603, 1396]. **Program** [803, 91, 88, 494, 351, 316, 166, 160, 69, 139, 301, 80, 59, 234, 431, 689, 498, 264, 461, 186, 485, 638, 413, 70, 84, 1363, 430, 27, 25, 259, 1094, 1132, 1144, 1115, 1307, 988]. **Programming** [1653, 1768, 586, 300, 295, 1376, 817, 816, 538, 1719, 383, 409, 1834, 400, 788, 1854, 1369, 1033, 168, 448, 1738, 913, 1529, 1576, 357, 702, 1432, 1287, 1367, 636, 488, 1511, 1259, 1452, 1378, 897, 1238, 1080, 1105]. **Programs** [1829, 967, 791, 1688, 474, 487, 635, 665, 699, 700, 165, 592, 664, 612, 919, 167, 39, 304, 277, 308, 108, 750, 552, 557, 569, 84, 434, 1227, 842]. **project** [1151]. **Projected** [648]. **Projection** [1322]. **Projections** [1805, 1406]. **prolate** [1137]. **Propagating** [1698]. **Proper** [1721]. **Properly** [510]. **Properties** [1268, 199, 1347]. **Property** [1745]. **ProtoMol** [1117]. **prototype** [892]. **Prototyping** [737, 853, 1617, 1194, 1117]. **Provably** [1722, 1078]. **proven** [1311]. **Proximal** [1738]. **Proxy** [1669]. **PRS** [188]. **PSBLAS** [1026]. **PSE** [1045, 1448]. **PSelInv** [1516]. **PSETM** [326]. **Pseudo** [1469]. **Pseudo-Arclength** [1469]. **pseudoinverse** [1407]. **Pseudoperipheral** [235]. **Pseudorandom** [1702, 946, 1023, 1032, 886]. **pseudospectral** [1317, 1351]. **Psi** [439]. **Pthreads** [1419]. **PUMI** [1478]. **Pure** [637]. **Purpose** [847, 848, 34, 1218, 989]. **Pursuing** [1148]. **Pursuit** [1439, 1690, 1810, 1069]. **Push** [1628]. **Push-relabel** [1628]. **PyDEC** [1375]. **PyGenStability** [1808]. **pylspack** [1749]. **pyMDO** [1293]. **PyMGRIT** [1685]. **PyOED** [1804]. **pySDC** [1617]. **pySDC-Prototyping** [1617]. **PySPH** [1700]. **Pythagorean** [1459]. **Pythagorean-Hodograph** [1459]. **PYTHIA** [1011, 905]. **PYTHIA-II** [1011]. **Python** [1685, 960, 1700, 1229]. **Python-based** [1700]. **PyTrilinos** [1229].

QDWH [1501, 1601]. **QDWH-based** [1601]. **QDWH-SVD** [1501]. **QLP** [1416]. **QMR** [883]. **QMRPACK** [883]. **QNSTOP** [1645]. **qPoly** [1835]. **QPPAL** [1738]. **QR** [364, 398, 930, 1350, 1256, 1133, 797, 819, 691, 1418]. **QR-Like** [797]. **QRUP** [364, 398]. **QSHEP2D** [604]. **QSHEP3D** [605]. **QUADLOG** [1214]. **QUADPACK** [711]. **Quadratic** [302, 297, 817, 816, 1483, 1658, 1720, 742, 1527, 448, 1738, 346, 349, 569, 702, 921, 157, 604, 605, 636, 436, 1080, 1390, 1095, 892, 845, 885]. **Quadratic-Tensor** [742]. **Quadrature** [1653, 712, 1532, 72, 198, 912, 340, 322, 813, 987, 1470, 229, 17, 1321, 1571, 213, 729, 74, 46, 640, 641, 1432, 70, 451, 1213, 1214, 1137, 1215, 962, 1303].

Quadratures [1631, 589, 452]. **Quality** [1594, 1442]. **quantification** [1800]. **Quantile** [815]. **Quantiles** [15, 339, 228]. **Quantitative** [420]. **Quartic** [1751, 1709, 1461, 1814, 1648]. **Quasi** [1645, 780, 743, 1498, 648, 1567]. **Quasi-** [1498]. **Quasi-Likelihood** [780]. **Quasi-matrix-free** [1567]. **Quasi-Newton** [1645, 743, 648]. **Quasirandom** [599, 560, 1079]. **Quaternionic** [1835]. **Queries** [1728]. **Query** [1324]. **Quickhull** [906]. **Quicksort** [24, 103, 140]. **Quindiagonal** [127]. **Quintic** [1459, 389, 102, 417, 1759, 484, 683]. **Quotient** [292]. **QZ** [206, 396, 486, 124].

R [1010, 1674, 1809, 1727, 1695]. **R13** [1683]. **r2d2lri}** [1058]. **Radau** [1661]. **Radiative** [1791, 1435]. **Radix** [1480, 468]. **Radix-Independent** [1480]. **Random** [501, 1674, 73, 11, 293, 1861, 531, 1580, 1779, 587, 805, 1734, 147, 464, 704, 1436, 1857, 769, 768, 1819, 572, 601, 685, 159, 1761, 1564, 219, 614, 372, 491, 565, 146, 1859, 1216, 960, 925]. **Random-Access** [614]. **random-number** [925]. **Randomization** [1380, 1489, 1488]. **Randomized** [1807, 1523, 1587]. **Randomly** [448]. **randUTV** [1587]. **Range** [772, 1470, 328, 324, 1190, 1038, 1039]. **range-independent** [1038, 1039]. **Ranges** [85]. **Rank** [735, 1585, 1256, 1726, 1476, 1587, 1743, 1732, 1143, 953, 952, 1350, 1686, 1168, 1407]. **Rank-1** [1476]. **Rank-Deficient** [735, 1168]. **Rank-Revealing** [1256, 1726, 1587, 953, 952, 1350]. **Ranks** [138]. **Raphson** [1863, 1592]. **Rapidly** [680, 1445, 1446]. **RAS** [1844]. **Ratio** [147, 1004, 4, 94]. **Ratio-of-Uniforms** [1004]. **Rational** [735, 1334, 1532, 149, 1816, 987, 1621, 119, 497, 536, 1258]. **Ratios** [561, 582, 763, 332]. **Ray** [684]. **Rayleigh** [719]. **RCR** [1463, 1624, 1489, 1681, 1446]. **Re** [1803]. **Re-Materialization** [1803]. **Reaction** [1788]. **Real** [860, 859, 1544, 144, 699, 553, 1431, 362, 381, 1257, 31, 41, 626, 644, 49, 83, 217, 762, 875, 101, 335, 331, 1606, 1141, 1164, 1165]. **Realistic** [356]. **Realization** [1845]. **RealPaver** [1167]. **Rearrangement** [143]. **Reasonably** [211]. **Recipes** [969]. **recommendation** [1012]. **recommending** [1011]. **Reconstruction** [1548, 1273]. **Rectangles** [638]. **Rectangular** [734, 1776, 1313, 525, 898]. **rectangular-grid-data** [898]. **Rectilinear** [301, 296]. **Recurrence** [487, 167, 1813]. **recurrences** [1161]. **recursion** [950, 1136]. **Recursive** [266, 981, 1073, 1074, 706, 1551, 1042, 1159]. **Recycling** [1679]. **Reduced** [401, 1543, 168, 1003, 1143]. **reduced-rank** [1143]. **Reducible** [1584]. **Reducing** [1396, 1374]. **Reduction** [1430, 1029, 112, 1613, 765, 917, 113, 107, 1027, 382, 232, 1106, 1030, 998, 1138, 1388, 1171, 1072, 1311]. **reduction/transformation** [1106]. **Reference** [1559, 1065]. **References** [518, 693, 473]. **Refinement** [1757, 668, 1737, 1654, 1272, 1514, 658, 255, 251, 1178]. **Refinements** [278]. **Reflective** [1769]. **Reformulation** [1566]. **Region** [1428, 440, 186, 1753, 1197, 1233]. **Regions** [233, 337, 404, 957]. **Regression** [598, 457, 659, 780, 1695, 1749, 1221]. **Regular** [1363, 998, 884]. **Regularity** [912]. **regularization** [1233]. **Regularly** [840]. **Rejection** [805, 861, 464].

relabel [1628]. **ReLAPACK** [1551]. **Related** [392, 391, 699, 41, 1341, 1213, 1214, 1247, 1401, 1050]. **Relations** [487, 167]. **Relative** [560, 405, 1396, 1864]. **Relatively** [1557]. **Relaxation** [1691, 1616, 1369, 1750, 1259]. **Relaxations** [1452]. **Relaxed** [656]. **Released** [1763]. **Releases** [1782]. **Reliability** [1321]. **Reliable** [1407, 1449, 697, 1195, 1215]. **reliably** [1063]. **ReLIADiff** [1431]. **Reloaded** [1629]. **remainder** [1038]. **Remark** [231, 441, 694, 871, 95, 230, 1031, 829, 79, 257, 105, 398, 651, 487, 1805, 804, 194, 617, 1209, 650, 104, 1751, 1002, 610, 397, 408, 130, 80, 527, 958, 59, 381, 260, 173, 396, 486, 695, 962, 407, 229, 927, 195, 554, 518, 389, 535, 1559, 306, 1169, 725, 338, 339, 504, 693, 760, 1071, 1095, 115, 141, 1079, 118, 1222, 908, 117, 1534, 258, 959, 382, 1017, 140, 1814, 60, 1349, 83, 536, 1471, 503, 418, 458, 472, 94, 82, 505, 891, 353, 909, 965, 979, 980, 1704, 196, 672, 318, 154, 58, 174, 910, 1715, 1453, 155]. **Remark** [978, 372, 129, 81, 982, 1487, 1606, 116, 228, 259, 1107, 1066, 1703]. **Remarks** [616]. **Remedy** [1606]. **Remote** [1729]. **Renovating** [1057]. **Reordering** [378, 602, 1187]. **Repeated** [153, 145, 1470]. **Replicated** [1444, 1624, 1681, 1445, 1446, 1463, 1489]. **Report** [1708, 1463, 1624, 1489, 1681, 1446]. **Reporting** [224]. **Repository** [855]. **Representation** [984, 52, 729, 1518]. **representations** [1303]. **Representing** [1132]. **Reproduced** [1708]. **Reproducible** [1650]. **Require** [44]. **Requirement** [550]. **Requirements** [476, 1277]. **Requiring** [90]. **Research** [1775, 853, 1856]. **Reservoir** [841, 491, 1175]. **Residual** [652, 1045]. **Residue** [1562]. **Resolution** [1655]. **resonance** [1210]. **Resource** [152]. **Response** [530, 1354]. **Restart** [1322]. **Restoration** [1727]. **Restructuring** [1418]. **Resulting** [244, 602]. **Results** [1708, 1463, 798, 1444, 1624, 1489, 1681, 1475, 1445, 1446]. **Retarded** [355]. **Reveal** [52]. **Revealing** [1256, 1726, 1587, 953, 952, 1350]. **Reversal** [1796]. **Reverse** [1426, 1637, 1001]. **Reverse-Mode** [1426]. **Revised** [152, 1048]. **Revisited** [33, 1262, 1027, 1097, 1170]. **Revolve** [1001, 1640]. **Reweighted** [291]. **Rice** [1010, 1009]. **RIDC** [1503]. **Riemannian** [1578, 1081]. **Right** [680]. **Right-Hand** [680]. **Rights** [84]. **rigid** [1318]. **Rigorous** [1550, 1714]. **Rigorously** [1612]. **Rings** [1481]. **RISC** [992]. **Risch** [520]. **rksuite_90** [932]. **robot** [1201]. **robot-packable** [1201]. **Robust** [1618, 784, 1195, 1762, 1502, 1816, 1262, 1509, 1722, 1853, 1755, 1730, 1424, 1312, 785]. **Robustness** [1538, 1614, 451]. **Romberg** [198]. **Root** [510, 570, 941, 1450, 649, 583, 1038]. **rootfinder** [892]. **Roots** [110, 622, 1570, 1864, 1116]. **ROPTLIB** [1578]. **Rosenbrock** [104, 21, 559, 373]. **Rotations** [59, 27, 1063]. **Rounded** [1517, 1455, 510, 1649, 724, 1297, 1299]. **Rounding** [806, 1207, 1397]. **Roundoff** [1568, 1575, 187, 242, 1529, 1576, 45, 203, 202, 341]. **Roundoff-Error-Free** [1575]. **Routine** [598, 860, 728, 553, 1330, 1093]. **Routines** [1687, 1799, 51, 509, 712, 364, 398, 774, 344, 270, 563, 711, 1257, 340, 322, 813, 245, 1381, 375, 534, 74, 1833, 1214, 1318, 1141, 962, 1068, 1075]. **Row** [429, 428, 610, 539]. **Rows** [705, 1667]. **RT** [1791]. **Rule** [449]. **Rules** [1532, 813, 1476, 1330, 640, 641, 962]. **Runge**

[197, 1383, 634, 1520, 1176, 632, 680, 964, 546, 1195, 1696, 287, 1103, 1320, 736, 843, 516, 545, 722, 1839, 121, 232, 528, 723, 943]. **Runtime** [1508, 1367].

S [1861]. **S13** [299]. **S14** [253, 150, 336, 151, 94, 82, 196, 228]. **S15** [153, 116]. **S17** [6, 58]. **S18** [126, 207]. **S20** [93]. **S21** [352, 272, 174]. **S22** [83]. **Sacado** [1748]. **SAFE** [1580, 1546, 1719, 1096]. **Sage** [1848]. **Salesman** [873, 872]. **Sample** [266, 789, 138, 1513]. **Sampled** [1268]. **Samples** [531, 29, 82]. **Sampling** [416, 501, 1769, 1721, 861, 1734, 627, 662, 1464, 1004, 841, 685, 1564, 1513, 491, 565, 1865, 1175]. **Sampling-Vectorized** [1564]. **Samplings** [1765]. **satisfaction** [1167]. **SBA** [1275]. **SBP** [1284]. **SBR** [1030]. **SC-SR1** [1753]. **Scalability** [1585, 1049, 1148]. **Scalable** [1633, 1768, 1502, 1684, 1826, 1232, 1149, 1083, 1023, 1032, 1181]. **ScaLAPACK** [1296]. **Scalar** [427, 426, 1492, 1078, 681]. **Scale** [873, 872, 1590, 495, 1428, 1780, 1831, 1474, 569, 744, 740, 741, 758, 488, 1682, 1747, 1286, 1641, 1205, 1096, 1251, 1289, 1745, 1349, 1233, 1413, 1710, 1306, 940]. **Scaled** [1813]. **Scaling** [1546, 1394, 670, 833, 1314, 1124]. **Scanning** [75]. **SCASY** [1328]. **Scattered** [604, 605, 603, 934, 977, 975, 976, 1329, 899, 1002, 879, 1114]. **scattered-data** [899, 1002]. **Scattering** [1627, 1647]. **schedules** [1162]. **Scheduling** [1434, 152, 1284]. **Schema** [358]. **Scheme** [1742, 539, 646]. **Schemes** [516, 545, 1558]. **Schmidt** [255, 251]. **School** [1857]. **Schrödinger** [1156]. **Schur** [897, 998, 784, 785, 1285, 1187, 1378]. **Schur-complement** [897]. **Schwarz** [888, 1142, 957]. **science** [1131]. **Scientific** [519, 611, 905, 1326, 1401, 1011]. **SCIP** [1775]. **Scope** [810, 847, 848, 811, 34]. **Scorer** [1075]. **Scores** [1749]. **Scrambled** [1702, 1491, 1082]. **SD** [311]. **SD-Formulas** [311]. **Seamless** [1838]. **Search** [1693, 1668, 1619, 830, 1583, 423, 1185]. **Secant** [1831]. **Second** [91, 88, 1243, 708, 144, 856, 1320, 523, 571, 590, 1435]. **Second-Degree** [571, 590]. **Second-Order** [1320, 523]. **Secondary** [613]. **Secure** [1580]. **SeDuMi** [1085]. **Seismological** [1600]. **Select** [776, 105, 30]. **Selected** [783, 877, 1516, 1335, 875]. **Selection** [736, 843, 738, 451, 1749, 1663, 1310]. **Self** [827, 983, 1663]. **Self-adapting** [983]. **Self-Adjoint** [827]. **Self-consistent** [1663]. **SelInv** [1335]. **Semantic** [477]. **Semi** [1489, 1488, 1423, 1105]. **Semi-infinite** [1105]. **Semi-Separable** [1489, 1488]. **Semi-Stencil** [1423]. **Semidefinite** [1834, 1369, 1527, 1529, 1576, 1259, 1452, 1378, 1238]. **Semidiscrete** [284, 1022]. **Semiseparable** [1482]. **SENAC** [730]. **Sense** [509]. **Sensitivity** [1646, 165, 596, 595]. **Sensor** [1369]. **sep** [1285]. **sep-inverse** [1285]. **Separable** [1483, 689, 1489, 1488, 241, 240]. **Separably** [421]. **separation** [884]. **Separators** [647]. **Sequence** [599, 414, 1679, 560, 1330, 1079]. **Sequences** [842, 427, 426, 926, 557, 1604, 1082]. **Sequential** [1508, 501, 1175, 685, 739, 636, 565, 1309]. **Serendipity** [1713]. **Serial** [1453, 1290]. **Series** [1377, 802, 1528, 288, 700, 374, 991, 990, 427, 426, 363, 1647, 64, 67, 353, 1766, 976]. **Service** [35, 274]. **Set** [1687, 364, 398, 344, 874,

592, 628, 591, 664, 663, 134, 1257, 1773, 703, 966, 354, 1061, 1053, 1141, 1169]. **Sets** [361, 164, 162, 280, 1583, 86, 603, 1081]. **Several** [107, 868]. **SFCGen** [1136]. **SFSDP** [1369]. **Sham** [1283]. **Shape** [924, 923, 346, 349, 907]. **Shape-Preserving** [924, 923, 346, 349]. **Shaped** [1496]. **Shapes** [1855]. **ShearLab** [1466]. **Shearlet** [1466]. **Shearlets** [1466]. **Shepard** [994, 604, 605, 975, 976, 1329]. **Shift** [1663, 1203, 1716]. **Shift-and-invert** [1203]. **Shift-invert** [1663]. **shifted** [1354]. **Shifts** [1807]. **Shortest** [305, 418]. **Should** [86]. **shuffling** [1859]. **sic** [1317]. **SICEDR** [393]. **side** [1602]. **Sided** [1074, 1073]. **Sides** [680]. **SifDec** [1097]. **SIGMA** [625]. **Sign** [1845]. **signal** [1086]. **Signals** [835]. **Signatures** [1636]. **Significance** [449]. **Significant** [834, 763]. **SIMD** [1500]. **similar** [1138]. **Simple** [356, 1260, 947, 1826, 1018, 478, 1557, 959, 1036]. **Simpler** [1015]. **SimpleS** [1192]. **Simplex** [637, 840, 488, 152, 1048, 1192]. **Simplices** [792, 1091]. **Simplicial** [1610, 1846, 1139]. **simulate** [1235]. **Simulated** [579, 653, 922]. **Simulating** [1674, 1771]. **Simulation** [1758, 1331, 1780, 156, 1245]. **Simulations** [1633, 986, 1361, 1180]. **Simultaneous** [916, 1562, 1571, 596, 595, 556, 217, 1739, 868, 335, 331]. **Single** [236, 85, 787, 1246]. **single-expression-use** [1246]. **Single-Input** [787]. **Single-Point** [236]. **Singly** [597]. **Singly-Implicit** [597]. **Singular** [371, 370, 1721, 1737, 947, 329, 310, 1505]. **Singular-Value** [310]. **Singularity** [1300]. **Singularity-free** [1300]. **singularly** [1043]. **SIPAMPL** [1105]. **SIPs** [1203]. **Situ** [128, 258]. **Size** [1481, 1263, 289, 1661]. **Sizes** [1598, 1819]. **Sketching** [1749]. **Skew** [1485, 1535, 192, 191, 1372]. **Skew-Hamiltonian** [1485]. **Skew-Hamiltonian/Hamiltonian** [1485]. **Skew-Symmetric** [1535, 192, 191, 1372]. **SLEDGE** [904]. **SLEIGN** [731]. **SLEIGN2** [1040]. **SLEPc** [1689, 1149, 1782, 1413]. **SLEUTH** [937]. **Slicing** [1663]. **SlideCont** [1135]. **Sliding** [1595, 1235]. **SLTSTPAK** [974]. **Small** [1646, 1598, 1776, 1643, 29, 82, 1199, 1311]. **Smallest** [105, 30]. **Smirnov** [123, 151, 29, 82]. **Smith** [250]. **Smooth** [18, 23, 181, 180, 231, 95, 230, 1520, 505, 172, 954]. **Smoothed** [1700]. **Smoothing** [270, 1812, 541, 1727, 1820]. **SNOBFIT** [1253]. **Sobol** [599, 1079]. **SODECL** [1652]. **Software** [1653, 131, 735, 37, 1630, 334, 333, 733, 1641, 1375, 709, 1047, 659, 519, 770, 781, 810, 1145, 915, 920, 932, 1753, 1789, 844, 469, 521, 224, 991, 1431, 1590, 1574, 784, 785, 854, 1599, 1256, 1795, 1146, 1269, 1428, 717, 1691, 1778, 1680, 176, 340, 322, 1406, 1543, 1834, 608, 607, 695, 753, 1401, 1510, 1460, 554, 1647, 319, 366, 760, 523, 1441, 534, 583, 1025, 1292, 1770, 405, 1476, 342, 738, 307, 239, 731, 1295, 325, 45, 203, 202, 327, 320, 767, 1443, 1373, 1681, 1801, 40, 1432, 814, 1486, 1729, 794, 801, 50, 462, 585]. **Software** [669, 594, 672, 948, 54, 476, 1601, 1828, 1682, 622, 1458, 1597, 211, 1570, 1286, 1277, 1238, 970, 1030, 998, 1344, 1089, 1076, 1157, 1080, 1405, 1071, 1011, 957, 884, 1275, 894, 1281, 1217, 1317, 1351, 879, 1233, 1050, 1316, 1127, 1237, 785, 1102]. **Solid** [1826, 273]. **SOLNP** [1822]. **Solution** [282, 281, 696, 185, 56, 283, 1485, 127, 1368, 577, 43, 163, 161, 1689, 271, 873,

872, 1387, 148, 411, 1658, 1709, 1795, 362, 422, 1, 178, 1013, 1575, 134, 446, 752, 1262, 613, 71, 100, 985, 254, 1845, 1448, 78, 62, 595, 913, 750, 749, 133, 119, 326, 212, 285, 503, 337, 559, 921, 484, 210, 851, 966, 540, 533, 241, 512, 240, 1526, 421, 436, 246, 1191, 1286, 1043, 889, 890, 997, 1109, 1119, 1204, 1313, 1390, 1149, 1312, 1095, 1156, 1274, 885, 993, 1307]. **Solutions** [53, 1380, 1370, 399, 639, 697, 796, 795, 55, 1554, 1715, 255, 251, 1099, 1053, 1407, 1110, 1169]. **Solve** [206, 396, 486, 57, 118, 787, 866, 557, 1553, 614, 1199, 1134]. **SOLVEBLOK** [269, 268]. **Solvents** [415]. **Solver** [1463, 1383, 1520, 1741, 1331, 359, 1461, 1822, 945, 1720, 1684, 1462, 1434, 455, 506, 596, 1763, 1439, 1837, 1772, 585, 1337, 1664, 1501, 1823, 1542, 1683, 1659, 1482, 1378, 895, 896, 1400, 1108, 1167, 1312, 1045, 1083, 1282, 1314, 989]. **Solvers** [1508, 1051, 1614, 190, 827, 563, 1736, 1328, 1327, 290, 248, 776, 447, 1498, 1492, 1457, 1853, 974, 973, 1536, 1506, 1710, 121, 354, 61, 1059, 1204, 1150, 1231, 1229, 1098, 1212]. **Solves** [1271, 319, 366]. **Solving** [1653, 1243, 584, 351, 98, 227, 920, 492, 633, 746, 487, 1334, 374, 490, 1679, 1751, 344, 429, 428, 610, 1613, 361, 568, 233, 753, 444, 41, 1591, 937, 1067, 725, 1812, 944, 167, 534, 515, 1074, 124, 689, 1815, 387, 1527, 1033, 513, 655, 1439, 1725, 1818, 1814, 461, 571, 590, 280, 1648, 1432, 456, 1694, 1437, 132, 758, 621, 268, 1205, 882, 1000, 1168, 1197, 1071, 1073, 884, 996, 1223, 1144, 1155, 1317, 1351, 1189, 1007, 1283]. **Some** [48, 1861, 1639, 487, 209, 446, 167, 534, 124, 575, 24, 529, 1667, 723, 514, 900, 1066, 1180, 629, 140]. **Sort** [93, 87]. **Sorted** [293]. **Sorting** [267]. **Source** [1652, 1712, 1240, 1472, 1556, 1118, 1735]. **Source-to-Source** [1712]. **Space** [564, 1798, 1758, 223, 344, 833, 530, 1837, 423, 950, 1407, 1136, 1226]. **Space-Efficient** [423]. **space-filling** [950, 1136]. **Space-Time** [1758]. **Spaces** [1674, 1583, 1596, 1704, 452, 1458, 1012, 1081]. **Spacetrees** [1536]. **Spanning** [450, 26, 81]. **Sparco** [1273]. **Sparse** [1653, 1508, 735, 734, 1051, 1757, 1463, 915, 1239, 798, 1666, 1266, 1777, 470, 469, 521, 1334, 1456, 972, 1271, 1331, 1626, 1781, 714, 713, 209, 359, 422, 631, 783, 877, 931, 1806, 1561, 1026, 1365, 1525, 1242, 220, 1531, 71, 1067, 195, 189, 306, 1462, 1547, 1812, 1616, 1441, 249, 1369, 1434, 387, 378, 1763, 1335, 550, 573, 578, 657, 705, 1725, 819, 16, 425, 424, 1818, 602, 280, 379, 369, 921, 1432, 688, 718, 384, 875, 1710, 204, 200, 154, 1526, 1259, 1452, 1378, 1552, 1273, 1230, 1094, 1120, 1143, 951, 522, 1160, 1350, 1343, 889, 882, 890, 997, 1109]. **sparse** [1108, 1076, 1119, 1204, 1312, 1404, 1095, 1158, 1083, 1275, 1274, 1183, 1199, 1800, 1282, 1104, 1231, 1098, 1212, 1314, 1225, 1065, 1064, 1800]. **Sparse-dense** [1710]. **Sparse-Matrix** [425]. **SparsePOP** [1259]. **Sparser** [798]. **SparseX** [1561]. **Sparsity** [1747, 1410]. **Spatial** [1486, 1237]. **SPD** [1366]. **specdicho** [1363]. **SPECFUN** [774]. **Special** [1860, 38, 774, 134, 1340, 425, 424, 1475, 697, 1288, 1009, 1060, 1145, 894]. **Special-Function** [1340]. **Specific** [1530, 1569, 1254, 1409]. **specification** [1392]. **Specified** [458, 394]. **Spectra** [999, 964, 947]. **Spectral** [1674, 1579, 947, 1837, 1862, 1363, 1617, 1258, 1137, 1086, 1203]. **Spectrum**

[904, 458, 394, 1663]. **Speed** [1588]. **SPEX** [1725, 1818]. **SPG** [1047]. **Sphere** [480, 479, 933, 934]. **Spherical** [194, 1267, 1705, 2, 1728, 1435]. **spheroidal** [1137]. **SPIKE** [1664]. **Spin** [1593]. **Spinterp** [1158]. **Spline** [270, 748, 389, 102, 417, 1727, 1759, 750, 749, 346, 778, 1486, 1101, 1280, 1127]. **Splines** [924, 923, 566, 619, 541, 349, 1760, 1625, 1717, 954]. **Splitting** [704]. **SpMV** [1581]. **SPRINT2D** [970]. **SPRITE** [1210]. **SPRNG** [1023, 1032]. **Spurious** [818]. **Square** [510, 570, 941, 1842, 649, 1003, 1864, 583, 1038]. **Square-Classes** [1842]. **square-reduced** [1003]. **Squared** [10, 504, 116]. **Squares** [509, 508, 291, 650, 701, 856, 1272, 348, 407, 1531, 388, 742, 319, 648, 379, 369, 1739, 851, 1710, 255, 251, 920, 1416, 1200, 347, 1168, 1197, 1667]. **Squeezing** [460]. **SQUIC** [1806]. **SR1** [1753]. **SRFPACK** [879]. **SRRIT** [938]. **SSRFPACK** [934]. **Stability** [1808, 197, 756, 445, 199, 1505]. **Stabilized** [279]. **Stable** [916, 1862, 1790, 201, 1253]. **Stage** [1320]. **Staggered** [1435]. **Staircase** [263, 919, 456]. **Standard** [48, 474, 1660, 799, 1269, 698, 431, 1865, 1064, 1107, 1187, 1196]. **Standardization** [1336]. **STAR** [62]. **StaRMAP** [1435]. **Starters** [287]. **State** [1531, 100, 530, 866, 1731, 1055]. **State-of-the-Art** [1531]. **Statement** [84]. **States** [516, 545]. **static** [1226]. **Stationary** [302, 297]. **Statistic** [1555, 1762, 29, 82]. **Statistical** [1522]. **Statistics** [815, 336]. **STDTST** [563]. **Steady** [100]. **Steiner** [160, 807]. **Stemming** [1337]. **Stencil** [1634, 1423]. **STENMIN** [915]. **Step** [1646, 489, 289, 1661, 1103, 1088, 1772]. **Step-Size** [289, 1661]. **Stepping** [1261, 1839, 1696, 1077]. **Steps** [1661]. **Stepsize** [736, 843, 1310]. **Stiff** [288, 903, 746, 745, 777, 178, 244, 446, 1262, 289, 445, 311, 121, 354, 514, 421, 1103, 205]. **Stiffly** [201]. **Stiffness** [964, 121]. **STINT** [205]. **Stochastic** [625, 624, 1645, 1652, 1494, 862, 1676]. **Stochastic-Integration** [625]. **Stockmeyer** [378, 377]. **Stokes** [1758, 1224]. **Stopping** [1019]. **Storage** [496, 90, 256, 613, 1359, 539, 550, 614, 232, 476, 1042, 1140, 1199]. **Store** [362, 361]. **Straight** [612]. **Straight-Line** [612]. **Strassen** [1629]. **Strategies** [1803, 46, 1433, 1245, 1404]. **Strategy** [573, 267, 1663, 1043, 1112]. **Streams** [1332]. **Strengths** [1667]. **Stretching** [1667]. **STRIPACK** [933]. **Strong** [1694]. **Structural** [1443, 1440]. **Structure** [244, 234, 1735, 1324, 1711, 278, 462, 1482]. **Structured** [648, 1514, 1801]. **Structures** [1261, 1644, 1749, 1277, 1356, 1405]. **Student** [14, 15, 338, 339, 228]. **Studies** [1427]. **Study** [410, 831, 1256, 999, 97, 263, 375, 1710, 681, 1049]. **Sturm** [1040, 185, 733, 732, 904, 947, 937, 1156, 1490, 731, 794, 974, 973]. **style** [884]. **Subdivision** [686, 1192]. **Subject** [302, 297]. **Subproblems** [1428, 1233]. **Subprograms** [1687, 1061, 1060, 241, 240, 397, 592, 628, 591, 664, 663, 931, 1064, 581, 238, 237, 609]. **Subresultant** [188]. **Subroutine** [282, 438, 439, 678, 938, 48, 492, 386, 873, 633, 746, 620, 856, 393, 936, 177, 403, 725, 1244, 542, 787, 866, 285, 204, 453, 758]. **Subroutines** [126, 125, 207, 1485, 790, 780, 817, 38, 291, 470, 582, 765, 589, 381, 1577, 446, 440, 755, 820, 1637, 850, 327, 552, 921, 458, 691, 966, 796, 101, 394, 649, 940,

1021, 1003, 1179, 522, 1193, 1408, 1053, 1202, 1169, 1095, 1037, 1349, 885, 993, 1184, 408, 714, 713]. **Subset** [457, 1666, 1749]. **Subspace** [938, 783, 877, 1792, 1364, 1604, 1322]. **Subspaces** [1679, 458, 394]. **Successive** [484, 1030]. **Sufficient** [830]. **SUGAR** [1833]. **Suitable** [1384, 420]. **Suite** [1429, 1775, 1804, 1736, 1558, 1553, 580, 939, 1024, 1005, 1399, 1086, 1150, 1522]. **Suited** [805]. **SuiteSparse** [1781, 1626]. **SuiteSparseQR** [1350, 1407]. **Sum** [1684]. **Summation** [1650, 1733, 1332]. **Summations** [1593]. **SUNDIALS** [1736, 1150]. **Supercomputers** [681]. **Superconvergent** [1016]. **SuperLU** [1147, 1763]. **SuperLU_DIST** [1083]. **Supernodal** [1266, 1338]. **Supernode** [656]. **Supernodes** [1271]. **Superscalar** [930, 1656]. **Support** [275, 799, 1735]. **Supported** [1466]. **Supporting** [1678, 1177]. **Surface** [23, 181, 180, 231, 230, 69, 837, 836, 80, 660, 505, 480, 479, 933, 934, 1596, 1704, 25, 259, 898, 899, 1002, 879, 1114, 1115]. **Surfaces** [1544, 1376, 1268, 1548, 1495, 1855, 594, 593, 672]. **surfacing** [954]. **Survey** [103, 307, 1336]. **Sustainable** [1844]. **SVD** [1545, 1807, 1827, 1642, 1862, 1501, 1601]. **Sylvester** [753, 752, 1328, 1327, 1071, 1073, 1074, 884, 1087]. **Sylvester-Type** [1328, 1327, 1073]. **SYM** [1535]. **SYM-ILDL** [1535]. **Symbolic** [148, 226, 532, 385, 1833, 1301, 1398]. **Symmetric** [584, 98, 1463, 127, 1029, 553, 422, 1056, 623, 1535, 613, 945, 1462, 1547, 1516, 1025, 1335, 573, 1518, 280, 1862, 217, 1337, 192, 191, 1663, 1372, 1120, 1219, 1416, 1344, 890, 997, 1109, 1119, 1204, 1312, 1252, 1183, 1144, 1352, 1212, 1247]. **symmetric-indefinite** [1183]. **symmetrical** [1186]. **Synchronous** [1640]. **System** [735, 1652, 1380, 870, 56, 291, 1562, 538, 612, 400, 788, 1858, 776, 1340, 308, 455, 506, 1634, 1367, 851, 526, 434, 488, 905, 208, 420, 1400, 1011, 1278]. **Systematic** [1513]. **Systems** [282, 281, 1618, 1508, 53, 735, 734, 584, 98, 127, 709, 1566, 824, 920, 1764, 163, 161, 633, 746, 190, 1737, 1334, 490, 1679, 429, 428, 610, 1613, 422, 475, 244, 1575, 1294, 1366, 1262, 1591, 71, 1067, 755, 820, 1370, 366, 725, 1547, 515, 1074, 776, 1019, 387, 78, 62, 1033, 595, 578, 1725, 750, 749, 674, 1818, 326, 787, 866, 461, 399, 571, 590, 639, 1457, 1853, 456, 385, 614, 1337, 55, 1554, 1715, 540, 533, 512, 1601, 1526, 1788, 622, 621, 421, 268, 1191, 1354, 1344, 1135, 889, 882, 890, 997, 1109, 1108, 1103, 1119]. **systems** [1204, 1405, 1312, 1404, 1073, 1083, 1274, 1199, 1235, 1098, 1189, 989, 1007]. **Systolic** [543].

T [861]. **T-Concave** [861]. **Table** [789, 304, 642, 692, 751]. **Table-Driven** [642, 692, 751]. **Tables** [1323, 79, 804, 19, 1836, 542]. **Tabulated** [114]. **Tail** [1701]. **Tails** [529, 1066]. **Talbot** [1429, 676, 868, 1553]. **Taming** [1780]. **Tang** [1480, 1438]. **Tangent** [1457]. **TAO** [1205]. **Tapenade** [1392]. **Tarjan** [179]. **Task** [1508, 1768, 1716]. **Task-based** [1768, 1716]. **Taylor** [1377, 288, 700, 374, 1089]. **Tchebycheffian** [1717]. **Technical** [1064]. **Technique** [861, 75]. **Techniques**

[1380, 163, 161, 1721, 1365, 736, 843, 1033, 658, 681, 1167]. **TEDDY2** [186]. **Temme** [313]. **Template** [790, 1496]. **Template-Driven** [790]. **Templates** [1426, 1421]. **temporal** [1237]. **TENPACK** [881]. **Tension** [566, 619, 778, 934, 879, 1280]. **TENSOLVE** [920]. **Tensor** [1641, 915, 920, 844, 742, 779, 1549, 1563, 1743, 1662, 261, 222, 1194, 881, 880]. **Tensorial** [1683]. **Tensors** [1422, 1303]. **Terabytes** [1427]. **Term** [1747]. **Terms** [1646]. **Test** [817, 816, 804, 700, 773, 774, 617, 495, 714, 592, 664, 631, 517, 743, 716, 156, 317, 314, 807, 448, 542, 674, 12, 569, 702, 974, 973, 354, 1522, 1270, 1102, 1251, 1397]. **Testing** [48, 858, 764, 1465, 39, 168, 327, 320, 552, 679, 1273, 1097, 1066, 1216, 1062, 1252, 1038, 1039]. **Tests** [912, 123, 534, 575, 629, 24, 140, 731, 977]. **TestU01** [1216]. **TetGen** [1442]. **Tetrahedra** [1830]. **Tetrahedral** [1442]. **Tetrahedron** [1631]. **Text** [434]. **th** [105]. **Their** [561, 336, 1621, 1184, 1632, 582, 1128, 1196]. **Them** [41]. **Theoretic** [736, 843]. **Theoretical** [1575, 143, 1570]. **Theory** [1467, 1327, 1440, 784]. **Therapy** [1791]. **Thick** [1322]. **Thick-Restart** [1322]. **Thinning** [812, 739]. **Third** [721, 720, 313]. **Third-Degree** [721, 720]. **Thoughts** [124]. **thread** [1096, 1287]. **thread-level** [1287]. **thread-safe** [1096]. **threads** [1344, 1070]. **Three** [1539, 494, 576, 793, 59, 1451, 151, 1330, 1692, 108, 337, 1783, 594, 593, 672, 27, 1201]. **Three-Dimensional** [1539, 59, 1330, 337, 27, 1692, 1201]. **Threshold** [578]. **TIDES** [1377]. **Tight** [1550, 1714]. **tile** [1388]. **Tiles** [1367]. **Tiling** [1600]. **Time** [1758, 668, 312, 824, 1696, 766, 789, 142, 1609, 1261, 1839, 841, 1750, 1503, 1493, 835, 284, 279, 1685, 1077, 1306]. **Time-Dependent** [668, 824]. **Time-Frequency** [1493]. **Time-integration** [1750]. **Time-Stepping** [1261, 1696, 1077]. **tiny** [1396]. **TMATROM** [1543]. **TNPACK** [744, 740, 741]. **Toeplitz** [134, 755, 820]. **TOMP** [828]. **TOMS** [1444, 810, 847, 84]. **Tool** [1476, 1443, 1440, 1240, 1392, 1038, 1039]. **Toolbox** [1618, 1627, 1006, 888, 1582, 1422, 1490, 1493, 1746, 1270, 1336, 1662, 1556, 1142, 1208, 1402, 1414, 1283, 1030]. **Toolkit** [1659, 1149, 1206, 1305]. **toolkits** [1205]. **Tools** [1451]. **Topological** [1548, 1691, 5, 1755, 155, 621]. **Topology** [1509]. **Topology-Oriented** [1509]. **TorchBraid** [1840]. **torsion** [1621]. **tough** [1404]. **Tour** [33]. **Trace** [1745]. **tracking** [893]. **Traffic** [1724]. **Train** [1803]. **Trainable** [1540]. **Training** [1840, 1603]. **Trans** [583]. **Transactions** [810]. **Transfer** [1791, 1435]. **Transform** [991, 990, 1431, 1267, 608, 607, 695, 117, 471, 472, 868, 869, 835, 122, 28, 129, 1210, 988, 1639, 1595, 1154]. **Transformation** [249, 1472, 1556, 1106, 1118, 957]. **Transformations** [1820, 1107, 1170, 1346, 1203]. **Transforming** [558]. **Transforms** [392, 391, 1429, 793, 1705, 1466, 1819, 1493, 1292]. **Translation** [791, 173, 581, 417, 609, 77, 1487]. **Transmission** [1371]. **Transport** [1812]. **Transportable** [176, 434]. **Transposition** [1742, 22, 128, 189, 258]. **Transpositions** [1549]. **Transversal** [345, 1355]. **Travelling** [873, 872]. **Traversals** [1597]. **Tree** [696, 160, 1660, 1613, 433, 432, 450, 26, 267, 1595, 81]. **Trees** [539, 1176]. **Triangle** [535, 1728, 380, 1722, 442, 443]. **Triangles** [759, 157, 683, 682, 958].

Triangular [99, 1598, 190, 1271, 184, 1074, 1498, 1514, 40, 688, 485, 1333, 1554, 1715, 1073, 1087]. **Triangularization** [179]. **Triangulation** [1666, 1450, 481, 933, 878]. **Triangulations** [686]. **TRICP** [485]. **Tridiagonal** [411, 1613, 765, 1056, 1025, 62, 1492, 1642, 61, 330, 1418, 1219, 1252]. **Tridiagonalization** [1333, 1120]. **TRIEX** [443]. **Trigonometric** [567, 818, 762]. **Trilinos** [1151]. **Trimmed** [1713, 954]. **TRIPACK** [878]. **Trivariate** [605]. **Truncated** [1769, 744, 740, 741, 982]. **Truncating** [1679]. **truncation** [1176]. **Trust** [1753, 1428, 1197, 1233]. **Trust-Region** [1428, 440, 1753, 1233]. **TSHEP2D** [976]. **TSPACK** [778, 1280]. **TSSOS** [1747]. **TTC** [1549]. **Tucker** [1774, 1641, 1422]. **TuckerMPI** [1641]. **Tukey** [1639]. **Turbulent** [1495]. **Turing** [1788]. **Tutte** [1319]. **TVM** [1799]. **Twister** [1384]. **Two** [1539, 1051, 236, 63, 1387, 911, 553, 827, 650, 562, 9, 1294, 1103, 1320, 189, 388, 263, 115, 1074, 1738, 138, 326, 325, 1615, 1661, 1291, 483, 482, 796, 476, 1542, 1213, 1859, 1214, 1068, 1075, 1414, 878, 1058, 654]. **Two-** [1539]. **Two-Dimensional** [911, 827, 326, 325, 1615, 1291, 483, 482, 476, 1542, 878, 1058]. **Two-phase** [1738]. **Two-Sided** [1074]. **Two-Stage** [1320]. **Two-step** [1103]. **Two-Steps** [1661]. **Type** [1520, 72, 813, 1328, 1327, 254, 901, 454, 1746, 962, 1073, 1274].

UIMP [383]. **UltimateKalman** [1820]. **UMFPACK** [1113, 1295]. **Uncertain** [1618]. **Uncertainty** [1770, 1589, 1800]. **uncommon** [894]. **Unconstrained** [858, 915, 832, 844, 495, 130, 440, 1792, 1474, 327, 320, 767, 44, 526, 76, 318, 1097, 961]. **Underdetermined** [1526]. **Unified** [1323, 1590, 1409]. **Uniform** [437, 147]. **Uniforms** [1004]. **Unifrontal** [972]. **Unifrontal/Multifrontal** [972]. **union** [1345]. **Unitary** [757, 821, 902]. **Units** [1506, 1496]. **Univariate** [721, 720, 1836, 1036]. **universal** [1036]. **University** [1343]. **Unknowns** [512]. **Unlocking** [1854]. **Unordered** [542]. **Unstructured** [1539, 1241, 1478, 1735, 1600, 1059]. **Unsymmetric** [972, 359, 783, 877, 1067, 875, 1230, 1113, 1112, 889, 882, 1108, 1083, 1274]. **unsymmetric-pattern** [1230, 1113, 1112]. **up-and-downdating** [1346]. **UPC** [1542]. **Update** [1266, 1271]. **Update/Downdate** [1266, 1271]. **Updated** [982, 1061]. **Updates** [648]. **Updating** [364, 398, 1255, 691, 1076, 1133]. **Upper** [53, 381, 1576, 101]. **Usage** [51, 397, 408, 581, 1621, 238, 237, 609, 744, 740]. **Use** [477, 700, 1421, 569, 106, 1246]. **User** [931, 383, 220, 1833, 246, 1147]. **User-friendly** [1833]. **uses** [1022]. **Using** [772, 1653, 1651, 624, 392, 391, 1380, 99, 508, 1205, 994, 227, 915, 920, 1481, 1764, 1376, 1239, 265, 374, 1654, 1465, 1562, 1599, 783, 877, 904, 136, 1607, 566, 619, 1831, 340, 322, 440, 292, 1321, 968, 613, 815, 1669, 825, 928, 1292, 147, 1693, 1358, 1754, 1330, 539, 1529, 1576, 543, 1489, 866, 1199, 639, 921, 1432, 159, 1603, 267, 67, 353, 468, 966, 1488, 614, 1710, 1134, 1694, 47, 120, 132, 1501, 865, 1542, 201, 1683, 1820, 1511, 122, 621, 1482, 1556, 442, 443,

1137, 1394, 1721, 844, 854, 1054, 1193, 1494, 1128]. **using** [1053, 1407, 1410, 1167, 1169, 1426, 1095, 1236, 1033, 1388, 1274, 1438, 1317, 1351, 1115, 885, 993, 1398, 1620, 1824, 1458]. **UTV** [1726].

V4.3 [1113]. **Validated** [1579, 1797, 1353, 1089]. **Validation** [661, 541]. **Value** [696, 457, 334, 333, 1368, 932, 903, 633, 632, 680, 746, 745, 777, 1387, 371, 370, 1721, 562, 654, 245, 1320, 554, 725, 776, 310, 1554, 621, 1505, 1043, 402, 1715]. **Valued** [924, 923]. **Values** [860, 859, 1521, 329, 216, 868, 1475, 1408]. **Variable** [496, 680, 344, 510, 537, 289, 1661, 822, 528, 402]. **variable-order** [402]. **Variables** [236, 579, 653, 1779, 147, 464, 1358, 1018, 572, 601, 1540, 594, 593, 672, 922, 146, 1452, 960]. **Variance** [266, 395, 343, 1513]. **Variant** [637, 1347]. **Variants** [1384, 1223, 1201]. **Variates** [615, 907, 886]. **Variational** [1655, 1254, 1425, 1182, 1211]. **Various** [1292, 1505]. **VARMA** [1250, 1249]. **Varying** [680]. **VBF** [1477]. **Vector** [1479, 1477, 1674, 1106, 728, 166, 1586, 137, 558, 823, 1561, 1607, 1525, 838, 1705, 447, 1619, 880, 1209]. **vectorizable** [895, 896]. **Vectorize** [1014]. **Vectorized** [770, 781, 1564]. **Vectors** [984, 329, 1455]. **Verified** [1019, 1592]. **Verifier** [431]. **Versatile** [225]. **Version** [1740, 1850, 1784, 1369, 1852]. **Versus** [409, 46, 1718, 528]. **vertex** [1118, 1246]. **Very** [1598, 1334]. **via** [772, 1641, 1268, 1666, 1575, 71, 1434, 1425, 1725, 1642, 1346, 1232, 1541, 1472, 1556]. **View** [44]. **Virtual** [362, 361, 1278]. **Visible** [69, 80, 25, 259]. **visit** [1107]. **visualizing** [1012]. **VLUGR2** [895]. **VLUGR3** [896]. **Voigt** [1487, 1357]. **Vol** [630]. **Volterra** [197, 708, 492]. **Volume** [1573, 1512, 1496, 1345, 1157]. **Voronoi** [1509, 933]. **Vortex** [1291]. **VTDIRECT95** [1290, 1453]. **VTMOP** [1741].

W [860, 859]. **W-Function** [860, 859]. **Wallace** [1861]. **WAPR** [860]. **Wave** [1647, 1137]. **Waveform** [1750]. **Wavelet** [1493, 835, 1399]. **Way** [215, 214, 1842, 1513]. **Weak** [1670, 1409]. **Weakly** [916]. **Weeks** [608, 607, 695]. **Weierstrass** [272]. **Weight** [1849, 640, 641, 1213, 1214]. **Weighted** [659, 1574, 566, 619, 1734, 255, 251, 1200, 1221]. **Weights** [589, 450, 1848, 1137]. **Well** [805, 1081]. **well-distributed** [1081]. **Weyl** [671]. **while** [1239]. **Wide** [1427]. **Window** [1595]. **Winograd** [1665, 1276]. **Within** [690, 1678]. **Without** [139]. **Wolfe** [1619, 1393]. **Word** [1481, 1263, 1550, 1714, 1754]. **Word-Size** [1481, 1263]. **Working** [1835]. **workqueuing** [1232]. **Workstations** [718]. **WorkStream** [1497]. **World** [41]. **worst** [32]. **Wrapper** [1419]. **Wright** [1362]. **written** [887].

x [1675]. **XMP** [357]. **XNETLIB** [854]. **xorshift** [1491].

Year [630]. **Yorke** [286].

Z [164, 527, 183, 260, 304, 75, 215, 273, 203, 60, 81]. **Zero** [63, 1658, 350,

108, 497, 536, 762, 893]. **Zero-Free** [350]. **Zero-One** [108]. **Zerofinding** [39]. **Zeros** [867, 1764, 49, 556, 286, 890, 1128, 1405]. **Ziv** [1397].

References

Ellenberger:1960:NSP

[1] K. W. Ellenberger. ACM Algorithm 30: Numerical solution of the polynomial equation. *Communications of the ACM*, 3(12):643, December 1960. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [503].

Herndon:1961:SNF

[2] J. R. Herndon. ACM Algorithm 49: Spherical Neumann function. *Communications of the ACM*, 4(4):179, April 1961. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [194].

Merner:1962:CEI

[3] J. N. Merner. ACM Algorithm 149: Complete elliptic integral. *Communications of the ACM*, 5(12):605, December 1962. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [174].

Ludwig:1963:IBR

[4] O. G. Ludwig. ACM Algorithm 179: Incomplete beta ratio. *Communications of the ACM*, 6(6):314, June 1963. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [94].

Kase:1963:TOP

[5] R. H. Kase. ACM Algorithm 219: Topological ordering for Pert networks. *Communications of the ACM*, 6(12):738–739, December 1963. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [155].

Gautschi:1964:AAB

[6] W. Gautschi. ACM Algorithm 236: Bessel functions of the first kind [S17]. *Communications of the ACM*, 7(8):479–480, August 1964. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See remark [58].

Boothroyd:1964:G

[7] J. Boothroyd. ACM Algorithm 246: Graycode. *Communications of the ACM*, 7(12):701, December 1964. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [60, 527].

Gautschi:1965:LFA

[8] W. Gautschi. ACM Algorithm 259: Legendre functions for arguments larger than one. *Communications of the ACM*, 8(8):488–492, August 1965. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [141].

Fletcher:1966:ITB

[9] W. Fletcher. ACM Algorithm 284: Interchange of two blocks of data. *Communications of the ACM*, 9(5):326, May 1966. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [115].

Hill:1967:CSI

[10] I. D. Hill and M. C. Pike. ACM Algorithm 299: Chi-squared integral. *Communications of the ACM*, 10(4):243–244, April 1967. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [116, 504].

Bell:1968:NRD

[11] J. R. Bell. ACM Algorithm 334: Normal random deviates. *Communications of the ACM*, 11(7):498, July 1968. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [372].

Morris:1969:TP

[12] J. Morris. ACM Algorithm 346: F-test probabilities. *Communications of the ACM*, 12(3):184–185, March 1969. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [617].

TadeudeMedeiros:1969:APF

[13] A. Tadeu de Medeiros and G. Schwachheim. Algorithm 349: Polygamma functions with arbitrary precision. *Communications of the ACM*, 12(4): 213–214, April 1969. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See certification [68].

Hill:1970:SD

[14] G. W. Hill. ACM Algorithm 395: Student's t-distribution. *Communications of the ACM*, 13(10):617–619, October 1970. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [228, 338].

Hill:1970:SQ

[15] G. W. Hill. ACM Algorithm 396: Student's t-quantiles. *Communications of the ACM*, 13(10):619–620, October 1970. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See remarks [338, 339, 228].

McNamee:1971:SMP

[16] J. M. McNamee. ACM Algorithm 408: a sparse matrix package (Part I). *Communications of the ACM*, 14(4):265–273, April 1971. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [154, 195, 306].

Gentleman:1972:CCQ

[17] W. M. Gentleman. ACM Algorithm 424: Clenshaw–Curtis quadrature. *Communications of the ACM*, 15(5):353–355, May 1972. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [229].

Akima:1972:ISC

[18] H. Akima. ACM Algorithm 433: Interpolation and smooth curve fitting based on local procedures. *Communications of the ACM*, 15(10):914–918, October 1972. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [95].

March:1972:EPT

[19] D. L. March. ACM Algorithm 434: Exact probabilities for $R \times C$ contingency tables. *Communications of the ACM*, 15(11):991–992, November 1972. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [79].

Fullerton:1972:MIG

[20] W. Fullerton. ACM Algorithm 435: Modified incomplete gamma function. *Communications of the ACM*, 15(11):993–995, November 1972. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [196].

MacHura:1973:RFM

[21] M. MacHura and A. Mulawa. ACM Algorithm 450: Rosenbrock function minimization. *Communications of the ACM*, 16(8):482–483, August 1973. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [104].

Brenner:1973:MTP

[22] N. Brenner. ACM Algorithm 467: Matrix transposition in place. *Communications of the ACM*, 16(11):692–694, November 1973. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [258].

Akima:1974:BIS

[23] H. Akima. ACM Algorithm 474: Bivariate interpolation and smooth surface fitting based on local procedures. *Communications of the ACM*, 17(1):26–31, January 1974. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [230].

Loeser:1974:SPT

[24] R. Loeser. Some performance tests of 'quicksort' and descendants. *Communications of the ACM*, 17(3):143–152, March 1974. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See remark [140].

Wright:1974:VSP

[25] T. Wright. ACM Algorithm 475: Visible surface plotting program. *Communications of the ACM*, 17(3):152–155, March 1974. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [80, 259].

Page:1974:MST

[26] R. L. Page. ACM Algorithm 479: a minimal spanning tree clustering method. *Communications of the ACM*, 17(6):321–323, June 1974. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [81].

Watkins:1974:MTD

[27] S. L. Watkins. ACM Algorithm 483: Masked three-dimensional plot program with rotations. *Communications of the ACM*, 17(9):520–523, September 1974. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [59].

Veillon:1974:NIL

[28] F. Veillon. ACM Algorithm 486: Numerical inversion of Laplace transform. *Communications of the ACM*, 17(10):587–589, October 1974. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [117, 129].

Pomeranz:1974:ECD

[29] J. Pomeranz. ACM Algorithm 487: Exact cumulative distribution of the Kolmogorov–Smirnov statistic for small samples. *Communications of the ACM*, 17(12):703–704, December 1974. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [82].

Floyd:1975:ASF

[30] R. W. Floyd and R. L. Rivest. ACM Algorithm 489: The algorithm SELECT — for finding the ith smallest of n elements. *Communications of the ACM*, 18(3):173, March 1975. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [105].

Ginsberg:1975:DFR

[31] E. S. Ginsberg and D. Zaborowski. ACM Algorithm 490: The dilogarithm function of a real argument. *Communications of the ACM*, 18 (4):200–202, April 1975. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [83].

Kramer:1998:PWC

[32] W. Krämer. A priori worst case error bounds for floating-point computations. *IEEE Transactions on Computers*, 47(7):750–756, July 1998. CODEN ITCOB4. ISSN 0018-9340 (print), 1557-9956 (electronic). URL `http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=709374`. See [751].

BrinchHansen:1994:MLD

[33] Per Brinch Hansen. Multiple-length division revisited: a tour of the minefield. *Software—Practice and Experience*, 24(6):579–601, June 1994. CODEN SPEXBL. ISSN 0038-0644 (print), 1097-024X (electronic). This paper derives an algorithm for division of long integers, and implements it as a literate program, although without identifier cross-references. See also related work [468] on division.

Rice:1975:PS

[34] John R. Rice. Purpose and scope. *ACM Transactions on Mathematical Software*, 1(1):1–3, March 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Anonymous:1975:ADS

[35] Anonymous. Algorithms distribution service. *ACM Transactions on Mathematical Software*, 1(1):4, March 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://doi.acm.org/10.1145/355626.355628; http://www.acm.org/pubs/citations/journals/toms/1975-1-1/p4-no_author/`.

Fosdick:1975:AP

[36] Lloyd D. Fosdick. Algorithms policy. *ACM Transactions on Mathematical Software*, 1(1):5–6, March 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Anonymous:1975:PMS

[37] Anonymous. Papers from Mathematical Software II. *ACM Transactions on Mathematical Software*, 1(1):7–12, March 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://doi.acm.org/10.1145/355626.355630; http://www.acm.org/pubs/citations/journals/toms/1975-1-1/p7-no_author/`.

Cody:1975:FPS

[38] W. J. Cody. The FUNPACK package of special function subroutines. *ACM Transactions on Mathematical Software*, 1(1):13–25, March 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Jenkins:1975:PTP

[39] M. A. Jenkins and J. F. Traub. Principles for testing polynomial zerofinding programs. *ACM Transactions on Mathematical Software*, 1(1): 26–34, March 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Parlett:1975:ICC

[40] B. N. Parlett and Y. Wang. The influence of the compiler on the cost of mathematical software—in particular on the cost of triangular factorization. *ACM Transactions on Mathematical Software*, 1(1):35–46, March 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Glover:1975:RWA

[41] Fred Glover and Darwin Klingman. Real world applications of network related problems and breakthroughs in solving them efficiently. *ACM Transactions on Mathematical Software*, 1(1):47–55, March 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ng:1975:CCM

[42] Edward W. Ng. A comparison of computational methods and algorithms for the complex gamma function. *ACM Transactions on Mathematical Software*, 1(1):56–70, March 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Byrne:1975:PNS

[43] G. D. Byrne and A. C. Hindmarsh. A polyalgorithm for the numerical solution of ordinary differential equations. *ACM Transactions on Mathematical Software*, 1(1):71–96, March 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Powell:1975:VUM

[44] M. J. D. Powell. A view of unconstrained minimization algorithms that do not require derivatives. *ACM Transactions on Mathematical Software*, 1(2):97–107, June 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Miller:1975:SRA

[45] Webb Miller. Software for roundoff analysis. *ACM Transactions on Mathematical Software*, 1(2):108–128, June 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Malcolm:1975:LVG

[46] Michael A. Malcolm and R. Bruce Simpson. Local versus global strategies for adaptive quadrature. *ACM Transactions on Mathematical Software*, 1(2):129–146, June 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Stoutemyer:1975:AOU

[47] David R. Stoutemyer. Analytical optimization using computer algebraic manipulation. *ACM Transactions on Mathematical Software*, 1(2):147–164, June 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Barinka:1975:SEC

[48] Lawrence L. Barinka. Some experience with constructing, testing, and certifying a standard mathematical subroutine library. *ACM Transactions on Mathematical Software*, 1(2):165–177, June 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Jenkins:1975:AZR

[49] M. A. Jenkins. Algorithm 493: Zeros of a real polynomial [C2]. *ACM Transactions on Mathematical Software*, 1(2):178–189, June 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rice:1975:SPP

[50] John R. Rice. Software package policy. *ACM Transactions on Mathematical Software*, 1(3):193–195, September 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bailey:1975:UAM

[51] Carl B. Bailey and Rondall E. Jones. Usage and argument monitoring of mathematical library routines. *ACM Transactions on Mathematical Software*, 1(3):196–209, September 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

George:1975:ARR

[52] James E. George. Algorithms to reveal the representation of characters, integers, and floating-point numbers. *ACM Transactions on Mathematical Software*, 1(3):210–216, September 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Aird:1975:CAU

[53] T. J. Aird and Robert E. Lynch. Computable accurate upper and lower error bounds for approximate solutions of linear algebraic systems. *ACM Transactions on Mathematical Software*, 1(3):217–231, September 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sincovec:1975:SNP

[54] Richard F. Sincovec and Niel K. Madsen. Software for nonlinear partial differential equations. *ACM Transactions on Mathematical Software*, 1(3):232–260, September 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sincovec:1975:APS

[55] Richard F. Sincovec and Niel K. Madsen. Algorithm 494: PDEONE, solutions of systems of partial differential equations [D3]. *ACM Transactions on Mathematical Software*, 1(3):261–263, September 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Barrodale:1975:ASO

[56] I. Barrodale and C. Phillips. Algorithm 495: Solution of an overdetermined system of linear equations in the Chebychev norm [F4]. *ACM Transactions on Mathematical Software*, 1(3):264–270, September 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kaufman:1975:ALA

[57] Linda Kaufman. Algorithm 496: The LZ algorithm to solve the generalized eigenvalue problem for complex matrices [F2]. *ACM Transactions on Mathematical Software*, 1(3):271–281, September 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remark [118].

Skovgaard:1975:RBF

[58] Ove Skovgaard. Remark on "Algorithm 236: Bessel functions of the first kind [S17]". *ACM Transactions on Mathematical Software*, 1(3):282–284, September 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [6].

Feinstein:1975:RMT

[59] Robert Feinstein. Remark on "Algorithm 483: Masked three-dimensional plot program with rotations [J6]". *ACM Transactions on Mathematical Software*, 1(3):285, September 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [27].

Misra:1975:RG

[60] Jayadev Misra. Remark on "Algorithm 246: Graycode [Z]". *ACM Transactions on Mathematical Software*, 1(3):285, September 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [7, 527].

Stone:1975:PTE

[61] Harold S. Stone. Parallel tridiagonal equation solvers. *ACM Transactions on Mathematical Software*, 1(4):289–307, December 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Lambiotte:1975:STL

[62] Jules J. Lambiotte, Jr. and Robert G. Voigt. The solution of tridiagonal linear systems on the CDC STAR 100 computer. *ACM Transactions on Mathematical Software*, 1(4):308–329, December 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bus:1975:TEA

[63] J. C. P. Bus and T. J. Dekker. Two efficient algorithms with guaranteed convergence for finding a zero of a function. *ACM Transactions on Mathematical Software*, 1(4):330–345, December 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Norman:1975:CFP

[64] A. C. Norman. Computing with formal power series. *ACM Transactions on Mathematical Software*, 1(4):346–356, December 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Neves:1975:AIF

[65] Kenneth W. Neves. Automatic integration of functional differential equations: An approach. *ACM Transactions on Mathematical Software*, 1(4): 357–368, December 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Neves:1975:AAI

[66] Kenneth W. Neves. Algorithm 497: Automatic integration of functional differential equations [D2]. *ACM Transactions on Mathematical Software*, 1(4):369–371, December 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Prince:1975:AAF

[67] P. J. Prince. Algorithm 498: Airy functions using Chebyshev series approximations. *ACM Transactions on Mathematical Software*, 1(4):372–379, December 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [353].

Lewis:1975:CPF

[68] John Gregg Lewis. Certification of "Algorithm 349: Polygamma functions with arbitrary precision". *ACM Transactions on Mathematical Software*, 1(4):380–381, December 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [13].

Bromage:1975:CVS

[69] Gordon E. Bromage. Certification of "Algorithm 475: Visible surface plotting program [J6]". *ACM Transactions on Mathematical Software*, 1(4):381–382, December 1975. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rice:1976:PAA

[70] John R. Rice. Parallel algorithms for adaptive quadrature. III. program correctness. *ACM Transactions on Mathematical Software*, 2(1):1–30, March 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Griss:1976:ASS

[71] Martin L. Griss. The algebraic solution of sparse linear systems via minor expansion. *ACM Transactions on Mathematical Software*, 2(1): 31–49, March 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Duris:1976:GCP

[72] Charles S. Duris. Generating and compounding product-type Newton-Coates quadrature formulas. *ACM Transactions on Mathematical Software*, 2(1):50–58, March 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bays:1976:IPR

[73] Carter Bays and S. D. Durham. Improving a poor random number generator. *ACM Transactions on Mathematical Software*, 2(1):59–64, March 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Lyness:1976:CNA

[74] J. N. Lyness and J. J. Kaganove. Comments on the nature of automatic quadrature routines. *ACM Transactions on Mathematical Software*, 2 (1):65–81, March 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kinsner:1976:AES

[75] W. Kinsner and E. Della Torre. Algorithm 499: An efficient scanning technique [Z]. *ACM Transactions on Mathematical Software*, 2(1):82–86, March 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Shanno:1976:AMU

[76] D. F. Shanno and K. H. Phua. Algorithm 500: Minimization of unconstrained multivariate functions [E4]. *ACM Transactions on Mathematical Software*, 2(1):87–94, March 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remarks [130, 318].

Simpson:1976:AFT

[77] Joseph C. Simpson. Algorithm 501: Fortran translation of Algorithm 409, discrete Chebychev curve fit [E2]. *ACM Transactions on Mathematical Software*, 2(1):95–97, March 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remark [173].

Kubicek:1976:ADS

[78] Milan Kubíček. Algorithm 502: Dependence of solution of nonlinear systems on a parameter [C5]. *ACM Transactions on Mathematical Software*, 2(1):98–107, March 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://doi.acm.org/10.1145/355666.355675; http://www.acm.org/pubs/citations/journals/toms/1976-2-1/p98-kubiviek/`.

Boulton:1976:REP

[79] D. M. Boulton. Remark on "Algorithm 434: Exact probabilities for $R \times C$ contingency tables [G2]". *ACM Transactions on Mathematical Software*, 2(1):108, March 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [19].

Duta:1976:RVS

[80] Lucian D. Duta. Remark on "Algorithm 475: Visible surface plotting program [J6]". *ACM Transactions on Mathematical Software*, 2(1):109–110, March 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [25].

White:1976:RMS

[81] G. M. White, S. Goudreau, and J. L. Legros. Remark on "Algorithm 479: a minimal spanning tree clustering method [Z]". *ACM Transactions on Mathematical Software*, 2(1):110–111, March 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [26].

Pomeranz:1976:REC

[82] J. Pomeranz. Remark on "Algorithm 487: Exact cumulative distribution of the Kolmogorov–Smirnov statistic for small samples [S14]". *ACM Transactions on Mathematical Software*, 2(1):111, March 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [29].

Morris:1976:RDF

[83] Robert Morris. Remark on "Algorithm 490: The dilogarithm function of a real argument [S22]". *ACM Transactions on Mathematical Software*, 2 (1):112, March 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [31].

Rice:1976:TPS

[84] John R. Rice. TOMS policy statement: The rights of program authors in the evaluation of programs. *ACM Transactions on Mathematical Soft-*

ware, 2(2):113–114, June 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ford:1976:DSN

[85] B. Ford and D. K. Sayers. Developing a single numerical algorithms library for different machine ranges. *ACM Transactions on Mathematical Software*, 2(2):115–131, June 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Paul:1976:SEF

[86] George Paul and M. Wayne Wilson. Should the elementary function library be incorporated into computer instruction sets? *ACM Transactions on Mathematical Software*, 2(2):132–142, June 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Janko:1976:LIS

[87] Wolfgang Janko. A list insertion sort for keys with arbitrary key distribution. *ACM Transactions on Mathematical Software*, 2(2):143–153, June 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Atkinson:1976:APL

[88] Kendall Atkinson. An automatic program for linear Fredholm integral equations of the second kind. *ACM Transactions on Mathematical Software*, 2(2):154–171, June 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Shampine:1976:GEE

[89] L. F. Shampine and H. A. Watts. Global error estimates for ordinary differential equations. *ACM Transactions on Mathematical Software*, 2 (2):172–186, June 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ericksen:1976:ICP

[90] J. H. Ericksen and R. Wilhelmson. Implementation of a convective problem requiring auxiliary storage. *ACM Transactions on Mathematical Software*, 2(2):187–195, June 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Atkinson:1976:AAP

[91] Kendall Atkinson. Algorithm 503: An automatic program for Fredholm integral equations of the second kind [D5]. *ACM Transactions on Math-*

ematical Software, 2(2):196–199, June 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Shampine:1976:AGG

[92] L. F. Shampine and H. A. Watts. Algorithm 504: GERK: Global error estimation for ordinary differential equations [D]. *ACM Transactions on Mathematical Software*, 2(2):200–203, June 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Janko:1976:ALI

[93] Wolfgang Janko. Algorithm 505: a list insertion sort for keys with arbitrary key distribution [S20]. *ACM Transactions on Mathematical Software*, 2(2):204–206, June 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Pike:1976:RIB

[94] Malcolm C. Pike, Jennie SooHoo, and N. E. Bosten. Remark on "Algorithm 179: Incomplete beta ratio [S14]". *ACM Transactions on Mathematical Software*, 2(2):207–208, June 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [4].

Anderson:1976:RIS

[95] Michael R. Anderson. Remark on "Algorithm 433: Interpolation and smooth curve fitting based on local procedures [E2]". *ACM Transactions on Mathematical Software*, 2(2):208, June 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [18].

Wyatt:1976:PEP

[96] W. T. Wyatt, Jr., D. W. Lozier, and D. J. Orser. A portable extended precision arithmetic package and library with Fortran precompiler. *ACM Transactions on Mathematical Software*, 2(3):209–231, September 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://doi.acm.org/10.1145/355694.355695; http://www.acm.org/pubs/citations/journals/toms/1976-2-3/p209-lozier/`.

Gentleman:1976:AAC

[97] W. M. Gentleman and S. C. Johnson. Analysis of algorithms, a case study: Determinants of matrices with polynomial entries. *ACM Transactions on Mathematical Software*, 2(3):232–241, September 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Barwell:1976:CAS

[98] Victor Barwell and Alan George. A comparison of algorithms for solving symmetric indefinite systems of linear equations. *ACM Transactions on Mathematical Software*, 2(3):242–251, September 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bartels:1976:HIU

[99] Richard Bartels and Alec Steingart. Hermite interpolation using a triangular polynomial basis. *ACM Transactions on Mathematical Software*, 2(3):252–256, September 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hall:1976:NSS

[100] C. A. Hall, R. W. Luczak, and A. G. Serdy. Numerical solution of steady state heat flow problems over curved domains. *ACM Transactions on Mathematical Software*, 2(3):257–274, September 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Stewart:1976:AHE

[101] G. W. Stewart. Algorithm 506: HQR3 and EXCHNG: Fortran subroutines for calculating and ordering the eigenvalues of a real upper Hessenberg matrix [F2]. *ACM Transactions on Mathematical Software*, 2(3): 275–280, September 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [381].

Herriot:1976:APQ

[102] John G. Herriot and Christian H. Reinsch. Algorithm 507: Procedures for quintic natural spline interpolation [E1]. *ACM Transactions on Mathematical Software*, 2(3):281–289, September 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [389].

Loeser:1976:SAQ

[103] Rudolf Loeser. Survey on algorithms 347, 426, and quicksort. *ACM Transactions on Mathematical Software*, 2(3):290–299, September 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Davies:1976:RRF

[104] Alan M. Davies. Remark on "Algorithm 450: Rosenbrock function minimization [E4]". *ACM Transactions on Mathematical Software*, 2(3): 300–301, September 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [21].

Brown:1976:RAS

[105] Theodore Brown. Remark on "Algorithm 489: The algorithm SELECT —for finding the ith smallest of n elements [M1]". *ACM Transactions on Mathematical Software*, 2(3):301–304, September 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [30].

Pavlidis:1976:UAP

[106] Theodosios Pavlidis. The use of algorithms of piecewise approximations for picture processing applications. *ACM Transactions on Mathematical Software*, 2(4):305–321, December 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gibbs:1976:CSB

[107] Norman E. Gibbs, William G. Poole Jr., and Paul K. Stockmeyer. A comparison of several bandwidth and profile reduction algorithms. *ACM Transactions on Mathematical Software*, 2(4):322–330, December 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Mahendrarajah:1976:CTA

[108] A. Mahendrarajah and F. Fiala. A comparison of three algorithms for linear zero-one programs. *ACM Transactions on Mathematical Software*, 2(4):331–334, December 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Weinberger:1976:FPA

[109] P. J. Weinberger and L. P. Rothschild. Factoring polynomials over algebraic number fields. *ACM Transactions on Mathematical Software*, 2(4): 335–350, December 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Pinkert:1976:EMF

[110] James R. Pinkert. An exact method for finding the roots of a complex polynomial. *ACM Transactions on Mathematical Software*, 2(4):351–363, December 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rubin:1976:PI

[111] Frank Rubin. Partition of integers. *ACM Transactions on Mathematical Software*, 2(4):364–374, December 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Crane:1976:AMB

[112] H. L. Crane Jr., Norman E. Gibbs, William G. Poole Jr., and Paul K. Stockmeyer. Algorithm 508: Matrix bandwidth and profile reduction [F1]. *ACM Transactions on Mathematical Software*, 2(4):375–377, December 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [382].

Gibbs:1976:AHP

[113] Norman E. Gibbs. Algorithm 509: a hybrid profile reduction algorithm [F1]. *ACM Transactions on Mathematical Software*, 2(4):378–387, December 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [382].

Wilson:1976:APL

[114] D. G. Wilson. Algorithm 510: Piecewise linear approximation to tabulated data [E2]. *ACM Transactions on Mathematical Software*, 2(4): 388–391, December 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ito:1976:RIT

[115] M. R. Ito. Remark on "Algorithm 284: Interchange of two blocks of data [K2]". *ACM Transactions on Mathematical Software*, 2(4):392–393, December 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [9].

elLozy:1976:RAC

[116] Mohamed el Lozy. Remark on "Algorithm 299: Chi-squared integral [S15]". *ACM Transactions on Mathematical Software*, 2(4):393–395, December 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [10, 504].

Koppelaar:1976:RNI

[117] Henk Koppelaar and Peter Molenaar. Remark on "Algorithm 486: Numerical inversion of Laplace transform [D5]". *ACM Transactions on Mathematical Software*, 2(4):395–396, December 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [28, 472].

Kaufman:1976:RLA

[118] Linda Kaufman. Remark on "Algorithm 496: The LZ algorithm to solve the generalized eigenvalue problem for complex matrices [F2]". *ACM*

Transactions on Mathematical Software, 2(4):396, December 1976. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [57].

McClellan:1977:ESL

[119] Michael T. McClellan. The exact solution of linear equations with rational function coefficients. *ACM Transactions on Mathematical Software*, 3(1):1–25, March 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Stoutemyer:1977:AEA

[120] David R. Stoutemyer. Automatic error analysis using computer algebraic manipulation. *ACM Transactions on Mathematical Software*, 3(1):26–43, March 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Shampine:1977:SND

[121] L. F. Shampine. Stiff and nonstiff differential equation solvers, II: Detecting stiffness with Runge–Kutta methods. *ACM Transactions on Mathematical Software*, 3(1):44–53, March 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Tran-Thong:1977:FPF

[122] Trâñ-Thôńg and Bede Liu. Floating point fast Fourier transform computation using double precision floating point accumulators. *ACM Transactions on Mathematical Software*, 3(1):54–59, March 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gonzalez:1977:EAK

[123] Teofilo Gonzalez, Sartaj Sahni, and W. R. Franta. An efficient algorithm for the Kolmogorov–Smirnov and Lilliefors tests. *ACM Transactions on Mathematical Software*, 3(1):60–64, March 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kaufman:1977:STQ

[124] Linda Kaufman. Some thoughts on the QZ algorithm for solving the generalized eigenvalue problem. *ACM Transactions on Mathematical Software*, 3(1):65–75, March 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Amos:1977:CSI

[125] D. E. Amos, S. L. Daniel, and M. K. Weston. CDC 6600 subroutines IBESS and JBESS for Bessel functions $I_\nu(x)$ and $J_\nu(x)$, $x \geq 0, \nu \geq 0$.

ACM Transactions on Mathematical Software, 3(1):76–92, March 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Amos:1977:ACS

[126] D. E. Amos, S. L. Daniel, and M. K. Weston. Algorithm 511: CDC 6600 subroutines IBESS and JBESS for Bessel functions $I_\nu(x)$ and $J_\nu(x)$, $x \geq 0, \nu \geq 0$ [S18]. *ACM Transactions on Mathematical Software*, 3(1): 93–95, March 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See erratum [207].

Benson:1977:ANA

[127] A. Benson and D. J. Evans. Algorithm 512: a normalized algorithm for solution of the positive definite symmetric quindiagonal systems of linear equations [F4]. *ACM Transactions on Mathematical Software*, 3 (1):96–103, March 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cate:1977:AAS

[128] Esko G. Cate and David W. Twigg. Algorithm 513: Analysis of in-situ transposition [F1]. *ACM Transactions on Mathematical Software*, 3 (1):104–110, March 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remark [258].

Veillon:1977:RNI

[129] Françoise Veillon. Remark on "Algorithm 486: Numerical inversion of Laplace transform". *ACM Transactions on Mathematical Software*, 3(1): 111, March 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [28, 472].

Dunham:1977:RMU

[130] Charles Dunham. Remark on "Algorithm 500: Minimization of unconstrained multivariate functions [E4]". *ACM Transactions on Mathematical Software*, 3(1):112, March 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [76].

Aird:1977:PMS

[131] Thomas J. Aird. Portability of mathematical software coded in Fortran. *ACM Transactions on Mathematical Software*, 3(2):113–127, June 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Stoutemyer:1977:ASI

[132] David R. Stoutemyer. Analytically solving integral equations by using computer algebra. *ACM Transactions on Mathematical Software*, 3(2):

128–146, June 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

McClellan:1977:CAE

[133] Michael T. McClellan. A comparison of algorithms for the exact solution of linear equations. *ACM Transactions on Mathematical Software*, 3(2): 147–158, June 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Farden:1977:SSS

[134] David C. Farden. The solution of a special set of Hermitian Toeplitz linear equations. *ACM Transactions on Mathematical Software*, 3(2): 159–163, June 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ichida:1977:CFO

[135] Kozo Ichida, Takeshi Kiyono, and Fujiichi Yoshimoto. Curve fitting by a one-pass method with a piecewise cubic polynomial. *ACM Transactions on Mathematical Software*, 3(2):164–174, June 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ellis:1977:ANM

[136] T. M. R. Ellis and D. H. McLain. Algorithm 514: a new method of cubic curve fitting using local data [E2]. *ACM Transactions on Mathematical Software*, 3(2):175–179, June 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Buckles:1977:AGV

[137] B. P. Buckles and M. Lybanon. Algorithm 515: Generation of a vector from the lexicographical index [G6]. *ACM Transactions on Mathematical Software*, 3(2):180–182, June 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

McKean:1977:AAO

[138] J. W. McKean and T. A. Ryan, Jr. Algorithm 516: An algorithm for obtaining confidence intervals and point estimates based on ranks in the two sample location problem [G1]. *ACM Transactions on Mathematical Software*, 3(2):183–185, June 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Chan:1977:APC

[139] S. P. Chan, R. Feldman, and B. N. Parlett. Algorithm 517: a program for computing the condition numbers of matrix eigenvalues without com-

puting eigenvectors [F2]. *ACM Transactions on Mathematical Software*, 3(2):186–203, June 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Mackay:1977:RPT

[140] M. Mackay and J. E. Radue. Remark on "Some performance tests of 'Quicksort' and descendants". *ACM Transactions on Mathematical Software*, 3(2):204, June 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [24].

Jansen:1977:RLF

[141] J. K. M. Jansen. Remark on "Algorithm 259: Legendre functions for arguments larger than one". *ACM Transactions on Mathematical Software*, 3(2):204–205, June 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [8].

Friedman:1977:AFB

[142] Jerome H. Friedman, Jon Louis Bentley, and Raphael Ari Finkel. An algorithm for finding best matches in logarithmic expected time. *ACM Transactions on Mathematical Software*, 3(3):209–226, September 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://doi.acm.org/10.1145/355744.355745; http://www.acm.org/pubs/citations/journals/toms/1977-3-3/p209-bentley/`.

Ito:1977:MRP

[143] Tetsuro Ito and Makoto Kizawa. The matrix rearrangement procedure for graph-theoretical algorithms and its application to the generation of fundamental cycles. *ACM Transactions on Mathematical Software*, 3(3): 227–231, September 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cody:1977:CRF

[144] W. J. Cody, Rose M. Motley, and L. Wayne Fullerton. The computation of real fractional order Bessel functions of the second kind. *ACM Transactions on Mathematical Software*, 3(3):232–239, September 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gautschi:1977:ERI

[145] Walter Gautschi. Evaluation of repeated integrals of the coerror function. *ACM Transactions on Mathematical Software*, 3(3):240–252, September 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Walker:1977:EMG

[146] Alastair J. Walker. An efficient method for generating discrete random variables with general distributions. *ACM Transactions on Mathematical Software*, 3(3):253–256, September 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kinderman:1977:CGR

[147] A. J. Kinderman and J. F. Monahan. Computer generation of random variables using the ratio of uniform deviates. *ACM Transactions on Mathematical Software*, 3(3):257–260, September 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cohen:1977:SSF

[148] Jacques Cohen and Joel Katcoff. Symbolic solution of finite-difference equations. *ACM Transactions on Mathematical Software*, 3(3):261–271, September 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fateman:1977:ADC

[149] Richard J. Fateman. An algorithm for deciding the convergence of the rational iteration $x_{n+1} = f(x_n)$. *ACM Transactions on Mathematical Software*, 3(3):272–278, September 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hill:1977:AIB

[150] G. W. Hill. Algorithm 518: Incomplete Bessel function I_0. The von Mises distribution [S14]. *ACM Transactions on Mathematical Software*, 3(3): 279–284, September 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kallman:1977:ATA

[151] Ralph Kallman. Algorithm 519: Three algorithms for computing Kolmogorov–Smirnov probabilities with arbitrary boundaries and a certification of Algorithm 487 [S14]. *ACM Transactions on Mathematical Software*, 3(3):285–294, September 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Weglarz:1977:AAR

[152] Jan Weglarz, Jacek Blazewicz, Wojciech Cellary, and Roman Slowinski. Algorithm 520: An automatic revised simplex method for constrained resource network scheduling [H]. *ACM Transactions on Mathematical*

Software, 3(3):295–300, September 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gautschi:1977:ARI

[153] Walter Gautschi. Algorithm 521: Repeated integrals of the coerror function [S15]. *ACM Transactions on Mathematical Software*, 3(3):301–302, September 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sipala:1977:RSM

[154] Paolo Sipala. Remark on "Algorithm 408: a sparse matrix package (Part I) [F4]". *ACM Transactions on Mathematical Software*, 3(3):303, September 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [16].

Tenney:1977:RTO

[155] Dennis Tenney. Remark on "Algorithm 219: Topological ordering for PERT networks". *ACM Transactions on Mathematical Software*, 3(3): 303, September 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [5].

Hillstrom:1977:STA

[156] Kenneth E. Hillstrom. A simulation test approach to the evaluation of nonlinear optimization algorithms. *ACM Transactions on Mathematical Software*, 3(4):305–315, December 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Powell:1977:PQA

[157] M. J. D. Powell and M. A. Sabin. Piecewise quadratic approximations on triangles. *ACM Transactions on Mathematical Software*, 3(4):316–325, December 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Skeel:1977:BLM

[158] Robert D. Skeel and Antony K. Kong. Blended linear multistep methods. *ACM Transactions on Mathematical Software*, 3(4):326–345, December 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Payne:1977:NRN

[159] W. H. Payne. Normal random numbers: Using machine analysis to choose the best algorithm. *ACM Transactions on Mathematical Soft-*

ware, 3(4):346–358, December 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Boyce:1977:IPF

[160] William M. Boyce. An improved program for the full Steiner tree problem. *ACM Transactions on Mathematical Software*, 3(4):359–385, December 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cabay:1977:CTE

[161] S. Cabay and T. P. L. Lam. Congruence techniques for the exact solution of integer systems of linear equations. *ACM Transactions on Mathematical Software*, 3(4):386–397, December 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Eddy:1977:NCH

[162] William F. Eddy. A new convex hull algorithm for planar sets. *ACM Transactions on Mathematical Software*, 3(4):398–403, December 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cabay:1977:AEC

[163] S. Cabay and T. P. L. Lam. Algorithm 522: ESOLVE, congruence techniques for the exact solution of integer systems of linear equations [F4]. *ACM Transactions on Mathematical Software*, 3(4):404–410, December 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Eddy:1977:ACN

[164] W. F. Eddy. Algorithm 523: CONVEX, a new convex hull algorithm for planar sets [Z]. *ACM Transactions on Mathematical Software*, 3(4): 411–412, December 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dinkel:1978:SAP

[165] John J. Dinkel, Gary A. Kochenberger, and S. N. Wong. Sensitivity analysis procedures for geometric programs: Computational aspects. *ACM Transactions on Mathematical Software*, 4(1):1–14, March 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://doi.acm.org/10.1145/355769.355770; http://www.acm.org/pubs/citations/journals/toms/1978-4-1/p1-wong/`.

Blue:1978:PFP

[166] James L. Blue. A portable Fortran program to find the Euclidean norm of a vector. *ACM Transactions on Mathematical Software*, 4(1):15–23, March 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ivie:1978:SMP

[167] John Ivie. Some MACSYMA programs for solving recurrence relations. *ACM Transactions on Mathematical Software*, 4(1):24–33, March 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [487].

Lasdon:1978:DTG

[168] L. S. Lasdon, A. D. Waren, A. Jain, and M. Ratner. Design and testing of a generalized reduced gradient code for nonlinear programming. *ACM Transactions on Mathematical Software*, 4(1):34–50, March 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Tsao:1978:MNI

[169] Nai-Kuan Tsao and Rose Marie Prior. On multipoint numerical interpolation. *ACM Transactions on Mathematical Software*, 4(1):51–56, March 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Brent:1978:FMP

[170] Richard P. Brent. A Fortran multiple-precision arithmetic package. *ACM Transactions on Mathematical Software*, 4(1):57–70, March 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Brent:1978:AMF

[171] Richard P. Brent. Algorithm 524: MP, A Fortran multiple-precision arithmetic package [A1]. *ACM Transactions on Mathematical Software*, 4(1):71–81, March 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [257, 276, 963].

Rice:1978:AAA

[172] John R. Rice. Algorithm 525: ADAPT, adaptive smooth curve fitting [E2]. *ACM Transactions on Mathematical Software*, 4(1):82–94, March 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Futrell:1978:RTA

[173] R. Futrell. Remark on "Fortran translation of Algorithm 409: Discrete Chebychev curve fit [E2]". *ACM Transactions on Mathematical Software*, 4(1):95, March 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [77].

Skovgaard:1978:RCE

[174] Ove Skovgaard. Remark on "Algorithm 149: Complete elliptic integral [S21]". *ACM Transactions on Mathematical Software*, 4(1):95, March 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [3].

Krogh:1978:AP

[175] Fred T. Krogh. Algorithms policy. *ACM Transactions on Mathematical Software*, 4(2):97–99, June 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ford:1978:PET

[176] Brian Ford. Parametrization of the environment for transportable numerical software. *ACM Transactions on Mathematical Software*, 4(2): 100–103, June 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fox:1978:PMS

[177] P. A. Fox, A. D. Hall, and N. L. Schryer. The PORT mathematical subroutine library. *ACM Transactions on Mathematical Software*, 4(2): 104–126, June 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Enright:1978:IEM

[178] W. H. Enright. Improving the efficiency of matrix operations in the numerical solution of stiff ordinary differential equations. *ACM Transactions on Mathematical Software*, 4(2):127–136, June 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Duff:1978:ITA

[179] I. S. Duff and J. K. Reid. An implementation of Tarjan's algorithm for the block triangularization of a matrix. *ACM Transactions on Mathematical Software*, 4(2):137–147, June 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Akima:1978:MBI

[180] Hiroshi Akima. A method of bivariate interpolation and smooth surface fitting for irregularly distributed data points. *ACM Transactions on Mathematical Software*, 4(2):148–159, June 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Akima:1978:ABI

[181] Hiroshi Akima. Algorithm 526: Bivariate interpolation and smooth surface fitting for irregularly distributed data points [E1]. *ACM Transactions on Mathematical Software*, 4(2):160–164, June 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [231, 505].

Bank:1978:AFI

[182] Randolph E. Bank. Algorithm 527: A Fortran implementation of the generalized marching algorithm [D3]. *ACM Transactions on Mathematical Software*, 4(2):165–176, June 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fox:1978:AFP

[183] P. A. Fox, A. D. Hall, and N. L. Schryer. Algorithm 528: Framework for a portable library [Z]. *ACM Transactions on Mathematical Software*, 4(2):177–188, June 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remarks [260, 983].

Duff:1978:APB

[184] I. S. Duff and J. K. Reid. Algorithm 529: Permutations to block triangular form [F1]. *ACM Transactions on Mathematical Software*, 4(2): 189–192, June 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bailey:1978:ASS

[185] P. B. Bailey, M. K. Gordon, and L. F. Shampine. Automatic solution of the Sturm–Liouville problem. *ACM Transactions on Mathematical Software*, 4(3):193–208, September 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://doi.acm.org/10.1145/355791.355792; http://www.acm.org/pubs/citations/journals/toms/1978-4-3/p193-gordon/`.

Polak:1978:TPP

[186] S. J. Polak, J. Schrooten, and C. Barneveld Binkhuysen. TEDDY2, a program package for parabolic composite region problems. *ACM Trans-*

actions on Mathematical Software, 4(3):209–227, September 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Larson:1978:ECE

[187] John Larson and Ahmed Sameh. Efficient calculation of the effects of roundoff errors. *ACM Transactions on Mathematical Software*, 4(3):228–236, September 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See errata [242].

Brown:1978:SPA

[188] W. S. Brown. The subresultant PRS algorithm. *ACM Transactions on Mathematical Software*, 4(3):237–249, September 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gustavson:1978:TFA

[189] Fred G. Gustavson. Two fast algorithms for sparse matrices: Multiplication and permuted transposition. *ACM Transactions on Mathematical Software*, 4(3):250–269, September 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Chen:1978:PPB

[190] S. C. Chen, D. J. Kuck, and A. H. Sameh. Practical parallel band triangular systems solvers. *ACM Transactions on Mathematical Software*, 4(3):270–277, September 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ward:1978:ECS

[191] R. C. Ward and L. J. Gray. Eigensystem computation for skew-symmetric and a class of symmetric matrices. *ACM Transactions on Mathematical Software*, 4(3):278–285, September 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ward:1978:AAC

[192] R. C. Ward and L. J. Gray. Algorithm 530: An algorithm for computing the eigensystem of skew-symmetric matrices and a class of symmetric matrices [F2]. *ACM Transactions on Mathematical Software*, 4(3):286–289, September 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Snyder:1978:ACP

[193] William V. Snyder. Algorithm 531: Contour plotting [J6]. *ACM Transactions on Mathematical Software*, 4(3):290–294, September 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Coleman:1978:RSN

[194] John P. Coleman. Remark on "Algorithm 49: Spherical Neumann function". *ACM Transactions on Mathematical Software*, 4(3):295, September 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [2].

Gustavson:1978:RSM

[195] Fred G. Gustavson. Remark on "Algorithm 408: a sparse matrix package (Part I) [F4]". *ACM Transactions on Mathematical Software*, 4(3):295, September 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://doi.acm.org/10.1145/355791.356474; http://www.acm.org/pubs/citations/journals/toms/1978-4-3/p295-mcnamee/`. See [16].

Schoene:1978:RMI

[196] Andrew Y. Schoene. Remark on "Algorithm 435: Modified incomplete gamma function [S14]". *ACM Transactions on Mathematical Software*, 4(3):296–304, September 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [20].

Baker:1978:SAC

[197] Christopher T. H. Baker and Malcolm S. Keech. Stability analysis of certain Runge–Kutta procedures for Volterra integral equations. *ACM Transactions on Mathematical Software*, 4(4):305–315, December 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fairweather:1978:IRQ

[198] Graeme Fairweather. An investigation of Romberg quadrature. *ACM Transactions on Mathematical Software*, 4(4):316–322, December 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Shampine:1978:SPA

[199] Lawrence F. Shampine. Stability properties of Adams codes. *ACM Transactions on Mathematical Software*, 4(4):323–329, December 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sherman:1978:ASG

[200] Andrew H. Sherman. Algorithms for sparse Gaussian elimination with partial pivoting. *ACM Transactions on Mathematical Software*, 4(4): 330–338, December 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Tendler:1978:SSI

[201] Joel M. Tendler, Theodore A. Bickart, and Zdenek Picel. A stiffly stable integration process using cyclic composite methods. *ACM Transactions on Mathematical Software*, 4(4):339–368, December 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Miller:1978:SRA

[202] Webb Miller and David Spooner. Software for roundoff analysis. II. *ACM Transactions on Mathematical Software*, 4(4):369–387, December 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Miller:1978:ASR

[203] Webb Miller and David Spooner. Algorithm 532: Software for roundoff analysis [Z]. *ACM Transactions on Mathematical Software*, 4(4):388–390, December 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sherman:1978:ANF

[204] Andrew H. Sherman. Algorithm 533: NSPIV, A Fortran subroutine for sparse Gaussian elimination with partial pivoting [F4]. *ACM Transactions on Mathematical Software*, 4(4):391–398, December 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Tendler:1978:ASS

[205] Joel M. Tendler, Theodore A. Bickart, and Zdenek Picel. Algorithm 534: STINT: STiff (differential equations) INTegrator [D2]. *ACM Transactions on Mathematical Software*, 4(4):399–403, December 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Garbow:1978:AQA

[206] Burton S. Garbow. Algorithm 535: The QZ algorithm to solve the generalized eigenvalue problem for complex matrices [F2]. *ACM Transactions on Mathematical Software*, 4(4):404–410, December 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [396, 486].

Amos:1978:ECS

[207] Donald E. Amos. Erratum: "Algorithm 511: CDC 6600 subroutines IBESS and JBESS for Bessel functions $I_\nu(x)$ and $J_\nu(x)$, $x \geq 0, \nu \geq 0$ [S18]". *ACM Transactions on Mathematical Software*, 4(4):411, December 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [126].

Zave:1979:DAP

[208] Pamela Zave and Werner C. Rheinboldt. Design of an adaptive, parallel finite-element system. *ACM Transactions on Mathematical Software*, 5 (1):1–17, March 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Duff:1979:SDF

[209] I. S. Duff and J. K. Reid. Some design features of a sparse matrix code. *ACM Transactions on Mathematical Software*, 5(1):18–35, March 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Proskurowski:1979:NSH

[210] Wlodzimierz Proskurowski. Numerical solution of Helmholtz's equation by implicit capacitance matrix methods. *ACM Transactions on Mathematical Software*, 5(1):36–49, March 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Yohe:1979:SIA

[211] J. M. Yohe. Software for interval arithmetic: a reasonably portable package. *ACM Transactions on Mathematical Software*, 5(1):50–63, March 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

More:1979:NSN

[212] Jorge J. Moré and Michel Y. Cosnard. Numerical solution of nonlinear equations. *ACM Transactions on Mathematical Software*, 5(1):64–85, March 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kahaner:1979:EAD

[213] David K. Kahaner and Mark B. Wells. An experimental algorithm for N-dimensional adaptive quadrature. *ACM Transactions on Mathematical Software*, 5(1):86–96, March 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Knoble:1979:EOW

[214] H. D. Knoble, C. Forney, Jr., and F. S. Bader. An efficient one-way enciphering algorithm. *ACM Transactions on Mathematical Software*, 5 (1):97–107, March 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Knoble:1979:AEO

[215] H. D. Knoble. Algorithm 536: An efficient one-way enciphering algorithm [Z]. *ACM Transactions on Mathematical Software*, 5(1):108–111, March 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Leeb:1979:ACV

[216] Walter R. Leeb. Algorithm 537: Characteristic values of Mathieu's differential equation. *ACM Transactions on Mathematical Software*, 5(1): 112–117, March 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Nikolai:1979:AEE

[217] Paul J. Nikolai. Algorithm 538: Eigenvectors and eigenvalues of real generalized symmetric matrices by simultaneous iteration [F2]. *ACM Transactions on Mathematical Software*, 5(1):118–125, March 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Krogh:1979:AAP

[218] Fred T. Krogh. ACM algorithms policy. *ACM Transactions on Mathematical Software*, 5(2):129–131, June 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Schrage:1979:MPF

[219] Linus Schrage. A more portable Fortran random number generator. *ACM Transactions on Mathematical Software*, 5(2):132–138, June 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

George:1979:DUI

[220] Alan George and Joseph W. H. Liu. The design of a user interface for a sparse matrix package. *ACM Transactions on Mathematical Software*, 5(2):139–162, June 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Payne:1979:CG

[221] W. H. Payne and F. M. Ives. Combination generators. *ACM Transactions on Mathematical Software*, 5(2):163–172, June 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

deBoor:1979:ECM

[222] Carl de Boor. Efficient computer manipulation of tensor products. *ACM Transactions on Mathematical Software*, 5(2):173–182, June 1979. CO-

DEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See corrigenda [261].

Cleary:1979:AAF

[223] John Gerald Cleary. Analysis of an algorithm for finding nearest neighbors in Euclidean space. *ACM Transactions on Mathematical Software*, 5(2):183–192, June 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Crowder:1979:RCE

[224] Harlan Crowder, Ron S. Dembo, and John M. Mulvey. On reporting computational experiments with mathematical software. *ACM Transactions on Mathematical Software*, 5(2):193–203, June 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Crary:1979:VPN

[225] Fred D. Crary. A versatile precompiler for nonstandard arithmetics. *ACM Transactions on Mathematical Software*, 5(2):204–217, June 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Geddes:1979:SCP

[226] K. O. Geddes. Symbolic computation of Padé approximants. *ACM Transactions on Mathematical Software*, 5(2):218–233, June 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bogen:1979:ASI

[227] Richard A. Bogen. Addendum to "Analytically solving integral equations by using computer algebra". *ACM Transactions on Mathematical Software*, 5(2):234–237, June 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

elLozy:1979:RAS

[228] Mohamed el Lozy. Remark on "Algorithm 395: Student's t-distribution" and remark on "Algorithm 396: Student's quantiles [S14]". *ACM Transactions on Mathematical Software*, 5(2):238–239, June 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [14, 15, 338, 504].

Geddes:1979:RCC

[229] K. O. Geddes. Remark on "Algorithm 424: Clenshaw–Curtis quadrature [O1]". *ACM Transactions on Mathematical Software*, 5(2):240, June 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [17].

Anderson:1979:RBI

[230] M. R. Anderson. Remark on "Algorithm 474: Bivariate interpolation and smooth surface fitting based on local procedures". *ACM Transactions on Mathematical Software*, 5(2):241, June 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [23].

Akima:1979:RBI

[231] Hiroshi Akima. Remark on "Algorithm 526: Bivariate interpolation and smooth surface fitting for irregularly distributed data points [E1]". *ACM Transactions on Mathematical Software*, 5(2):242–243, June 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [181, 505].

Shampine:1979:SRR

[232] L. F. Shampine. Storage reduction for Runge–Kutta codes. *ACM Transactions on Mathematical Software*, 5(3):245–250, September 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ehrlich:1979:SBE

[233] L. W. Ehrlich. Solving the biharmonic equation on irregular regions. *ACM Transactions on Mathematical Software*, 5(3):251–258, September 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gill:1979:DSF

[234] Philip E. Gill, Walter Murray, Susan M. Picken, and Margaret H. Wright. The design and structure of a Fortran program library for optimization. *ACM Transactions on Mathematical Software*, 5(3):259–283, September 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

George:1979:IPN

[235] Alan George and Joseph W. H. Liu. An implementation of a pseudoperipheral node finder. *ACM Transactions on Mathematical Software*, 5(3): 284–295, September 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bennett:1979:SPE

[236] James Michael Bennett and Robert Neff Bryan. A single-point exchange algorithm for approximating functions of two variables. *ACM Transactions on Mathematical Software*, 5(3):296–307, September 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Lawson:1979:BLA

[237] C. L. Lawson, R. J. Hanson, D. R. Kincaid, and F. T. Krogh. Basic Linear Algebra Subprograms for Fortran usage. *ACM Transactions on Mathematical Software*, 5(3):308–323, September 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Lawson:1979:ABL

[238] C. L. Lawson, R. J. Hanson, D. R. Kincaid, and F. T. Krogh. Algorithm 539: Basic Linear Algebra Subprograms for Fortran usage [F1]. *ACM Transactions on Mathematical Software*, 5(3):324–325, September 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [397, 408, 581, 609, 1107, 1559].

Madsen:1979:APG

[239] N. K. Madsen and R. F. Sincovec. Algorithm 540: PDECOL, general collocation software for partial differential equations [D3]. *ACM Transactions on Mathematical Software*, 5(3):326–351, September 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [760].

Swartztrauber:1979:AEF

[240] Paul N. Swartztrauber and Roland A. Sweet. Algorithm 541: Efficient Fortran subprograms for the solution of separable elliptic partial differential equations [D3]. *ACM Transactions on Mathematical Software*, 5(3):352–364, September 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://doi.acm.org/10.1145/355841.355850; http://www.acm.org/pubs/citations/journals/toms/1979-5-3/p352-swartztrauber/`.

Steuerwalt:1979:CEF

[241] Michael Steuerwalt. Certification of "Algorithm 541: Efficient Fortran subprograms for the solution of separable elliptic partial differential equations [D3]". *ACM Transactions on Mathematical Software*, 5(3):365–371, September 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Larson:1979:ECE

[242] John Larson. Errata: "Efficient calculation of the effects of roundoff errors". *ACM Transactions on Mathematical Software*, 5(3):372, September 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [187].

Gear:1979:EN

[243] C. W. Gear. Editor's note. *ACM Transactions on Mathematical Software*, 5(4):373, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Enright:1979:APS

[244] W. H. Enright and M. S. Kamel. Automatic partitioning of stiff systems and exploiting the resulting structure. *ACM Transactions on Mathematical Software*, 5(4):374–385, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gladwell:1979:IVR

[245] Ian Gladwell. Initial value routines in the NAG library. *ACM Transactions on Mathematical Software*, 5(4):386–400, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Zlatev:1979:ASD

[246] Zahari Zlatev and Per Grove Thomsen. Automatic solution of differential equations based on the user of linear multistep methods. *ACM Transactions on Mathematical Software*, 5(4):401–414, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Stetter:1979:GEE

[247] Hans J. Stetter. Global error estimation in Adams PC-codes. *ACM Transactions on Mathematical Software*, 5(4):415–430, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Houstis:1979:HOF

[248] E. N. Houstis and T. S. Papatheodorou. High-order fast elliptic equation solvers. *ACM Transactions on Mathematical Software*, 5(4):431–441, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kaufman:1979:ADH

[249] L. Kaufman. Application of dense Householder transformation to a sparse matrix. *ACM Transactions on Mathematical Software*, 5(4):442–450, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rayward-Smith:1979:CSN

[250] V. J. Rayward-Smith. On computing the Smith normal form of an integer matrix. *ACM Transactions on Mathematical Software*, 5(4):451–456,

December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Wampler:1979:SWL

[251] Roy H. Wampler. Solutions to weighted least squares problems by modified Gram–Schmidt with iterative refinement. *ACM Transactions on Mathematical Software*, 5(4):457–465, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gautschi:1979:CPI

[252] Walter Gautschi. A computational procedure for incomplete gamma functions. *ACM Transactions on Mathematical Software*, 5(4):466–481, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gautschi:1979:AIG

[253] W. Gautschi. Algorithm 542: Incomplete gamma functions [S14]. *ACM Transactions on Mathematical Software*, 5(4):482–489, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Houstis:1979:AFF

[254] E. N. Houstis and T. S. Papatheodorou. Algorithm 543: FFT9, fast solution of Helmholtz-type partial differential equations [D3]. *ACM Transactions on Mathematical Software*, 5(4):490–493, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Wampler:1979:ALL

[255] Roy H. Wampler. Algorithm 544: L2A and L2B, weighted least squares solutions by modified Gram–Schmidt with iterative refinement [F4]. *ACM Transactions on Mathematical Software*, 5(4):494–499, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fraser:1979:AOM

[256] D. Fraser. Algorithm 545: An optimized mass storage FFT [C6]. *ACM Transactions on Mathematical Software*, 5(4):500–517, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Brent:1979:RMF

[257] R. P. Brent. Remark on "Algorithm 524: MP, A Fortran multiple-precision arithmetic package [A1]". *ACM Transactions on Mathematical Software*, 5(4):518–519, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [171, 276, 963].

Leathers:1979:RAS

[258] Burton L. Leathers. Remark on "Algorithm 513: Analysis of in-situ transposition [F1]" and remark on "Algorithm 467: Matrix transposition in place". *ACM Transactions on Mathematical Software*, 5(4):520, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [128, 22].

vanSwieten:1979:RAV

[259] A. C. M. van Swieten and J. Th. M. de Hosson. Remark on "Algorithm 475: Visible surface plotting program". *ACM Transactions on Mathematical Software*, 5(4):521–523, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [25].

Fox:1979:RFP

[260] Phyllis Fox. Remark on "Algorithm 528: Framework for a portable library [Z]". *ACM Transactions on Mathematical Software*, 5(4):524, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [183].

deBoor:1979:CCM

[261] Carl de Boor. Corrigenda: "Efficient computer manipulation of tensor products". *ACM Transactions on Mathematical Software*, 5(4):525, December 1979. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [222].

Cheung:1980:CCE

[262] To-Yat Cheung. Computational comparison of eight methods for the maximum network flow problem. *ACM Transactions on Mathematical Software*, 6(1):1–16, March 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ho:1980:CST

[263] James K. Ho and Etienne Loute. A comparative study of two methods for staircase linear problems. *ACM Transactions on Mathematical Software*, 6(1):17–30, March 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Michaels:1980:MPG

[264] William M. Michaels and Richard P. O'Neill. A mathematical program generator MPGENR. *ACM Transactions on Mathematical Software*, 6 (1):31–44, March 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Chung:1980:ACF

[265] Won L. Chung. Automatic curve fittings using an adaptive local algorithm. *ACM Transactions on Mathematical Software*, 6(1):45–57, March 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Clark:1980:REV

[266] Gordon M. Clark. Recursive estimation of the variance of the sample average. *ACM Transactions on Mathematical Software*, 6(1):58–67, March 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Power:1980:ISU

[267] Leigh R. Power. Internal sorting using a minimal tree merge strategy. *ACM Transactions on Mathematical Software*, 6(1):68–79, March 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

deBoor:1980:SPS

[268] Carl de Boor and Richard Weiss. SOLVEBLOK: a package for solving almost block diagonal linear systems. *ACM Transactions on Mathematical Software*, 6(1):80–87, March 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

deBoor:1980:AS

[269] Carl de Boor and Richard Weiss. Algorithm 546: SOLVEBLOK [F4]. *ACM Transactions on Mathematical Software*, 6(1):88–91, March 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Duris:1980:AFR

[270] Charles S. Duris. Algorithm 547: FORTRAN routines for discrete cubic spline interpolation and smoothing [E1], [E3]. *ACM Transactions on Mathematical Software*, 6(1):92–103, March 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Carpaneto:1980:ASA

[271] Giorgio Carpaneto and Paolo Toth. Algorithm 548: Solution of the assignment problem [H]. *ACM Transactions on Mathematical Software*, 6(1):104–111, March 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Eckhardt:1980:AWE

[272] Ulrich Eckhardt. Algorithm 549: Weierstrass' elliptic functions [S21]. *ACM Transactions on Mathematical Software*, 6(1):112–120, March 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Messner:1980:ASP

[273] A. M. Messner and G. Q. Taylor. Algorithm 550: Solid polyhedron measure [Z]. *ACM Transactions on Mathematical Software*, 6(1):121–130, March 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Anonymous:1980:AAD

[274] Anonymous. ACM Algorithms Distribution Service expanded. *ACM Transactions on Mathematical Software*, 6(1):131–132, March 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Chan:1980:NLS

[275] Tony F. Chan, William M. Coughran, Jr., Eric H. Grosse, and Michael T. Heath. A numerical library and its support. *ACM Transactions on Mathematical Software*, 6(2):135–145, June 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Brent:1980:AIB

[276] Richard P. Brent, Judith A. Hooper, and J. Michael Yohe. An AUGMENT interface for Brent's multiple precision arithmetic package. *ACM Transactions on Mathematical Software*, 6(2):146–149, June 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [171, 257, 963].

Kedem:1980:ADC

[277] Gershon Kedem. Automatic differentiation of computer programs. *ACM Transactions on Mathematical Software*, 6(2):150–165, June 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rheinboldt:1980:DSA

[278] Werner C. Rheinboldt and Charles K. Mesztenyi. On a data structure for adaptive finite element mesh refinements. *ACM Transactions on Mathematical Software*, 6(2):166–187, June 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Verwer:1980:ICS

[279] J. G. Verwer. An implementation of a class of stabilized explicit methods for the time integration of parabolic equations. *ACM Transactions on Mathematical Software*, 6(2):188–205, June 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Munksgaard:1980:SSS

[280] N. Munksgaard. Solving sparse symmetric sets of linear equations by preconditioned conjugate gradients. *ACM Transactions on Mathematical Software*, 6(2):206–219, June 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Abdelmalek:1980:SOS

[281] Nabih N. Abdelmalek. L_1 solution of overdetermined systems of linear equations. *ACM Transactions on Mathematical Software*, 6(2):220–227, June 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Abdelmalek:1980:AFS

[282] Nabih N. Abdelmalek. Algorithm 551: A FORTRAN subroutine for the L_1 solution of overdetermined systems of linear equations [F4]. *ACM Transactions on Mathematical Software*, 6(2):228–230, June 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Barrodale:1980:ASC

[283] I. Barrodale and F. D. K. Roberts. Algorithm 552: Solution of the constrained ℓ_1 linear approximation problem [F4]. *ACM Transactions on Mathematical Software*, 6(2):231–235, June 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Verwer:1980:AME

[284] J. G. Verwer. Algorithm 553: M3RK, an explicit time integrator for semidiscrete parabolic equations [D3]. *ACM Transactions on Mathematical Software*, 6(2):236–239, June 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

More:1980:ABF

[285] J. J. Moré and M. Y. Cosnard. Algorithm 554: BRENTM, A Fortran subroutine for the numerical solution of nonlinear equations [F5]. *ACM Transactions on Mathematical Software*, 6(2):240–251, June 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Watson:1980:ACY

[286] L. T. Watson and D. Fenner. Algorithm 555: Chow-Yorke algorithm for fixed points or zeros of C^2 maps [C5]. *ACM Transactions on Mathematical Software*, 6(2):252–259, June 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gear:1980:RKS

[287] C. W. Gear. Runge–Kutta starters for multistep methods. *ACM Transactions on Mathematical Software*, 6(3):263–279, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Barton:1980:TSS

[288] David Barton. On Taylor series and stiff equations. *ACM Transactions on Mathematical Software*, 6(3):280–294, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Jackson:1980:AIV

[289] K. R. Jackson and R. Sacks-Davis. An alternative implementation of variable step-size multistep formulas for stiff ODEs. *ACM Transactions on Mathematical Software*, 6(3):295–318, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gupta:1980:NAO

[290] G. K. Gupta. A note about overhead costs in ODE solvers. *ACM Transactions on Mathematical Software*, 6(3):319–326, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Coleman:1980:SSI

[291] David Coleman, Paul Holland, Neil Kaden, Virginia Klema, and Stephen C. Peters. A system of subroutines for iteratively reweighted least squares computations. *ACM Transactions on Mathematical Software*, 6(3):327–336, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

George:1980:FIM

[292] Alan George and Joseph W. H. Liu. A fast implementation of the minimum degree algorithm using quotient graphs. *ACM Transactions on Mathematical Software*, 6(3):337–358, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bentley:1980:GSL

[293] Jon Louis Bentley and James B. Saxe. Generating sorted lists of random numbers. *ACM Transactions on Mathematical Software*, 6(3):359–364, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Amos:1980:CEI

[294] Donald E. Amos. Computation of exponential integrals. *ACM Transactions on Mathematical Software*, 6(3):365–377, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Arthur:1980:PPA

[295] Jeffrey L. Arthur and A. Ravindran. PAGP, a partitioning algorithm for (linear) goal programming problems. *ACM Transactions on Mathematical Software*, 6(3):378–386, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cheung:1980:MLP

[296] To-Yat Cheung. Multifacility location problem with rectilinear distance by the minimum-cut approach. *ACM Transactions on Mathematical Software*, 6(3):387–390, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Betts:1980:CAC

[297] J. T. Betts. A compact algorithm for computing the stationary point of a quadratic function subject to linear constraints. *ACM Transactions on Mathematical Software*, 6(3):391–397, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kaagstrom:1980:ANC

[298] Bo Kågström and Axel Ruhe. An algorithm for numerical computation of the Jordan normal form of a complex matrix. *ACM Transactions on Mathematical Software*, 6(3):398–419, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Amos:1980:AEI

[299] Donald E. Amos. Algorithm 556: Exponential integrals [S13]. *ACM Transactions on Mathematical Software*, 6(3):420–428, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remark in [441].

Arthur:1980:APP

[300] J. L. Arthur and A. Ravindran. Algorithm 557: PAGP, a partitioning algorithm for (linear) goal programming problems [H]. *ACM Transactions on Mathematical Software*, 6(3):429, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cheung:1980:APM

[301] To-Yat Cheung. Algorithm 558: a program for the multifacility location problem with rectilinear distance by the minimum-cut approach [H]. *ACM Transactions on Mathematical Software*, 6(3):430–431, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Betts:1980:ASP

[302] J. T. Betts. Algorithm 559: The stationary point of a quadratic function subject to linear constraints [E4]. *ACM Transactions on Mathematical Software*, 6(3):432–436, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kaagstroem:1980:AJA

[303] Bo Kågström and Axel Ruhe. Algorithm 560: JNF, an algorithm for numerical computation of the Jordan normal form of a complex matrix [F2]. *ACM Transactions on Mathematical Software*, 6(3):437–443, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kahaner:1980:AFI

[304] D. K. Kahaner. Algorithm 561: FORTRAN implementation of heap programs for efficient table maintenance [Z]. *ACM Transactions on Mathematical Software*, 6(3):444–449, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Pape:1980:ASP

[305] U. Pape. Algorithm 562: Shortest path lengths [H]. *ACM Transactions on Mathematical Software*, 6(3):450–455, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [418].

Harms:1980:RSM

[306] U. Harms, H. Kollakowski, and G. Möller. Remark on "Algorithm 408: a sparse matrix package (part 1) [F4]". *ACM Transactions on Mathemat-*

ical Software, 6(3):456–457, September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [16].

Machura:1980:SSP

[307] Marek Machura and Roland A. Sweet. A survey of software for partial differential equations. *ACM Transactions on Mathematical Software*, 6(4): 461–488, December 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kurator:1980:PIS

[308] William G. Kurator and Richard P. O'Neill. PERUSE: An interactive system for mathematical programs. *ACM Transactions on Mathematical Software*, 6(4):489–509, December 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Brown:1980:EPB

[309] W. S. Brown and S. I. Feldman. Environment parameters and basic functions for floating-point computation. *ACM Transactions on Mathematical Software*, 6(4):510–523, December 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Luk:1980:CSV

[310] Franklin T. Luk. Computing the singular-value decomposition on the ILLIAC IV. *ACM Transactions on Mathematical Software*, 6(4):524–539, December 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sacks-Davis:1980:FLC

[311] R. Sacks-Davis. Fixed leading coefficient implementation of SD-formulas for stiff ODEs. *ACM Transactions on Mathematical Software*, 6(4):540–562, December 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bentley:1980:OET

[312] Jon Louis Bentley, Bruce W. Weide, and Andrew C. Yao. Optimal expected-time algorithms for closest point problems. *ACM Transactions on Mathematical Software*, 6(4):563–580, December 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Campbell:1980:TAM

[313] J. B. Campbell. On Temme's algorithm for the modified Bessel function of the third kind. *ACM Transactions on Mathematical Software*, 6(4):

581–586, December 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hoffman:1980:TPG

[314] K. L. Hoffman and D. R. Shier. A test problem generator for discrete linear L_1 approximation problems. *ACM Transactions on Mathematical Software*, 6(4):587–593, December 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bartels:1980:LCD

[315] Richard H. Bartels and Andrew R. Conn. Linearly constrained discrete ℓ_1 problems. *ACM Transactions on Mathematical Software*, 6(4):594–608, December 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bartels:1980:APL

[316] Richard H. Bartels and Andrew R. Conn. Algorithm 563: a program for linearly constrained discrete ℓ_1 problems. *ACM Transactions on Mathematical Software*, 6(4):609–614, December 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remark [908].

Hoffman:1980:ATP

[317] K. L. Hoffman and D. R. Shier. Algorithm 564: a test problem generator for discrete linear L_1 approximation problems. *ACM Transactions on Mathematical Software*, 6(4):615–617, December 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Shanno:1980:RMU

[318] D. F. Shanno and K. H. Phua. Remark on "Algorithm 500: Minimization of unconstrained multivariate functions [E4]". *ACM Transactions on Mathematical Software*, 6(4):618–622, December 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [76].

Hiebert:1981:EMS

[319] K. L. Hiebert. An evaluation of mathematical software that solves nonlinear least squares problems. *ACM Transactions on Mathematical Software*, 7(1):1–16, March 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

More:1981:TUO

[320] Jorge J. Moré, Burton S. Garbow, and Kenneth E. Hillstrom. Testing unconstrained optimization software. *ACM Transactions on Mathematical*

Software, 7(1):17–41, March 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Akl:1981:CCG

[321] Selim G. Akl. A comparison of combination generation methods. *ACM Transactions on Mathematical Software*, 7(1):42–45, March 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fritsch:1981:DIU

[322] F. N. Fritsch, D. K. Kahaner, and J. N. Lyness. Double integration using one-dimensional adaptive quadrature routines: a software interface problem. *ACM Transactions on Mathematical Software*, 7(1):46–75, March 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [340].

Friedman:1981:NPP

[323] Jerome H. Friedman and Margaret H. Wright. A nested partitioning procedure for numerical multiple integration. *ACM Transactions on Mathematical Software*, 7(1):76–92, March 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Smith:1981:ERA

[324] J. M. Smith, F. W. J. Olver, and D. W. Lozier. Extended-range arithmetic and normalized Legendre polynomials. *ACM Transactions on Mathematical Software*, 7(1):93–105, March 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Melgaard:1981:GST

[325] David K. Melgaard and Richard F. Sincovec. General software for two-dimensional nonlinear partial differential equations. *ACM Transactions on Mathematical Software*, 7(1):106–125, March 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Melgaard:1981:APS

[326] David K. Melgaard and Richard F. Sincovec. Algorithm 565: PDETWO/PSETM/GEARB: Solution of systems of two-dimensional nonlinear partial differential equations [D3]. *ACM Transactions on Mathematical Software*, 7(1):126–135, March 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

More:1981:AFS

[327] J. J. Moré, B. S. Garbow, and K. E. Hillstrom. Algorithm 566: FORTRAN subroutines for testing unconstrained optimization software

[C5 [E4]]. *ACM Transactions on Mathematical Software*, 7(1):136–140, March 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [829].

Lozier:1981:AER

[328] D. W. Lozier and J. M. Smith. Algorithm 567: Extended-range arithmetic and normalized Legendre polynomials [A1], [C1]. *ACM Transactions on Mathematical Software*, 7(1):141–146, March 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Golub:1981:BLM

[329] Gene H. Golub, Franklin T. Luk, and Michael L. Overton. A block Lánczos method for computing the singular values of corresponding singular vectors of a matrix. *ACM Transactions on Mathematical Software*, 7(2):149–169, June 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Wang:1981:PMT

[330] H. H. Wang. A parallel method for tridiagonal equations. *ACM Transactions on Mathematical Software*, 7(2):170–183, June 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Stewart:1981:SIA

[331] William J. Stewart and Alan Jennings. A simultaneous iteration algorithm for real matrices. *ACM Transactions on Mathematical Software*, 7(2):184–198, June 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hill:1981:EIR

[332] Geoffrey W. Hill. Evaluation and inversion of the ratios of modified Bessel functions, $I_1(x)/I_0(x)$ and $I_{1.5}(x)/I_{0.5}(x)$. *ACM Transactions on Mathematical Software*, 7(2):199–208, June 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ascher:1981:CSB

[333] U. Ascher, J. Christiansen, and R. D. Russell. Collocation software for boundary value ODE's. *ACM Transactions on Mathematical Software*, 7(2):209–222, June 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ascher:1981:ACC

[334] U. Ascher, J. Christiansen, and R. D. Russell. Algorithm 569: COLSYS: Collocation software for boundary-value ODEs [D2]. *ACM Transactions*

on Mathematical Software, 7(2):223–229, June 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [554].

Stewart:1981:ALS

[335] William J. Stewart and Alan Jennings. Algorithm 570: LOPSI: a simultaneous iteration method for real matrices [F2]. *ACM Transactions on Mathematical Software*, 7(2):230–232, June 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hill:1981:ASM

[336] Geoffrey W. Hill. Algorithm 571: Statistics for von Mises' and Fisher's distributions of directions: $I_1(x)/I_0(x)$, $I_{1.5}(x)/I_{0.5}(x)$ and their inverses [S14]. *ACM Transactions on Mathematical Software*, 7(2):233–238, June 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

OLeary:1981:ASH

[337] Dianne P. O'Leary and Olof Widlund. Algorithm 572: Solution of the Helmholtz equation for the Dirichlet problem on general bounded three-dimensional regions [D3]. *ACM Transactions on Mathematical Software*, 7(2):239–246, June 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hill:1981:RSD

[338] G. W. Hill. Remark on "Algorithm 395: Student's t-distribution". *ACM Transactions on Mathematical Software*, 7(2):247–249, June 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [14, 15, 228].

Hill:1981:RSQ

[339] G. W. Hill. Remark on "Algorithm 396: Student's t-quantiles". *ACM Transactions on Mathematical Software*, 7(2):250–251, June 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [15].

Fritsch:1981:CIU

[340] F. N. Fritsch. Corrigendum: "Double integration using one-dimensional adaptive quadrature routines: a software interface problem". *ACM Transactions on Mathematical Software*, 7(2):252, June 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [322].

Ukkonen:1981:CER

[341] Esko Ukkonen. On the calculation of the effects of roundoff errors. *ACM Transactions on Mathematical Software*, 7(3):259–271, September 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Linnainmaa:1981:SDP

[342] Seppo Linnainmaa. Software for doubled-precision floating-point computations. *ACM Transactions on Mathematical Software*, 7(3):272–283, September 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Lii:1981:CBC

[343] K. S. Lii and K. N. Helland. Cross-bispectrum computation and variance estimation. *ACM Transactions on Mathematical Software*, 7(3):284–294, September 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dew:1981:SLR

[344] P. M. Dew and J. E. Walsh. A set of library routines for solving parabolic equations in one space variable. *ACM Transactions on Mathematical Software*, 7(3):295–314, September 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Duff:1981:AOM

[345] I. S. Duff. On algorithms for obtaining a maximum transversal. *ACM Transactions on Mathematical Software*, 7(3):315–330, September 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

McAllister:1981:ACS

[346] David F. McAllister and John A. Roulier. An algorithm for computing a shape-preserving osculatory quadratic spline. *ACM Transactions on Mathematical Software*, 7(3):331–347, September 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dennis:1981:ANL

[347] John E. Dennis, Jr., David M. Gay, and Roy E. Welsch. An adaptive nonlinear least-squares algorithm. *ACM Transactions on Mathematical Software*, 7(3):348–368, September 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dennis:1981:ANE

[348] John E. Dennis, Jr., David M. Gay, and Roy E. Welsch. Algorithm 573: NL2SOL—an adaptive nonlinear least-squares algorithm [E4]. *ACM Transactions on Mathematical Software*, 7(3):369–383, September 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [407].

McAllister:1981:ASP

[349] D. F. McAllister and J. A. Roulier. Algorithm 574: Shape-preserving osculatory quadratic splines [E1, E2]. *ACM Transactions on Mathematical Software*, 7(3):384–386, September 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Duff:1981:APZ

[350] I. S. Duff. Algorithm 575: Permutations for a zero-free diagonal [F1]. *ACM Transactions on Mathematical Software*, 7(3):387–390, September 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Barrodale:1981:AFP

[351] I. Barrodale and G. F. Stuart. Algorithm 576: A FORTRAN program for solving $\mathbf{Ax} = \mathbf{b}$ [F4]. *ACM Transactions on Mathematical Software*, 7(3):391–397, September 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Carlson:1981:AAI

[352] B. C. Carlson and Elaine M. Notis. Algorithm 577: Algorithms for incomplete elliptic integrals [S21]. *ACM Transactions on Mathematical Software*, 7(3):398–403, September 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Razaz:1981:RAF

[353] M. Razaz and J. L. Schonfelder. Remark on "Algorithm 498: Airy functions using Chebyshev series approximations". *ACM Transactions on Mathematical Software*, 7(3):404–405, September 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [67].

Shampine:1981:ETS

[354] Lawrence F. Shampine. Evaluation of a test set for stiff ODE solvers. *ACM Transactions on Mathematical Software*, 7(4):409–420, December 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Neves:1981:CIE

[355] Kenneth W. Neves. Control of interpolatory error in retarded differential equations. *ACM Transactions on Mathematical Software*, 7(4):421–444, December 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Brown:1981:SRM

[356] W. S. Brown. A simple but realistic model of floating-point computation. *ACM Transactions on Mathematical Software*, 7(4):445–480, December 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Marsten:1981:DXL

[357] Roy E. Marsten. The design of the XMP linear programming library. *ACM Transactions on Mathematical Software*, 7(4):481–497, December 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Pallottino:1981:EAD

[358] Stefano Pallottino and Tommaso Toffoli. An efficient algorithm for determining the length of the longest dead path in a "LIFO" branch-and-bound exploration schema. *ACM Transactions on Mathematical Software*, 7(4):498–504, December 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Duff:1981:MSU

[359] I. S. Duff. ME28: a sparse unsymmetric linear equation solver for complex equations. *ACM Transactions on Mathematical Software*, 7(4):505–511, December 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fornberg:1981:NDA

[360] Bengt Fornberg. Numerical differentiation of analytic functions. *ACM Transactions on Mathematical Software*, 7(4):512–526, December 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

DuCroz:1981:SLF

[361] J. J. Du Croz, S. M. Nugent, J. K. Reid, and D. B. Taylor. Solving large full sets of linear equations in a paged virtual store. *ACM Transactions on Mathematical Software*, 7(4):527–536, December 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

DuCroz:1981:ASR

[362] J. J. Du Croz, S. M. Nugent, J. K. Reid, and D. B. Taylor. Algorithm 578: Solution of real linear equations in a paged virtual store [F4]. *ACM Transactions on Mathematical Software*, 7(4):537–541, December 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fornberg:1981:ACC

[363] B. Fornberg. Algorithm 579: CPSC: Complex power series coefficients [D4]. *ACM Transactions on Mathematical Software*, 7(4):542–547, December 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Buckley:1981:AQS

[364] A. Buckley. Algorithm 580: QRUP: a set of FORTRAN routines for updating QR factorizations [F5]. *ACM Transactions on Mathematical Software*, 7(4):548–549, December 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [398].

Krogh:1982:AAP

[365] Fred T. Krogh. ACM algorithms policy. *ACM Transactions on Mathematical Software*, 8(1):1–4, March 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hiebert:1982:EMS

[366] K. L. Hiebert. An evaluation of mathematical software that solves systems of nonlinear equations. *ACM Transactions on Mathematical Software*, 8(1):5–20, March 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dunham:1982:CBC

[367] Charles B. Dunham. Choice of basis for Chebyshev approximation. *ACM Transactions on Mathematical Software*, 8(1):21–25, March 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Deo:1982:AGF

[368] Narsingh Deo, G. M. Prabhu, and M. S. Krishnamoorthy. Algorithms for generating fundamental cycles in a graph. *ACM Transactions on Mathematical Software*, 8(1):26–42, March 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Paige:1982:LAS

[369] Christopher C. Paige and Michael A. Saunders. LSQR: An algorithm for sparse linear equations and sparse least squares. *ACM Transactions on Mathematical Software*, 8(1):43–71, March 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Chan:1982:IAC

[370] Tony F. Chan. An improved algorithm for computing the singular value decomposition. *ACM Transactions on Mathematical Software*, 8(1):72–83, March 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Chan:1982:AIA

[371] Tony F. Chan. Algorithm 581: An improved algorithm for computing the singular value decomposition [F1]. *ACM Transactions on Mathematical Software*, 8(1):84–88, March 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Tracht:1982:RNR

[372] Allen E. Tracht. Remark on "Algorithm 334: Normal random deviates". *ACM Transactions on Mathematical Software*, 8(1):89, March 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [11].

Shampine:1982:IRM

[373] L. F. Shampine. Implementation of Rosenbrock methods. *ACM Transactions on Mathematical Software*, 8(2):93–113, June 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Corliss:1982:SOD

[374] George Corliss and Y. F. Chang. Solving ordinary differential equations using Taylor series. *ACM Transactions on Mathematical Software*, 8(2): 114–144, June 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hoaglin:1982:EDA

[375] David C. Hoaglin, Virginia C. Klema, and Stephen C. Peters. Exploratory data analysis in a study of the performance of nonlinear optimization routines. *ACM Transactions on Mathematical Software*, 8(2): 145–162, June 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ahrens:1982:CGP

[376] J. H. Ahrens and U. Dieter. Computer generation of Poisson deviates from modified normal distributions. *ACM Transactions on Mathematical Software*, 8(2):163–179, June 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Lewis:1982:IGP

[377] John G. Lewis. Implementation of the Gibbs-Poole-Stockmeyer and Gibbs-king algorithms. *ACM Transactions on Mathematical Software*, 8(2):180–189, June 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Lewis:1982:AGP

[378] John G. Lewis. Algorithm 582: The Gibbs-Poole-Stockmeyer and Gibbs-King algorithms for reordering sparse matrices. *ACM Transactions on Mathematical Software*, 8(2):190–194, June 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Paige:1982:ALS

[379] Christopher C. Paige and Michael A. Saunders. Algorithm 583: LSQR: Sparse linear equations and least squares problems. *ACM Transactions on Mathematical Software*, 8(2):195–209, June 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Laurie:1982:ACA

[380] D. P. Laurie. Algorithm 584: CUBTRI: Automatic cubature over a triangle. *ACM Transactions on Mathematical Software*, 8(2):210–218, June 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [535].

Flamm:1982:RHE

[381] David S. Flamm and Robert A. Walker. Remark on "Algorithm 506: HQR3 and EXCHNG: Fortran subroutines for calculating and ordering the eigenvalues of a real upper Hessenberg matrix [F2]". *ACM Transactions on Mathematical Software*, 8(2):219–220, June 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [101].

Lewis:1982:RMB

[382] John G. Lewis. Remark on "Algorithms 508 and 509: Matrix bandwidth and profile reduction [F1] and a hybrid profile reduction algorithm [F1]".

ACM Transactions on Mathematical Software, 8(2):221, June 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [112, 113].

Ellison:1982:UUI

[383] E. F. D. Ellison and Gautam Mitra. UIMP: User interface for mathematical programming. *ACM Transactions on Mathematical Software*, 8(3):229–255, September 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://doi.acm.org/10.1145/356004.356005; http://www.acm.org/pubs/citations/journals/toms/1982-8-3/p229-mitra/`.

Schreiber:1982:NIS

[384] Robert Schreiber. A new implementation of sparse Gaussian elimination. *ACM Transactions on Mathematical Software*, 8(3):256–276, September 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sasaki:1982:EGE

[385] Tateaki Sasaki and Hirokazu Murao. Efficient Gaussian elimination method for symbolic determinants and linear systems. *ACM Transactions on Mathematical Software*, 8(3):277–289, September 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Brezinski:1982:ASG

[386] C. Brezinski. Algorithm 585: a subroutine for the general interpolation and extrapolation problems. *ACM Transactions on Mathematical Software*, 8(3):290–301, September 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kincaid:1982:AIF

[387] David R. Kincaid, John R. Respess, David M. Young, and Roger G. Grimes. Algorithm 586: ITPACK 2C: A FORTRAN package for solving large sparse linear systems by adaptive accelerated iterative methods. *ACM Transactions on Mathematical Software*, 8(3):302–322, September 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hanson:1982:ATA

[388] Richard J. Hanson and Karen H. Haskell. Algorithm 587: Two algorithms for the linearly constrained least squares problem. *ACM Transactions on Mathematical Software*, 8(3):323–333, September 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [650].

Hanson:1982:RPQ

[389] R. J. Hanson. Remark on "Algorithm 507: Procedures for quintic natural spline interpolation [E1]". *ACM Transactions on Mathematical Software*, 8(3):334, September 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [102].

Wolfe:1982:CCG

[390] Philip Wolfe. Checking the calculation of gradients. *ACM Transactions on Mathematical Software*, 8(4):337–343, December 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Anderson:1982:FHT

[391] Walter L. Anderson. Fast Hankel transforms using related and lagged convolutions. *ACM Transactions on Mathematical Software*, 8(4):344–368, December 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Anderson:1982:AFH

[392] Walter L. Anderson. Algorithm 588: Fast Hankel transforms using related and lagged convolutions. *ACM Transactions on Mathematical Software*, 8(4):369–370, December 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dongarra:1982:ASF

[393] Jack J. Dongarra. Algorithm 589: SICEDR: A FORTRAN subroutine for improving the accuracy of computed matrix eigenvalues. *ACM Transactions on Mathematical Software*, 8(4):371–375, December 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

VanDooren:1982:ADE

[394] P. Van Dooren. Algorithm 590: DSUBSP and EXCHQZ: FORTRAN subroutines for computing deflating subspaces with specified spectrum. *ACM Transactions on Mathematical Software*, 8(4):376–382, December 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [458].

Hemmerle:1982:ACM

[395] William J. Hemmerle. Algorithm 591: a comprehensive matrix-free algorithm for analysis of variance. *ACM Transactions on Mathematical Software*, 8(4):383–401, December 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Garbow:1982:RQA

[396] B. S. Garbow. Remark on "Algorithm 535: The QZ algorithm to solve the generalized eigenvalue problem for complex matrices [F2]". *ACM Transactions on Mathematical Software*, 8(4):402, December 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [206, 486].

Dodson:1982:RBL

[397] David S. Dodson and Roger G. Grimes. Remark on "Algorithm 539: Basic Linear Algebra Subprograms for Fortran usage [F1]". *ACM Transactions on Mathematical Software*, 8(4):403–404, December 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [238, 408, 581, 609].

Buckley:1982:RQS

[398] A. Buckley. Remark on "Algorithm 580: QRUP: a set of FORTRAN routines for updating QR factorizations [F5]". *ACM Transactions on Mathematical Software*, 8(4):405, December 1982. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [364].

Morgan:1983:MCA

[399] Alexander P. Morgan. A method for computing all solutions to systems of polynomials equations. *ACM Transactions on Mathematical Software*, 9(1):1–17, March 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Greenberg:1983:FDA

[400] Harvey Greenberg. A functional description of ANALYZE: a computer-assisted analysis system for linear programming models. *ACM Transactions on Mathematical Software*, 9(1):18–56, March 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Beck:1983:RGA

[401] P. Beck, L. Lasdon, and M. Engquist. A reduced gradient algorithm for nonlinear network problems. *ACM Transactions on Mathematical Software*, 9(1):57–70, March 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hanson:1983:CDE

[402] P. M. Hanson and W. H. Enright. Controlling the defect in existing variable-order Adams codes for initial-value problems. *ACM Transac-*

tions on Mathematical Software, 9(1):71–97, March 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gaffney:1983:AFS

[403] Patrick W. Gaffney. Algorithm 592: A FORTRAN subroutine for computing the optimal estimate of $f(x)$. *ACM Transactions on Mathematical Software*, 9(1):98–116, March 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Proskurowski:1983:APH

[404] Wlodzimierz Proskurowski. Algorithm 593: a package for the Helmholtz equation in nonrectangular planar regions. *ACM Transactions on Mathematical Software*, 9(1):117–124, March 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Larson:1983:ASR

[405] John L. Larson, Mary E. Pasternak, and John A. Wisniewski. Algorithm 594: Software for relative error analysis. *ACM Transactions on Mathematical Software*, 9(1):125–130, March 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Martello:1983:AEA

[406] Silvano Martello. Algorithm 595: An enumerative algorithm for finding Hamiltonian circuits in a directed graph. *ACM Transactions on Mathematical Software*, 9(1):131–138, March 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gay:1983:RNE

[407] David M. Gay. Remark on "Algorithm 573: NL2SOL—an adaptive nonlinear least-squares algorithm". *ACM Transactions on Mathematical Software*, 9(1):139, March 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [348].

Dodson:1983:CRB

[408] David S. Dodson. Corrigendum: Remark on "Algorithm 539: Basic Linear Algebra Subroutines for FORTRAN usage". *ACM Transactions on Mathematical Software*, 9(1):140, March 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [238, 397, 581, 609].

Fourer:1983:MLV

[409] Robert Fourer. Modeling languages versus matrix generators for linear programming. *ACM Transactions on Mathematical Software*, 9(2):143–

183, June 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Armstrong:1983:CSM

[410] R. D. Armstrong, D. S. Kung, P. Sinha, and A. A. Zoltners. A computational study of a multiple-choice knapsack algorithm. *ACM Transactions on Mathematical Software*, 9(2):184–198, June 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cryer:1983:ESL

[411] C. W. Cryer. The efficient solution of linear complementarity problems for tridiagonal Minkowski matrices. *ACM Transactions on Mathematical Software*, 9(2):199–214, June 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rheinboldt:1983:LPC

[412] Werner C. Rheinboldt and John V. Burkardt. A locally parametrized continuation process. *ACM Transactions on Mathematical Software*, 9 (2):215–235, June 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rheinboldt:1983:APL

[413] Werner C. Rheinboldt and John V. Burkardt. Algorithm 596: a program for a locally parametrized continuation process. *ACM Transactions on Mathematical Software*, 9(2):236–241, June 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cody:1983:ASM

[414] W. J. Cody. Algorithm 597: Sequence of modified Bessel functions of the first kind. *ACM Transactions on Mathematical Software*, 9(2):242–245, June 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Davis:1983:AAC

[415] George J. Davis. Algorithm 598: An algorithm to compute solvents of the matrix equation $AX^2+BX+C = 0$. *ACM Transactions on Mathematical Software*, 9(2):246–254, June 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ahrens:1983:ASG

[416] J. H. Ahrens, K. D. Kohrt, and U. Dieter. Algorithm 599: Sampling from Gamma and Poisson distributions. *ACM Transactions on Mathematical*

Software, 9(2):255–257, June 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Herriot:1983:ATA

[417] John G. Herriot and Christian H. Reinsch. Algorithm 600: Translation of Algorithm 507: Procedures for quintic natural spline interpolation. *ACM Transactions on Mathematical Software*, 9(2):258–259, June 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Pape:1983:RSP

[418] U. Pape. Remark on "Algorithm 562: Shortest path lengths". *ACM Transactions on Mathematical Software*, 9(2):260, June 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [305].

Krogh:1983:AAP

[419] Fred T. Krogh. ACM algorithms policy. *ACM Transactions on Mathematical Software*, 9(2):261–264, June 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Zave:1983:QEF

[420] Pamela Zave and George E. Cole, Jr. A quantitative evaluation of the feasibility of, and suitable hardware architectures for, an adaptive, parallel finite-element system. *ACM Transactions on Mathematical Software*, 9(3):271–292, September 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Watkins:1983:NSS

[421] David S. Watkins and Ralph W. HansonSmith. The numerical solution of separably stiff systems by precise partitioning. *ACM Transactions on Mathematical Software*, 9(3):293–301, September 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Duff:1983:MSI

[422] I. S. Duff and J. K. Reid. The multifrontal solution of indefinite sparse symmetric linear systems. *ACM Transactions on Mathematical Software*, 9(3):302–325, September 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Tarjan:1983:SEI

[423] Robert E. Tarjan. Space-efficient implementations of graph search methods. *ACM Transactions on Mathematical Software*, 9(3):326–339, September 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

McNamee:1983:SMP

[424] J. M. McNamee. A sparse matrix package—Part II: Special cases. *ACM Transactions on Mathematical Software*, 9(3):340–343, September 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

McNamee:1983:ASM

[425] J. M. McNamee. Algorithm 601: a sparse-matrix package—Part II: Special cases. *ACM Transactions on Mathematical Software*, 9(3):344–345, September 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fessler:1983:HAA

[426] Theodore Fessler, William F. Ford, and David A. Smith. HURRY: An acceleration algorithm for scalar sequences and series. *ACM Transactions on Mathematical Software*, 9(3):346–354, September 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fessler:1983:AHA

[427] Theodore Fessler, William F. Ford, and David A. Smith. Algorithm 602: HURRY: An acceleration algorithm for scalar sequences and series. *ACM Transactions on Mathematical Software*, 9(3):355–357, September 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Diaz:1983:FPS

[428] J. C. Díaz, G. Fairweather, and P. Keast. FORTRAN packages for solving certain almost block diagonal linear systems by modified alternate row and column elimination. *ACM Transactions on Mathematical Software*, 9(3):358–375, September 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Diaz:1983:ACA

[429] J. C. Díaz, G. Fairweather, and P. Keast. Algorithm 603: COLROW and ARCECO: FORTRAN packages for solving certain almost block diagonal linear systems by modified alternate row and column elimination. *ACM Transactions on Mathematical Software*, 9(3):376–380, September 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [610].

Sauer:1983:AFP

[430] Frederick W. Sauer. Algorithm 604: a FORTRAN program for the calculation of an extremal polynomial. *ACM Transactions on Mathemati-*

cal Software, 9(3):381–383, September 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hopkins:1983:APV

[431] T. R. Hopkins. Algorithm 605: PBASIC: a verifier program for American National Standard Minimal BASIC. *ACM Transactions on Mathematical Software*, 9(4):391–394, December 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gaffney:1983:NIT

[432] P. W. Gaffney, J. W. Wooten, K. A. Kessel, and W. R. McKinney. NITPACK: An interactive tree package. *ACM Transactions on Mathematical Software*, 9(4):395–417, December 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gaffney:1983:ANI

[433] P. W. Gaffney, J. W. Wooten, K. A. Kessel, and W. R. McKinney. Algorithm 606: NITPACK: An interactive tree package. *ACM Transactions on Mathematical Software*, 9(4):418–426, December 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Snyder:1983:ATE

[434] W. V. Snyder and R. J. Hanson. Algorithm 607: Text exchange system: a transportable system for management and exchange of programs and other text. *ACM Transactions on Mathematical Software*, 9(4):427–440, December 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Horn:1983:CLE

[435] B. K. P. Horn. The curve of least energy. *ACM Transactions on Mathematical Software*, 9(4):441–460, December 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

West:1983:AAS

[436] David H. West. Algorithm 608: Approximate solution of the quadratic assignment problem. *ACM Transactions on Mathematical Software*, 9(4): 461–466, December 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Amos:1983:UAE

[437] D. E. Amos. Uniform asymptotic expansions for exponential integrals $E_n(x)$ and Bickley functions $\mathrm{Ki}_n(x)$. *ACM Transactions on Mathematical*

Software, 9(4):467–479, December 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Amos:1983:APFa

[438] D. E. Amos. Algorithm 609: a portable FORTRAN subroutine for the Bickley functions $\mathrm{Ki}_n(x)$. *ACM Transactions on Mathematical Software*, 9(4):480–493, December 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Amos:1983:APFb

[439] D. E. Amos. Algorithm 610: a portable FORTRAN subroutine for derivatives of the psi function. *ACM Transactions on Mathematical Software*, 9(4):494–502, December 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gay:1983:ASU

[440] David M. Gay. Algorithm 611: Subroutines for unconstrained minimization using a model/trust-region approach. *ACM Transactions on Mathematical Software*, 9(4):503–524, December 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Amos:1983:REI

[441] Donald E. Amos. Remark on "Algorithm 556: Exponential integrals". *ACM Transactions on Mathematical Software*, 9(4):525, December 1983. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [299].

deDoncker:1984:AAI

[442] Elise de Doncker and Ian Robinson. An algorithm for automatic integration over a triangle using nonlinear extrapolation. *ACM Transactions on Mathematical Software*, 10(1):1–16, March 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

deDoncker:1984:ATI

[443] Elise de Doncker and Ian Robinson. Algorithm 612: TRIEX: Integration over a TRIangle using nonlinear EXtrapolation. *ACM Transactions on Mathematical Software*, 10(1):17–22, March 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://doi.acm.org/10.1145/356068.356070; http://www.acm.org/pubs/citations/journals/toms/1984-10-1/p17-doncker/`.

Gear:1984:SOD

[444] C. W. Gear and O. Østerby. Solving ordinary differential equations with discontinuities. *ACM Transactions on Mathematical Software*, 10(1):23–44, March 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Krogh:1984:ARI

[445] Fred T. Krogh and Kris Stewart. Asymptotic ($h \to \infty$) absolute stability for BDFs applied to stiff differential equations. *ACM Transactions on Mathematical Software*, 10(1):45–57, March 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gaffney:1984:PES

[446] Patrick W. Gaffney. A performance evaluation of some FORTRAN subroutines for the solution of stiff oscillatory ordinary differential equations. *ACM Transactions on Mathematical Software*, 10(1):58–72, March 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kaufman:1984:BES

[447] Linda Kaufman. Banded eigenvalue solvers on vector machines. *ACM Transactions on Mathematical Software*, 10(1):73–85, March 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Lenard:1984:RGT

[448] Melanie L. Lenard and Michael Minkoff. Randomly generated test problems for positive definite quadratic programming. *ACM Transactions on Mathematical Software*, 10(1):86–96, March 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Jones:1984:SRM

[449] Christopher B. Jones. A significance rule for multiple-precision arithmetic. *ACM Transactions on Mathematical Software*, 10(1):97–107, March 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Haymond:1984:AMS

[450] R. E. Haymond, J. P. Jarvis, and D. R. Shier. Algorithm 613: Minimum spanning tree for moderate integer weights. *ACM Transactions on Mathematical Software*, 10(1):108–111, March 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Shapiro:1984:IRG

[451] Henry D. Shapiro. Increasing robustness in global adaptive quadrature through interval selection heuristics. *ACM Transactions on Mathematical Software*, 10(2):117–139, June 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sikorski:1984:OQS

[452] K. Sikorski and F. Stenger. Optimal quadratures in H_p spaces. *ACM Transactions on Mathematical Software*, 10(2):140–151, June 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sikorski:1984:AFS

[453] K. Sikorski, F. Stenger, and J. Schwing. Algorithm 614: A FORTRAN subroutine for numerical integration in H_p. *ACM Transactions on Mathematical Software*, 10(2):152–160, June 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rall:1984:DPS

[454] L. B. Rall. Differentiation in Pascal-SC: Type GRADIENT. *ACM Transactions on Mathematical Software*, 10(2):161–184, June 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Lawrie:1984:CCC

[455] D. H. Lawrie and A. H. Sameh. The computation and communication complexity of a parallel banded system solver. *ACM Transactions on Mathematical Software*, 10(2):185–195, June 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [506].

Reid:1984:SAB

[456] J. K. Reid and A. Jennings. On solving almost block diagonal (staircase) linear systems. *ACM Transactions on Mathematical Software*, 10(2):196–201, June 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Armstrong:1984:ABS

[457] R. D. Armstrong, P. O. Beck, and M. T. Kung. Algorithm 615: The best subset of parameters in least absolute value regression. *ACM Transactions on Mathematical Software*, 10(2):202–206, June 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Petkov:1984:RDE

[458] P. Hr. Petkov, N. D. Christov, and M. M. Konstantinov. Remark on "Algorithm 590: DSUBSP and EXCHQZ: FORTRAN subroutines for computing deflating subspaces with specified spectrum". *ACM Transactions on Mathematical Software*, 10(2):207, June 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [394].

Krogh:1984:AAP

[459] Fred T. Krogh. ACM algorithms policy. *ACM Transactions on Mathematical Software*, 10(2):208–211, June 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dongarra:1984:SMA

[460] Jack J. Dongarra and Stanley C. Eisenstat. Squeezing the most out of an algorithm in CRAY FORTRAN. *ACM Transactions on Mathematical Software*, 10(3):219–230, September 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Molchanov:1984:PCS

[461] I. N. Molchanov, V. S. Zubatenko, L. D. Nikolenko, and M. F. Yakovlev. A program complex for solving systems of linear algebraic equations. *ACM Transactions on Mathematical Software*, 10(3):231–241, September 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rivara:1984:DDS

[462] María-Cecilia Rivara. Design and data structure of fully adaptive multigrid, finite-element software. *ACM Transactions on Mathematical Software*, 10(3):242–264, September 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Monahan:1984:AFC

[463] John F. Monahan. Algorithm 616: Fast computation of the Hodges-Lehman location estimator. *ACM Transactions on Mathematical Software*, 10(3):265–270, September 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). This paper reduces the previous complexity bound for the Hodges-Lehman location estimator from $O(n^2 \log n)$ to $O(n \log n)$.

Kronmal:1984:ACA

[464] Richard A. Kronmal and Arthur V. Peterson, Jr. An acceptance-complement analogue of the mixture-plus-acceptance-rejection method

for generating random variables. *ACM Transactions on Mathematical Software*, 10(3):271–281, September 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gill:1984:POP

[465] Philip E. Gill, Walter Murray, Michael A. Saunders, and Margaret H. Wright. Procedures for optimization problems with a mixture of bounds and general linear constraints. *ACM Transactions on Mathematical Software*, 10(3):282–298, September 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Aluffi-Pentini:1984:DEA

[466] Filippo Aluffi-Pentini, Valerio Parisi, and Francesco Zirilli. A differential-equations algorithm for nonlinear equations. *ACM Transactions on Mathematical Software*, 10(3):299–316, September 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Aluffi-Pentini:1984:ADD

[467] Filippo Aluffi-Pentini, Valerio Parisi, and Francesco Zirilli. Algorithm 617: DAFNE: a differential-equations algorithm for nonlinear equations. *ACM Transactions on Mathematical Software*, 10(3):317–324, September 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Regener:1984:MID

[468] Eric Regener. Multiprecision integer division examples using arbitrary radix. *ACM Transactions on Mathematical Software*, 10(3):325–328, September 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [33].

Coleman:1984:SES

[469] Thomas F. Coleman, Burton S. Garbow, and Jorge J. Moré. Software for estimating sparse Jacobian matrices. *ACM Transactions on Mathematical Software*, 10(3):329–345, September 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Coleman:1984:AFS

[470] Thomas F. Coleman, Burton S. Garbow, and Jorge J. Moré. Algorithm 618: Fortran subroutines for estimating sparse Jacobian matrices. *ACM Transactions on Mathematical Software*, 10(3):346–347, September 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Piessens:1984:AAN

[471] Robert Piessens and Rudi Huysmans. Algorithm 619: Automatic numerical inversion of the Laplace transform [D5]. *ACM Transactions on Mathematical Software*, 10(3):348–353, September 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Piessens:1984:RNI

[472] Robert Piessens. Remark on "Algorithm 486: Numerical inversion of Laplace transform". *ACM Transactions on Mathematical Software*, 10 (3):354, September 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [129, 117].

Rice:1984:ARK

[473] John R. Rice and Richard J. Hanson. Algorithm 620: References and keywords for *collected algorithms of the acm*. *ACM Transactions on Mathematical Software*, 10(4):359–360, December 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [518, 693].

Black:1984:NIS

[474] Cheryl M. Black, Robert P. Burton, and Thomas H. Miller. The need for an industry standard of accuracy for elementary-function programs. *ACM Transactions on Mathematical Software*, 10(4):361–366, December 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Eiger:1984:BMS

[475] A. Eiger, K. Sikorski, and F. Stenger. A bisection method for systems of nonlinear equations. *ACM Transactions on Mathematical Software*, 10(4):367–377, December 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sommeijer:1984:ASL

[476] B. P. Sommeijer and P. J. van der Houwen. Algorithm 621: Software with low storage requirements for two-dimensional, nonlinear, parabolic differential equations. *ACM Transactions on Mathematical Software*, 10(4): 378–396, December 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bundy:1984:GIP

[477] Alan Bundy. A generalized interval package and its use for semantic checking. *ACM Transactions on Mathematical Software*, 10(4):397–409,

December 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rice:1984:ASM

[478] John R. Rice, Calvin Ribbens, and William A. Ward. Algorithm 622: a simple macroprocessor. *ACM Transactions on Mathematical Software*, 10(4):410–416, December 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remark [959].

Renka:1984:IDS

[479] Robert J. Renka. Interpolation of data on the surface of a sphere. *ACM Transactions on Mathematical Software*, 10(4):417–436, December 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Renka:1984:AIS

[480] Robert J. Renka. Algorithm 623: Interpolation on the surface of a sphere. *ACM Transactions on Mathematical Software*, 10(4):437–439, December 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Renka:1984:ATI

[481] Robert J. Renka. Algorithm 624: Triangulation and interpolation at arbitrarily distributed points in the plane. *ACM Transactions on Mathematical Software*, 10(4):440–442, December 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rice:1984:NCG

[482] John R. Rice. Numerical computation with general two-dimensional domains. *ACM Transactions on Mathematical Software*, 10(4):443–452, December 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rice:1984:ATD

[483] John R. Rice. Algorithm 625: a two-dimensional domain processor. *ACM Transactions on Mathematical Software*, 10(4):453–462, December 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Preusser:1984:CCS

[484] Albrecht Preusser. Computing contours by successive solution of quintic polynomial equations. *ACM Transactions on Mathematical Software*, 10(4):463–472, December 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Preusser:1984:ATE

[485] Albrecht Preusser. Algorithm 626: TRICP—a contour plot program for triangular meshes. *ACM Transactions on Mathematical Software*, 10(4): 473–475, December 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Garbow:1984:RQA

[486] B. S. Garbow. Remark on "Algorithm 535: The QZ algorithm to solve the generalized eigenvalue problem for complex matrices [F2]". *ACM Transactions on Mathematical Software*, 10(4):476, December 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [206, 396].

Celis:1984:RCE

[487] Pedro Celis. Remark: Corrections and errors in John Ivie's some MACSYMA programs for solving recurrence relations. *ACM Transactions on Mathematical Software*, 10(4):477–478, December 1984. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [167].

Tomlin:1985:IPS

[488] J. A. Tomlin and J. S. Welch. Integration of a primal simplex network algorithm with a large-scale mathematical programming system. *ACM Transactions on Mathematical Software*, 11(1):1–11, March 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-1/p1-tomlin/`.

Davidon:1985:ESD

[489] William C. Davidon and Jorge Nocedal. Evaluation of step directions in optimization algorithms. *ACM Transactions on Mathematical Software*, 11(1):12–19, March 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-1/p12-davidon/`.

Cuyt:1985:CIM

[490] Annie A. M. Cuyt and L. B. Rall. Computational implementation of the multivariate Halley method for solving nonlinear systems of equations. *ACM Transactions on Mathematical Software*, 11(1):20–36, March 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-1/p20-cuyt/`.

Vitter:1985:RSR

[491] Jeffrey Scott Vitter. Random sampling with a reservoir. *ACM Transactions on Mathematical Software*, 11(1):37–57, March 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-1/p37-vitter/`.

Bownds:1985:AFS

[492] John M. Bownds and Lee Appelbaum. Algorithm 627: a FORTRAN subroutine for solving Volterra integral equations. *ACM Transactions on Mathematical Software*, 11(1):58–65, March 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-1/p58-bownds/`.

Winkler:1985:AAC

[493] F. Winkler, B. Buchberger, F. Lichtenberger, and H. Rolletschek. Algorithm 628: An algorithm for constructing canonical bases of polynomial ideals. *ACM Transactions on Mathematical Software*, 11(1):66–78, March 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-1/p66-winkler/`.

Atkinson:1985:AIE

[494] Kendall E. Atkinson. Algorithm 629: An integral equation program for Laplace's equation in three dimensions. *ACM Transactions on Mathematical Software*, 11(2):85–96, June 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-2/p85-atkinson/`.

Dembo:1985:TPG

[495] R. S. Dembo and T. Steihaug. A test problem generator for large-scale unconstrained optimization. *ACM Transactions on Mathematical Software*, 11(2):97–102, June 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-2/p97-dembo/`.

Buckley:1985:ABE

[496] A. Buckley and A. LeNir. Algorithm 630: BBVSCG—a variable storage algorithm for function minimization. *ACM Transactions on Mathematical Software*, 11(2):103–119, June 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remark [651].

Norton:1985:AFB

[497] Victor Norton. Algorithm 631: Finding a bracketed zero by Larkin's method of rational interpolation. *ACM Transactions on Mathematical Software*, 11(2):120–134, June 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-2/p120-norton/`. See [536].

Martello:1985:APM

[498] Silvano Martello and Paolo Toth. Algorithm 632: a program for the $0-1$ multiple knapsack problem. *ACM Transactions on Mathematical Software*, 11(2):135–140, June 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-2/p135-martello/`.

Liu:1985:MMD

[499] Joseph W. H. Liu. Modification of the minimum-degree algorithm by multiple elimination. *ACM Transactions on Mathematical Software*, 11 (2):141–153, June 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-2/p141-liu/`.

Gan:1985:NCG

[500] C. T. Gan. A note on combination generators. *ACM Transactions on Mathematical Software*, 11(2):154–156, June 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-2/p154-gan/`.

Ahrens:1985:SRS

[501] J. H. Ahrens and U. Dieter. Sequential random sampling. *ACM Transactions on Mathematical Software*, 11(2):157–169, June 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-2/p157-ahrens/`.

Ward:1985:AAL

[502] R. C. Ward, G. J. Davis, and V. E. Kane. Algorithm 633: An algorithm for linear dependency analysis of multivariate data. *ACM Transactions on Mathematical Software*, 11(2):170–182, June 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-2/p170-ward/`.

Novotny:1985:RNS

[503] Milan Novotny. Remark on "Algorithm 30: Numerical solution of the polynomial equation". *ACM Transactions on Mathematical Software*, 11 (2):183–184, June 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-2/p183-novotny/`. See [1].

Hill:1985:RCS

[504] I. D. Hill and M. C. Pike. Remark on "Algorithm 299: Chi-squared integral". *ACM Transactions on Mathematical Software*, 11(2):185, June 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [10, 116, 228].

Preusser:1985:RBI

[505] Albrect Preusser. Remark on "Algorithm 526: Bivariate interpolation and smooth surface fitting for irregularly distributed data points [E1]". *ACM Transactions on Mathematical Software*, 11(2):186–187, June 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-2/p186-preusser/`. See [181, 231].

Lawrie:1985:CCC

[506] D. H. Lawrie and A. H. Sameh. Corrections to "The computation and communication complexity of a parallel banded system solver". *ACM Transactions on Mathematical Software*, 11(2):188, June 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [455].

Krogh:1985:AAP

[507] Fred T. Krogh. ACM algorithms policy. *ACM Transactions on Mathematical Software*, 11(2):193–196, June 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bartels:1985:LSF

[508] Richard H. Bartels and John J. Jezioranski. Least-squares fitting using orthogonal multinomials. *ACM Transactions on Mathematical Software*, 11(3):201–217, September 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-3/p201-bartels/`.

Bartels:1985:ACE

[509] Richard H. Bartels and John J. Jezioranski. Algorithm 634: CONSTR and EVAL: Routines for fitting multinomials in a least-squares sense.

ACM Transactions on Mathematical Software, 11(3):218–228, September 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-3/p218-bartels/`.

Hull:1985:PRV

[510] T. E. Hull and A. Abrham. Properly rounded variable precision square root. *ACM Transactions on Mathematical Software*, 11(3): 229–237, September 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-3/p229-hull/; http://www.acm.org/pubs/toc/Abstracts/toms/214413.html`.

Stewart:1985:NCD

[511] G. W. Stewart. A note on complex division. *ACM Transactions on Mathematical Software*, 11(3):238–241, September 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-3/p238-stewart/`. See corrigendum [555] and the faster and more robust algorithm in [1124].

Streit:1985:AAS

[512] Roy L. Streit. Algorithm 635: An algorithm for the solution of systems of complex linear equations in the L_∞ norm with constraints on the unknowns. *ACM Transactions on Mathematical Software*, 11(3): 242–249, September 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-3/p242-streit/`.

Le:1985:EDF

[513] D. Le. An efficient derivative-free method for solving nonlinear equations. *ACM Transactions on Mathematical Software*, 11(3):250–262, September 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-3/p250-le/`. See also [655].

Tischer:1985:ESN

[514] P. E. Tischer and G. K. Gupta. An evaluation of some new cyclic linear multistep formulas for stiff ODEs. *ACM Transactions on Mathematical Software*, 11(3):263–270, September 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-3/p263-tischer/`.

Johnsson:1985:SNB

[515] S. Lennart Johnsson. Solving narrow banded systems on ensemble architectures. *ACM Transactions on Mathematical Software*, 11(3):271–288, September 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-3/p271-johnsson/`.

Hall:1985:ESR

[516] George Hall. Equilibrium states of Runge Kutta schemes. *ACM Transactions on Mathematical Software*, 11(3):289–301, September 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-3/p289-hall/`.

Ericksen:1985:IPT

[517] Wilhelm S. Ericksen. Inverse pairs of test matrices. *ACM Transactions on Mathematical Software*, 11(3):302–304, September 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-3/p302-ericksen/`.

Hamilton:1985:RRK

[518] Dennis E. Hamilton. Remark on "Algorithm 620: References and keywords for *collected algorithms of the acm*". *ACM Transactions on Mathematical Software*, 11(3):305–307, September 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-3/p305-hamilton/`. See [473, 693].

Boisvert:1985:GFM

[519] Ronald F. Boisvert, Sally E. Howe, and David K. Kahaner. GAMS: a framework for the management of scientific software. *ACM Transactions on Mathematical Software*, 11(4):313–355, December 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-4/p313-boisvert/`.

Davenport:1985:PRA

[520] J. H. Davenport and B. M. Trager. On the parallel Risch algorithm (II). *ACM Transactions on Mathematical Software*, 11(4):356–362, December 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-4/p356-davenport/`.

Coleman:1985:SES

[521] Thomas F. Coleman, Burton S. Garbow, and Jorge J. Moré. Software for estimating sparse Hessian matrices. *ACM Transactions on Mathematical Software*, 11(4):363–377, December 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-4/p363-coleman/`.

Coleman:1985:AFS

[522] Thomas F. Coleman, Burton S. Garbow, and Jorge J. Moré. Algorithm 636: FORTRAN subroutines for estimating sparse Hessian matrices. *ACM Transactions on Mathematical Software*, 11(4):378, December 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-4/p378-coleman/`. The title of this paper incorrectly said Algorithm 649; it should be Algorithm 636.

Houstis:1985:CSS

[523] E. N. Houstis, W. F. Mitchell, and J. R. Rice. Collocation software for second-order elliptic partial differential equations. *ACM Transactions on Mathematical Software*, 11(4):379–412, December 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-4/p379-houstis/`.

Houstis:1985:AGC

[524] E. N. Houstis, W. F. Mitchell, and J. R. Rice. Algorithm 637: GENCOL: Collocation of general domains with bicubic Hermite polynomials. *ACM Transactions on Mathematical Software*, 11(4):413–415, December 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-4/p413-houstis/`.

Houstis:1985:AIH

[525] E. N. Houstis, W. F. Mitchell, and J. R. Rice. Algorithm 638: INTCOL and HERMCOL: Collocation on rectangular domains with bicubic Hermite polynomials. *ACM Transactions on Mathematical Software*, 11(4): 416–418, December 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-4/p416-houstis/`.

Schnabel:1985:MSA

[526] Robert B. Schnabel, John E. Koontz, and Barry E. Weiss. A modular system of algorithms for unconstrained minimization. *ACM*

Transactions on Mathematical Software, 11(4):419–440, December 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1985-11-4/p419-schnabel/`.

Er:1985:RG

[527] M. C. Er. Remark on "Algorithm 246: Graycode [Z]". *ACM Transactions on Mathematical Software*, 11(4):441–443, December 1985. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [7, 60].

Shampine:1986:FVV

[528] L. F. Shampine and L. S. Baca. Fixed versus variable order Runge–Kutta. *ACM Transactions on Mathematical Software*, 12(1):1–23, March 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-1/p1-shampine/`.

Lyness:1986:AIS

[529] James Lyness and Gwendolen Hines. Algorithm 639: To integrate some infinite oscillating tails. *ACM Transactions on Mathematical Software*, 12(1):24–25, March 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-1/p24-lyness/`.

Laub:1986:AEC

[530] Alan J. Laub. Algorithm 640: Efficient calculation of frequency response matrices from state space models. *ACM Transactions on Mathematical Software*, 12(1):26–33, March 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-1/p26-laub/`.

Deak:1986:EMG

[531] I. Deak. The economical method for generating random samples from discrete distributions. *ACM Transactions on Mathematical Software*, 12(1):34–36, March 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-1/p34-deak/`.

Law:1986:NAM

[532] Kincho H. Law and Steven J. Fenives. A node-addition model for symbolic factorization. *ACM Transactions on Mathematical Software*, 12(1):37–50, March 1986. CODEN ACMSCU. ISSN 0098-3500 (print),

1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-1/p37-law/`.

Springer:1986:ESG

[533] Jörn Springer. Exact solution of general integer systems of linear equations. *ACM Transactions on Mathematical Software*, 12(1):51–61, March 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-1/p51-springer/`.

Jansen:1986:HAA

[534] Paul Jansen and Peter Weidner. High-accuracy arithmetic software — some tests of the ACRITH problem-solving routines. *ACM Transactions on Mathematical Software*, 12(1):62–70, March 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-1/p62-jansen/`.

Hanson:1986:RCA

[535] Richard J. Hanson. Remark on "Algorithm 584: CUBTRI: Automatic cubature over a triangle". *ACM Transactions on Mathematical Software*, 12(1):71, March 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [380].

Norton:1986:RFB

[536] Victor Norton. Remark on "Algorithm 631: Finding a bracketed zero by Larkin's method of rational interpolation". *ACM Transactions on Mathematical Software*, 12(1):72, March 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [497].

Hull:1986:VPE

[537] T. E. Hull and A. Abrham. Variable precision exponential function. *ACM Transactions on Mathematical Software*, 12(2):79–91, June 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-2/p79-hull/`.

Dolk:1986:GMM

[538] Daniel R. Dolk. A generalized model management system for mathematical programming. *ACM Transactions on Mathematical Software*, 12(2):92–126, June 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-2/p92-dolk/`.

Liu:1986:CRS

[539] Joseph W. H. Liu. A compact row storage scheme for Cholesky factors using elimination trees. *ACM Transactions on Mathematical Software*, 12(2):127–148, June 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-2/p127-liu/`.

Springer:1986:AES

[540] Jörn Springer. Algorithm 641: Exact solution of general systems of linear equations. *ACM Transactions on Mathematical Software*, 12(2): 149, June 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hutchinson:1986:AFP

[541] M. F. Hutchinson. Algorithm 642: a fast procedure for calculating minimum cross-validation cubic smoothing splines. *ACM Transactions on Mathematical Software*, 12(2):150–153, June 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-2/p150-hutchinson/`.

Mehta:1986:AFF

[542] Cyrus R. Mehta and Nitin R. Patel. Algorithm 643: FEXACT: A FORTRAN subroutine for Fisher's exact test on unordered $r \times c$ contingency tables. *ACM Transactions on Mathematical Software*, 12(2):154–161, June 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-2/p154-mehta/`. See remark [804].

McKeown:1986:IIU

[543] G. P. McKeown. Iterated interpolation using a systolic array. *ACM Transactions on Mathematical Software*, 12(2):162–170, June 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-2/p162-mckeown/`.

Krogh:1986:AAP

[544] Fred T. Krogh. ACM algorithms policy. *ACM Transactions on Mathematical Software*, 12(2):171–174, June 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hall:1986:ESR

[545] George Hall. Equilibrium states of Runge–Kutta schemes: Part II. *ACM Transactions on Mathematical Software*, 12(3):183–192, September 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-3/p183-hall/`.

Enright:1986:IRK

[546] W. H. Enright, K. R. Jackson, S. P. Nørsett, and P. G. Thomsen. Interpolants for Runge–Kutta formulas. *ACM Transactions on Mathematical Software*, 12(3):193–218, September 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-3/p193-enright/`.

Kallay:1986:PCM

[547] Michael Kallay. Plane curves of minimal energy. *ACM Transactions on Mathematical Software*, 12(3):219–222, September 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-3/p219-kallay/`.

Skeel:1986:NBL

[548] Robert D. Skeel and Thu V. Vu. Note on blended linear multistep formulas. *ACM Transactions on Mathematical Software*, 12(3):223–224, September 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-3/p223-skeel/`.

Sagie:1986:CAM

[549] Ike Sagie. Computer-aided modeling and planning (CAMP). *ACM Transactions on Mathematical Software*, 12(3):225–248, September 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-3/p225-sagie/`.

Liu:1986:SRC

[550] Joseph W. H. Liu. On the storage requirement in the out-of-core multifrontal method for sparse factorization. *ACM Transactions on Mathematical Software*, 12(3):249–264, September 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-3/p249-liu/`.

Amos:1986:APP

[551] D. E. Amos. Algorithm 644: a portable package for Bessel functions of a complex argument and nonnegative order. *ACM Transactions on Mathematical Software*, 12(3):265–273, September 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-3/p265-amos/`. See also [694, 871, 1222].

Nash:1986:AST

[552] J. C. Nash and R. L. C. Wang. Algorithm 645: Subroutines for testing programs that compute the generalized inverse of a matrix. *ACM Transactions on Mathematical Software*, 12(3):274–277, September 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-3/p274-nash/`.

Crawford:1986:APR

[553] Charles R. Crawford. Algorithm 646: PDFIND: a routine to find a positive definite linear combination of two real symmetric matrices. *ACM Transactions on Mathematical Software*, 12(3):278–282, September 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-3/p278-crawford/`.

Hake:1986:RCC

[554] J.-Fr. Hake. Remark on "Algorithm 569: COLSYS: Collocation software for boundary-value ODEs [D2]". *ACM Transactions on Mathematical Software*, 12(3):283–284, September 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [334].

Stewart:1986:CNC

[555] G. W. Stewart. Corrigendum: "A note on complex division". *ACM Transactions on Mathematical Software*, 12(3):285, September 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [511].

Milovanovic:1986:CEI

[556] G. V. Milovanović and M. S. Petković. On computational efficiency of the iterative methods for the simultaneous approximation of polynomial zeros. *ACM Transactions on Mathematical Software*, 12(4):295–306, December 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295

(electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-3/p274-milovanovic/`.

Nazareth:1986:IAO

[557] J. L. Nazareth. Implementation aids for optimization algorithms that solve sequences of linear programs. *ACM Transactions on Mathematical Software*, 12(4):307–323, December 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-4/p307-nazareth/`.

Cowell:1986:TFD

[558] Wayne R. Cowell and Christopher P. Thompson. Transforming Fortran DO loops to improve performance on vector architectures. *ACM Transactions on Mathematical Software*, 12(4):324–353, December 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-4/p324-cowell/`.

Ostermann:1986:SCP

[559] A. Ostermann, P. Kaps, and T. D. Bui. The solution of a combustion problem with Rosenbrock methods. *ACM Transactions on Mathematical Software*, 12(4):354–361, December 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-4/p354-ostermann/`.

Fox:1986:AIR

[560] Bennett L. Fox. Algorithm 647: Implementation and relative efficiency of quasirandom sequence generators. *ACM Transactions on Mathematical Software*, 12(4):362–376, December 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

DiDonato:1986:CIG

[561] Armido R. DiDonato and Alfred H. Morris, Jr. Computation of the incomplete gamma function ratios and their inverse. *ACM Transactions on Mathematical Software*, 12(4):377–393, December 1986. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1986-12-4/p377-didonato/`.

Enright:1987:TFP

[562] W. H. Enright and J. D. Pryce. Two FORTRAN packages for assessing initial value methods. *ACM Transactions on Mathematical Software*, 13(1):1–27, March 1987. CODEN ACMSCU. ISSN 0098-3500 (print),

1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-1/p1-enright/`. See also [654].

Enright:1987:ANS

[563] W. H. Enright and J. D. Pryce. Algorithm 648: NSDTST and STDTST: Routines for assessing the performance of IV solvers. *ACM Transactions on Mathematical Software*, 13(1):28–34, March 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-1/p28-enright/`.

Alagar:1987:FLS

[564] Vangalur S. Alagar and David K. Probst. A fast, low-space algorithm for multiplying dense multivariate polynomials. *ACM Transactions on Mathematical Software*, 13(1):35–57, March 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-1/p35-alagar/`.

Vitter:1987:EAS

[565] Jeffrey Scott Vitter. An efficient algorithm for sequential random sampling. *ACM Transactions on Mathematical Software*, 13(1):58–67, March 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-1/p58-vitter/`.

Foley:1987:IIP

[566] Thomas A. Foley. Interpolation with interval and point tension controls using cubic weighted v-splines. *ACM Transactions on Mathematical Software*, 13(1):68–96, March 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-1/p68-foley/`. See also [619].

Giunta:1987:APC

[567] G. Giunta and A. Murli. Algorithm 649: a package for computing trigonometric Fourier coefficients based on Lyness's algorithm. *ACM Transactions on Mathematical Software*, 13(1):97–107, March 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-1/p97-giunta/`.

Dyksen:1987:IEI

[568] Wayne R. Dyksen and Calvin J. Ribbens. Interactive ELLPACK: An interactive problem-solving environment for elliptic partial differential equations. *ACM Transactions on Mathematical Software*, 13(2):113–132,

June 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Pardalos:1987:GLS

[569] Panos M. Pardalos. Generation of large-scale quadratic programs for use as global optimization test problems. *ACM Transactions on Mathematical Software*, 13(2):133–137, June 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Johnson:1987:AES

[570] Kenneth C. Johnson. Algorithm 650: Efficient square root implementation on the 68000. *ACM Transactions on Mathematical Software*, 13 (2):138–151, June 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [583].

Morgan:1987:BBS

[571] Alexander Morgan and Vadim Shapiro. Box-bisection for solving second-degree systems and the problem of clustering. *ACM Transactions on Mathematical Software*, 13(2):152–167, June 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [590].

Monahan:1987:AGC

[572] John F. Monahan. An algorithm for generating chi random variables. *ACM Transactions on Mathematical Software*, 13(2):168–172, June 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See also [583, 601].

Liu:1987:PPS

[573] Joseph W. H. Liu. A partial pivoting strategy for sparse symmetric matrix decomposition. *ACM Transactions on Mathematical Software*, 13 (2):173–182, June 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Krogh:1987:AAP

[574] Fred T. Krogh. ACM algorithms policy. *ACM Transactions on Mathematical Software*, 13(2):183–186, June 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kearfott:1987:STG

[575] R. Baker Kearfott. Some tests of generalized bisection. *ACM Transactions on Mathematical Software*, 13(3):197–220, September

1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-3/p197-kearfott/`. See also [629].

Boisvert:1987:FOA

[576] Ronald F. Boisvert. A fourth-order-accurate Fourier method for the Helmholtz equation in three dimensions. *ACM Transactions on Mathematical Software*, 13(3):221–234, September 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-3/p221-boisvert/`.

Boisvert:1987:AAH

[577] Ronald F. Boisvert. Algorithm 651: Algorithm HFFT—high-order fast-direct solution of the Helmholtz equation. *ACM Transactions on Mathematical Software*, 13(3):235–249, September 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-3/p235-boisvert/`. See also [583].

Liu:1987:TPM

[578] Joseph W. H. Liu. On threshold pivoting in the multifrontal method for sparse indefinite systems. *ACM Transactions on Mathematical Software*, 13(3):250–261, September 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-3/p250-liu/`.

Corana:1987:MMF

[579] A. Corana, M. Marchesi, C. Martini, and S. Ridella. Minimizing multimodal functions of continuous variables with the "Simulated Annealing" algorithm. *ACM Transactions on Mathematical Software*, 13(3): 262–280, September 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-3/p262-corana/`. See also [653].

Watson:1987:AHS

[580] Layne T. Watson, Stephen C. Billups, and Alexander P. Morgan. Algorithm 652: HOMPACK: a suite of codes for globally convergent homotopy algorithms. *ACM Transactions on Mathematical Software*, 13(3): 281–310, September 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-3/p281-watson/`.

Hanson:1987:ATA

[581] R. J. Hanson and F. T. Krogh. Algorithm 653: Translation of Algorithm 539: PC-BLAS Basic Linear Algebra Subprograms for FORTRAN usage with the INTEL 8087, 80287 numeric data processor. *ACM Transactions on Mathematical Software*, 13(3):311–317, September 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-3/p311-hanson/`. See [238, 397, 408, 609].

DiDonato:1987:AFS

[582] Armido R. DiDonato and Alfred H. Morris, Jr. Algorithm 654: FORTRAN subroutines for computing the incomplete gamma function ratios and their inverse. *ACM Transactions on Mathematical Software*, 13(3): 318–319, September 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/pdf/10.1145/29380.214348`.

Johnson:1987:CES

[583] Kenneth C. Johnson. Corrigendum: "Algorithm 650: efficient square root implementation on the 68000" [ACM Trans. Math. Software **13** (1987), no. 2, 138–151]. *ACM Transactions on Mathematical Software*, 13(3):320, September 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [570, 572, 577].

Bar-On:1987:PPA

[584] Ilan Bar-On. A practical parallel algorithm for solving band symmetric positive definite systems of linear equations. *ACM Transactions on Mathematical Software*, 13(4):323–332, December 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-4/p323-bar-on/`.

Schoenauer:1987:SCB

[585] Willi Schönauer and Eric Schnepf. Software considerations for the "black box" solver FIDISOL for partial differential equations. *ACM Transactions on Mathematical Software*, 13(4):333–349, December 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-4/p333-schonauer/`.

Ahlfeld:1987:NPG

[586] David P. Ahlfeld, John M. Mulvey, Ron S. Dembo, and Stavros A. Zenios. Nonlinear programming on generalized networks. *ACM*

Transactions on Mathematical Software, 13(4):350–367, December 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-4/p350-ahlfeld/`.

Haas:1987:MPR

[587] Alexander Haas. The multiple prime random number generator. *ACM Transactions on Mathematical Software*, 13(4):368–381, December 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-4/p368-haas/`.

Schneider:1987:EEA

[588] Michael H. Schneider. The expanding equilibrium algorithm. *ACM Transactions on Mathematical Software*, 13(4):382–398, December 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-4/p382-schneider/`.

Elhay:1987:AIF

[589] Sylvan Elhay and Jaroslav Kautsky. Algorithm 655: IQPACK: FORTRAN subroutines for the weights of interpolatory quadratures. *ACM Transactions on Mathematical Software*, 13(4):399–415, December 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1987-13-4/p399-elhay/`.

Morgan:1987:CBS

[590] Alexander Morgan and Vadim Shapiro. Corrigendum: "Box-Bisection for solving second-degree systems and the problem of clustering". *ACM Transactions on Mathematical Software*, 13(4):416, December 1987. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [571].

Dongarra:1988:ESF

[591] Jack J. Dongarra, Jeremy Du Croz, Sven Hammarling, and Richard J. Hanson. An extended set of FORTRAN Basic Linear Algebra Subprograms. *ACM Transactions on Mathematical Software*, 14(1):1–17, March 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-1/p1-dongarra/`. See also [628].

Dongarra:1988:AES

[592] Jack J. Dongarra, Jeremy Du Croz, Sven Hammarling, and Richard J. Hanson. Algorithm 656: An extended set of Basic Linear Algebra Subprograms: Model implementation and test programs. *ACM Transactions on Mathematical Software*, 14(1):18–32, March 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-1/p18-dongarra/`.

Sewell:1988:PCS

[593] Granville Sewell. Plotting contour surfaces of a function of three variables. *ACM Transactions on Mathematical Software*, 14(1):33–41, March 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-1/p33-sewell/`.

Sewell:1988:ASP

[594] Granville Sewell. Algorithm 657: Software for plotting contour surfaces of a function of three variables. *ACM Transactions on Mathematical Software*, 14(1):42–44, March 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-1/p42-sewell/`. See also [672].

Leis:1988:SSS

[595] Jorge R. Leis and Mark A. Kramer. The simultaneous solution and sensitivity analysis of systems described by ordinary differential equations. *ACM Transactions on Mathematical Software*, 14(1):45–60, March 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-1/p45-leis/`.

Leis:1988:AOO

[596] Jorge R. Leis and Mark A. Kramer. Algorithm 658: ODESSA: An ordinary differential equation solver with explicit simultaneous sensitivity analysis. *ACM Transactions on Mathematical Software*, 14(1):61–67, March 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-1/p61-leis/`.

Butcher:1988:TEI

[597] J. C. Butcher. Towards efficient implementation of singly-implicit methods. *ACM Transactions on Mathematical Software*, 14(1):68–75, March

1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-1/p68-butcher/`.

Ammann:1988:RCR

[598] Larry Ammann and John Van Ness. A routine for converting regression algorithms into corresponding orthogonal regression algorithms. *ACM Transactions on Mathematical Software*, 14(1):76–87, March 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-1/p76-ammann/`.

Bratley:1988:AIS

[599] Paul Bratley and Bennett L. Fox. Algorithm 659: Implementing Sobol's quasirandom sequence generator. *ACM Transactions on Mathematical Software*, 14(1):88–100, March 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-1/p88-bratley/`.

Robertazzi:1988:BOF

[600] T. G. Robertazzi and S. C. Schwartz. Best "ordering" for floating-point addition. *ACM Transactions on Mathematical Software*, 14(1):101–110, March 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-1/p101-robertazzi/`.

Monahan:1988:CAG

[601] John F. Monahan. Corrigendum: "An algorithm for generating chi random variables". *ACM Transactions on Mathematical Software*, 14(1): 111, March 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [572].

Melhem:1988:MRS

[602] Rami G. Melhem and K. V. S. Ramarao. Multicolor reordering of sparse matrices resulting from irregular grids. *ACM Transactions on Mathematical Software*, 14(2):117–138, June 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-2/p117-melhem/`.

Renka:1988:MIL

[603] Robert J. Renka. Multivariate interpolation of large sets of scattered data. *ACM Transactions on Mathematical Software*, 14(2):139–148, June

1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-2/p139-renka/`.

Renka:1988:AQQa

[604] Robert J. Renka. Algorithm 660: QSHEP2D: Quadratic Shepard method for bivariate interpolation of scattered data. *ACM Transactions on Mathematical Software*, 14(2):149–150, June 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Renka:1988:AQQb

[605] Robert J. Renka. Algorithm 661: QSHEP3D; quadratic Shepard method for trivariate interpolation of scattered data. *ACM Transactions on Mathematical Software*, 14(2):151–152, June 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-2/p151-renka/`.

Wan:1988:AMD

[606] S. J. Wan, S. K. M. Wong, and P. Prusinkiewicz. An algorithm for multidimensional data clustering. *ACM Transactions on Mathematical Software*, 14(2):153–162, June 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-2/p153-wan/`.

Garbow:1988:SIW

[607] B. S. Garbow, G. Giunta, J. N. Lyness, and A. Murli. Software for an implementation of Weeks' method for the inverse Laplace transform. *ACM Transactions on Mathematical Software*, 14(2):163–170, June 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-2/p163-garbow/`.

Garbow:1988:AFS

[608] B. S. Garbow, G. Giunta, J. N. Lyness, and A. Murli. Algorithm 662: A FORTRAN software package for the numerical inversion of the Laplace transform based on Weeks' method. *ACM Transactions on Mathematical Software*, 14(2):171–176, June 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-2/p171-garbow/`. See also [695].

Louter-Nool:1988:ATA

[609] Margreet Louter-Nool. Algorithm 663: Translation of Algorithm 539: Basic Linear Algebra Subprograms for FORTRAN usage in FOR-

TRAN 200 for the Cyber 205. *ACM Transactions on Mathematical Software*, 14(2):177–195, June 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-2/p177-louter-nool/`. See [238, 397, 408, 581].

Diaz:1988:RCA

[610] J. C. Diaz, G. Fairweather, and P. Keast. Remark on "Algorithm 603: COLROW and ARCECO: FORTRAN packages for solving certain almost block diagonal linear systems by modified alternate row and column elimination". *ACM Transactions on Mathematical Software*, 14(2): 196, June 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [429].

Hull:1988:EHS

[611] T. E. Hull, M. S. Cohen, J. T. M. Sawshuk, and D. B. Wortman. Exception handling in scientific computing. *ACM Transactions on Mathematical Software*, 14(3):201–217, September 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-3/p201-hull/`.

Freeman:1988:DSM

[612] Timothy S. Freeman, Gregory M. Imirzian, Erich Kaltofen, and Lakshman Yagati. Dagwood: a system for manipulating polynomials given by straight-line programs. *ACM Transactions on Mathematical Software*, 14(3):218–240, September 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-3/p218-freeman/`.

Grimes:1988:SLD

[613] Roger G. Grimes and Horst D. Simon. Solution of large, dense symmetric generalized eigenvalue problems using secondary storage. *ACM Transactions on Mathematical Software*, 14(3):241–256, September 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-3/p241-grimes/`.

Schrauf:1988:AGA

[614] Géza Schrauf. Algorithm 664: A Gauss algorithm to solve systems with large banded matrices using random-access disk storage. *ACM Transactions on Mathematical Software*, 14(3):257–260, September 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (elec-

tronic). URL http://www.acm.org/pubs/citations/journals/toms/1988-14-3/p257-schrauf/.

Minh:1988:GGV

[615] Do Le Minh. Generating gamma variates. *ACM Transactions on Mathematical Software*, 14(3):261–266, September 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1988-14-3/p261-minh/.

Duff:1988:RIN

[616] Iain S. Duff and Torbjörn Wiberg. Remarks on implementation of $O(n^{1/2}\tau)$ assignment algorithms. *ACM Transactions on Mathematical Software*, 14(3):267–287, September 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1988-14-3/p267-duff/.

Cormack:1988:RTP

[617] R. S. Cormack and I. D. Hill. Remark on "Algorithm 346: F-test probabilities". *ACM Transactions on Mathematical Software*, 14(3):288–289, September 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [12].

Krogh:1988:AAP

[618] Fred T. Krogh. ACM algorithms policy. *ACM Transactions on Mathematical Software*, 14(3):290–293, September 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Foley:1988:CIP

[619] Thomas A. Foley. Corrigendum: "Interpolation with interval and point tension controls using cubic weighted v-splines". *ACM Transactions on Mathematical Software*, 14(3):297, September 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [566].

Cody:1988:AMS

[620] W. J. Cody. Algorithm 665: MACHAR: a subroutine to dynamically determine machine parameters. *ACM Transactions on Mathematical Software*, 14(4):303–311, December 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1988-14-4/p303-cody/.

Vrahatis:1988:SSN

[621] Michael N. Vrahatis. Solving systems of nonlinear equations using the nonzero value of the topological degree. *ACM Transactions on Math-*

ematical Software, 14(4):312–329, December 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-4/p312-vrahatis/`.

Vrahatis:1988:ACM

[622] Michael N. Vrahatis. Algorithm 666: CHABIS: a mathematical software package for locating and evaluating roots of systems of nonlinear equations. *ACM Transactions on Mathematical Software*, 14(4):330–336, December 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-4/p330-vrahatis/`.

Garavelli:1988:AMS

[623] John S. Garavelli. An algorithm for the multiplication of symmetric polynomials. *ACM Transactions on Mathematical Software*, 14(4):337–344, December 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Aluffi-Pentini:1988:GOA

[624] Filippo Aluffi-Pentini, Valerio Parisi, and Francesco Zirilli. A global optimization algorithm using stochastic differential equations. *ACM Transactions on Mathematical Software*, 14(4):345–365, December 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-4/p345-aluffi-pentini/`.

Aluffi-Pentini:1988:ASE

[625] Filippo Aluffi-Pentini, Valerio Parisi, and Francesco Zirilli. Algorithm 667: SIGMA—a stochastic-integration global minimization algorithm. *ACM Transactions on Mathematical Software*, 14(4):366–380, December 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-4/p366-aluffi-pentini/`.

Higham:1988:AFC

[626] Nicholas J. Higham. Algorithm 674: FORTRAN codes for estimating the one-norm of a real or complex matrix, with applications to condition estimation. *ACM Transactions on Mathematical Software*, 14(4):381–396, December 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-4/p381-higham/`. See also [644].

Kachitvichyanukul:1988:AHS

[627] Voratas Kachitvichyanukul and Bruce W. Schmeiser. Algorithm 668: H2PEC: Sampling from the hypergeometric distribution. *ACM Transactions on Mathematical Software*, 14(4):397–398, December 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1988-14-4/p397-kachitvichyanukul/`.

Dongarra:1988:CES

[628] Jack J. Dongarra, Jeremy Du Croz, Sven Hammarling, and Richard J. Hanson. Corrigenda: "An extended set of FORTRAN Basic Linear Algebra Subprograms". *ACM Transactions on Mathematical Software*, 14 (4):399, December 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [591].

Kearfott:1988:CTG

[629] R. Baker Kearfott. Corrigenda: "Some tests of generalized bisection". *ACM Transactions on Mathematical Software*, 14(4):399, December 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [575].

Anonymous:1988:FCA

[630] Anonymous. Five-year cumulative author index (vol. 10–14. 1984–1988). *ACM Transactions on Mathematical Software*, 14(4):403–411, December 1988. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Duff:1989:SMT

[631] Iain S. Duff, Roger G. Grimes, and John G. Lewis. Sparse matrix test problems. *ACM Transactions on Mathematical Software*, 15(1):1–14, March 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-1/p1-duff/`.

Cash:1989:BRK

[632] J. R. Cash. A block 6(4) Runge–Kutta formula for nonstiff initial value problems. *ACM Transactions on Mathematical Software*, 15(1):15–28, March 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-1/p15-cash/`.

Cash:1989:ABF

[633] J. R. Cash. Algorithm 669: BRKF45: A FORTRAN subroutine for solving first-order systems of nonstiff initial value problems for ordinary differential equations. *ACM Transactions on Mathematical Software*, 15 (1):29–30, March 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-1/p29-cash/`. See also [725].

Brankin:1989:ARK

[634] R. W. Brankin, I. Gladwell, J. R. Dormand, P. J. Prince, and W. L. Seward. Algorithm 670: a Runge–Kutta–Nyström code. *ACM Transactions on Mathematical Software*, 15(1):31–40, March 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-1/p31-brankin/`.

Cody:1989:PEP

[635] W. J. Cody and L. Stoltz. Performance evaluation of programs for certain Bessel functions. *ACM Transactions on Mathematical Software*, 15 (1):41–48, March 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-1/p41-cody/`.

Shanno:1989:NES

[636] David F. Shanno and Kang Hoh Phua. Numerical experience with sequential quadratic programming algorithms for equality constrained nonlinear programming. *ACM Transactions on Mathematical Software*, 15 (1):49–63, March 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-1/p49-shanno/`.

Chang:1989:IPS

[637] Michael D. Chang, Chou-Hong J. Chen, and Michael Engquist. An improved primal simplex variant for pure processing networks. *ACM Transactions on Mathematical Software*, 15(1):64–78, March 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-1/p64-chang/`.

Preusser:1989:AFF

[638] Albrecht Preusser. Algorithm 671: FARB-E-2D: Fill area with bicubics on rectangles—a contour plot program. *ACM Transactions on Mathematical Software*, 15(1):79–89, March 1989. CODEN ACMSCU. ISSN

0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-1/p79-preusser/`.

Morgan:1989:FAI

[639] Alexander P. Morgan, Andrew J. Sommese, and Layne T. Watson. Finding all isolated solutions to polynomial systems using HOMPACK. *ACM Transactions on Mathematical Software*, 15(2):93–122, June 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-2/p93-morgan/`.

Patterson:1989:AGIa

[640] T. N. L. Patterson. An algorithm for generating interpolatory quadrature rules of the highest degree of precision with preassigned nodes for general weight functions. *ACM Transactions on Mathematical Software*, 15(2):123–136, June 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-2/p123-patterson/`.

Patterson:1989:AGIb

[641] T. N. L. Patterson. Algorithm 672: Generation of interpolatory quadrature rules of the highest degree of precision with preassigned nodes for general weight functions. *ACM Transactions on Mathematical Software*, 15(2):137–143, June 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-2/p137-patterson/`.

Tang:1989:TDI

[642] Ping Tak Peter Tang. Table-driven implementation of the exponential function in IEEE floating-point arithmetic. *ACM Transactions on Mathematical Software*, 15(2):144–157, June 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-2/p144-tang/`.

Vitter:1989:ADH

[643] Jeffrey Scott Vitter. Algorithm 673: Dynamic Huffman coding. *ACM Transactions on Mathematical Software*, 15(2):158–167, June 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-2/p158-vitter/`. See remark [1471].

Higham:1989:CFC

[644] Nicholas J. Higham. Corrigendum: "Algorithm 674: FORTRAN codes for estimating the one-norm of a real or complex matrix, with applications to condition estimation". *ACM Transactions on Mathematical Software*, 15(2):168, June 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-2/p168-higham/`. See [626].

Krogh:1989:AAP

[645] Fred T. Krogh. ACM algorithms policy. *ACM Transactions on Mathematical Software*, 15(2):169–172, June 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ribbens:1989:FAG

[646] Calvin J. Ribbens. A fast adaptive grid scheme for elliptic partial differential equations. *ACM Transactions on Mathematical Software*, 15(3): 179–197, September 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-3/p179-ribbens/`.

Liu:1989:GPA

[647] Joseph W. H. Liu. A graph partitioning algorithm by node separators. *ACM Transactions on Mathematical Software*, 15(3):198–219, September 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-3/p198-liu/`.

Mahdavi-Amiri:1989:CNL

[648] Nezam Mahdavi-Amiri and Richard H. Bartels. Constrained nonlinear least squares: An exact penalty approach with projected structured quasi-Newton updates. *ACM Transactions on Mathematical Software*, 15(3):220–242, September 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-3/p220-mahdavi-amiri/`.

Vanbegin:1989:AFS

[649] Michel Vanbegin, Paul Van Dooren, and Michel Verhaegen. Algorithm 675: FORTRAN subroutines for computing the square root covariance filter and square root information filter in dense or Hessenberg forms. *ACM Transactions on Mathematical Software*, 15(3):243–256, September 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-3/p243-vanbegin/`.

Dadurkevicius:1989:RA

[650] Virgis Dadurkevičius. Remark on "Algorithm 587: Two algorithms for the linearly constrained least squares problem". *ACM Transactions on Mathematical Software*, 15(3):257–261, September 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-3/p257-dadurkevicius/`. See [388].

Buckley:1989:RA

[651] A. Buckley. Remark on Algorithm 630. *ACM Transactions on Mathematical Software*, 15(3):262–274, September 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-3/p262-buckley/`. See [496].

Domich:1989:RHN

[652] Paul D. Domich. Residual Hermite normal form computations. *ACM Transactions on Mathematical Software*, 15(3):275–286, September 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-3/p275-domich/`.

Corana:1989:CMF

[653] A. Corana, M. Marchesi, C. Martini, and S. Ridella. Corrigenda: "Minimizing multimodal functions of continuous variables with the 'simulated annealing' algorithm". *ACM Transactions on Mathematical Software*, 15 (3):287, September 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [579].

Enright:1989:CFP

[654] W. H. Enright and J. D. Pryce. Corrigenda: "Two FORTRAN packages for assessing initial value methods". *ACM Transactions on Mathematical Software*, 15(3):287, September 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [562].

Le:1989:CED

[655] D. Le. Corrigenda: "An efficient derivative-free method for solving nonlinear equations". *ACM Transactions on Mathematical Software*, 15(3): 287, September 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [513].

Ashcraft:1989:IRS

[656] Cleve Ashcraft and Roger Grimes. The influence of relaxed supernode partitions on the multifrontal method. *ACM Transactions on Mathematical Software*, 15(4):291–309, December 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-4/p291-ashcraft/`.

Liu:1989:MMP

[657] Joseph W. H. Liu. The multifrontal method and paging in sparse Cholesky factorization. *ACM Transactions on Mathematical Software*, 15(4):310–325, December 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-4/p310-liu/`.

Mitchell:1989:CAR

[658] William F. Mitchell. A comparison of adaptive refinement techniques for elliptic problems. *ACM Transactions on Mathematical Software*, 15(4): 326–347, December 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-4/p326-mitchell/`.

Boggs:1989:AOS

[659] Paul T. Boggs, Janet R. Donaldson, Richard h. Byrd, and Robert B. Schnabel. Algorithm 676: ODRPACK: Software for weighted orthogonal distance regression. *ACM Transactions on Mathematical Software*, 15(4): 348–364, December 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-4/p348-boggs/`.

Montefusco:1989:ASI

[660] Laura Bacchelli Montefusco and Giulio Casciola. Algorithm 677: C^1 surface interpolation. *ACM Transactions on Mathematical Software*, 15(4): 365–374, December 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://doi.acm.org/10.1145/76909.76914; http://www.acm.org/pubs/citations/journals/toms/1989-15-4/p365-montefusco/`.

Corliss:1989:IIV

[661] George Corliss and Gary Krenz. Indefinite integration with validation. *ACM Transactions on Mathematical Software*, 15(4):375–393, December 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-4/p375-corliss/`.

Kachitvichyanukul:1989:ABS

[662] Voratas Kachitvichyanukul and Bruce W. Schmeiser. Algorithm 678: BTPEC: Sampling from the binomial distribution. *ACM Transactions on Mathematical Software*, 15(4):394–397, December 1989. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1989-15-4/p394-kachitvichyanukul/`.

Dongarra:1990:SLB

[663] Jack J. Dongarra, Jeremy Du Croz, Sven Hammarling, and Iain Duff. A set of level 3 Basic Linear Algebra Subprograms. *ACM Transactions on Mathematical Software*, 16(1):1–17, March 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-1/p1-dongarra/`.

Dongarra:1990:ASL

[664] Jack J. Dongarra, Jeremy Du Croz, Sven Hammarling, and Iain Duff. Algorithm 679: a set of level 3 Basic Linear Algebra Subprograms: Model implementation and test programs. *ACM Transactions on Mathematical Software*, 16(1):18–28, March 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-1/p18-dongarra/`. See also [690, 756, 823].

Cody:1990:PEP

[665] W. J. Cody. Performance evaluation of programs for the error and complementary error functions. *ACM Transactions on Mathematical Software*, 16(1):29–37, March 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-1/p29-cody/`; `http://www.acm.org/pubs/toc/Abstracts/0098-3500/77628.html`.

Poppe:1990:MEC

[666] G. P. M. Poppe and C. M. J. Wijers. More efficient computation of the complex error function. *ACM Transactions on Mathematical Software*, 16(1):38–46, March 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-1/p38-poppe/`.

Poppe:1990:AEC

[667] G. P. M. Poppe and C. M. J. Wijers. Algorithm 680: Evaluation of the complex error function. *ACM Transactions on Mathematical Software*, 16(1):47, March 1990. CODEN ACMSCU. ISSN 0098-3500 (print),

1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-1/p47-poppe/`. See remark [1606].

Arney:1990:AMM

[668] David C. Arney and Joseph E. Flaherty. An adaptive mesh-moving and local refinement method for time-dependent partial differential equations. *ACM Transactions on Mathematical Software*, 16(1):48–71, March 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-1/p48-arney/`.

Schryer:1990:DSO

[669] N. L. Schryer. Designing software for one-dimensional partial differential equations. *ACM Transactions on Mathematical Software*, 16(1):72–85, March 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-1/p72-schryer/`.

Hansen:1990:PES

[670] Eldon R. Hansen, Merrell L. Patrick, and Richard L. C. Wang. Polynomial evaluation with scaling. *ACM Transactions on Mathematical Software*, 16(1):86–93, March 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-1/p86-hansen/`.

Snow:1990:WGO

[671] Dennis M. Snow. Weyl group orbits. *ACM Transactions on Mathematical Software*, 16(1):94–108, March 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-1/p94-snow/`.

Sewell:1990:RSP

[672] Granville Sewell. Remark on "Algorithm 657: Software for plotting contour surfaces of a function of three variables". *ACM Transactions on Mathematical Software*, 16(1):109, March 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [594].

Zenios:1990:INO

[673] Stavros A. Zenios. Integrating network optimization capabilities into a high-level modeling language. *ACM Transactions on Mathematical Software*, 16(2):113–142, June 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-2/p113-zenios/`.

Meintjes:1990:CES

[674] Keith Meintjes and Alexander P. Morgan. Chemical equilibrium systems as numerical test problems. *ACM Transactions on Mathematical Software*, 16(2):143–151, June 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-2/p143-meintjes/`.

Kearfott:1990:AIP

[675] R. Baker Kearfott and Manuel Novoa III. Algorithm 681: INTBIS, a portable interval Newton/bisection package. *ACM Transactions on Mathematical Software*, 16(2):152–157, June 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-2/p152-kearfott/`.

Murli:1990:ATM

[676] A. Murli and M. Rizzardi. Algorithm 682: Talbot's method for the Laplace inversion problem. *ACM Transactions on Mathematical Software*, 16(2):158–168, June 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-2/p158-murli/`.

Amos:1990:CEI

[677] Donald E. Amos. Computation of exponential integrals of a complex argument. *ACM Transactions on Mathematical Software*, 16(2):169–177, June 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-2/p169-amos/`.

Amos:1990:APF

[678] Donald E. Amos. Algorithm 683: a portable FORTRAN subroutine for exponential integrals of a complex argument. *ACM Transactions on Mathematical Software*, 16(2):178–182, June 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-2/p178-amos/`.

Tang:1990:AET

[679] Ping Tak Peter Tang. Accurate and efficient testing of the exponential and logarithm functions. *ACM Transactions on Mathematical Software*, 16(3):185–200, September 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-3/p185-tang/`.

Cash:1990:VOR

[680] J. R. Cash and Alan H. Karp. A variable order Runge–Kutta method for initial value problems with rapidly varying right-hand sides. *ACM Transactions on Mathematical Software*, 16(3):201–222, September 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-3/p201-cash/`.

Weiss:1990:SSC

[681] Shlomo Weiss and James E. Smith. A study of scalar compilation techniques for pipelined supercomputers. *ACM Transactions on Mathematical Software*, 16(3):223–245, September 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-3/p223-weiss/`.

Preusser:1990:EFB

[682] Albrecht Preusser. Efficient formulation of a bivariate nonic C^2-Hermite polynomial on triangles. *ACM Transactions on Mathematical Software*, 16(3):246–252, September 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-3/p246-preusser/`.

Preusser:1990:AIT

[683] Albrecht Preusser. Algorithm 684: C^1- and C^2-interpolation on triangles with quintic and nonic bivariate polynomials. *ACM Transactions on Mathematical Software*, 16(3):253–257, September 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-3/p253-preusser/`.

Shacham:1990:FBD

[684] Orit Shacham and Mordechai Shacham. Finding boundaries of the domain of definition for functions along a one-dimensional ray. *ACM Transactions on Mathematical Software*, 16(3):258–268, September 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-3/p258-shacham/`.

Nair:1990:IAO

[685] K. Aiyappan Nair. An improved algorithm for ordered sequential random sampling. *ACM Transactions on Mathematical Software*, 16(3):269–274,

September 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Palacios-Velez:1990:DHS

[686] Oscar Palacios-Vélez and Baltazar Cuevas Renaud. A dynamic hierarchical subdivision algorithm for computing Delaunay triangulations and other closest-point problems. *ACM Transactions on Mathematical Software*, 16(3):275–292, September 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-3/p275-palacios-velez/`.

Krogh:1990:AAP

[687] Fred T. Krogh. ACM algorithms policy. *ACM Transactions on Mathematical Software*, 16(3):293–296, September 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Pothen:1990:CBT

[688] Alex Pothen and Chin-Ju Fan. Computing the block triangular form of a sparse matrix. *ACM Transactions on Mathematical Software*, 16(4): 303–324, December 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-4/p303-pothen/`.

Kaufman:1990:APS

[689] Linda Kaufman and Daniel D. Warner. Algorithm 685: a program for solving separable elliptic equations. *ACM Transactions on Mathematical Software*, 16(4):325–351, December 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-4/p325-kaufman/`.

Higham:1990:EFM

[690] Nicholas J. Higham. Exploiting fast matrix multiplication within the level 3 BLAS. *ACM Transactions on Mathematical Software*, 16(4): 352–368, December 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-4/p352-higham/`. Describes algorithms based on Strassen's method which are asymptotically faster than the standard N^3 algorithm, and in practice, faster for $N \approx 100$, and examines their numerical stability. See [664, 756, 823].

Reichel:1990:AFS

[691] L. Reichel and W. B. Gragg. Algorithm 686: FORTRAN subroutines for updating the QR decomposition. *ACM Transactions on Mathematical*

Software, 16(4):369–377, December 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-4/p369-reighel/`.

Tang:1990:TDI

[692] Ping Tak Peter Tang. Table-driven implementation of the logarithm function in IEEE floating-point arithmetic. *ACM Transactions on Mathematical Software*, 16(4):378–400, December 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-4/p378-tang/`.

Hopkins:1990:RRK

[693] Tim Hopkins and David Morse. Remark on "Algorithm 620: References and keywords for *collected algorithms of the acm*". *ACM Transactions on Mathematical Software*, 16(4):401–403, December 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-4/p401-hopkins/`. See [473, 518].

Amos:1990:RPP

[694] D. E. Amos. Remark on "Algorithm 644: a portable package for Bessel functions of a complex argument and nonnegative order". *ACM Transactions on Mathematical Software*, 16(4):404, December 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-4/p404-amos/`. See [551, 871, 1222].

Garbow:1990:RFS

[695] B. S. Garbow and J. N. Lyness. Remark on "Algorithm 662: A FORTRAN software package for the numerical inversion of the Laplace transform based on Weeks' method". *ACM Transactions on Mathematical Software*, 16(4):405–406, December 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1990-16-4/p405-garbow/`. See [608].

Addison:1991:ADT

[696] C. A. Addison, W. H. Enright, P. W. Gaffney, I. Gladwell, and P. M. Hanson. Algorithm 687: a decision tree for the numerical solution of initial value ordinary differential equations. *ACM Transactions on Mathematical Software*, 17(1):1–10, March 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-1/p1-addison/`.

Shampine:1991:RSS

[697] L. F. Shampine, I. Gladwell, and R. W. Brankin. Reliable solutions of special event location problems for ODEs. *ACM Transactions on Mathematical Software*, 17(1):11–25, March 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-1/p11-shampine/`.

Gal:1991:AEM

[698] Shmuel Gal and Boris Bachelis. An accurate elementary mathematical library for the IEEE floating point standard. *ACM Transactions on Mathematical Software*, 17(1):26–45, March 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-1/p26-gal/`.

Cody:1991:PEP

[699] W. J. Cody. Performance evaluation of programs related to the real gamma function. *ACM Transactions on Mathematical Software*, 17 (1):46–54, March 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-1/p46-cody/`.

Cody:1991:UTS

[700] W. J. Cody and L. Stoltz. The use of Taylor series to test accuracy of function programs. *ACM Transactions on Mathematical Software*, 17 (1):55–63, March 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-1/p55-cody/`.

Dax:1991:CAB

[701] Achiya Dax. On computational aspects of bounded linear least squares problems. *ACM Transactions on Mathematical Software*, 17(1):64–73, March 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-1/p64-dax/`.

Pardalos:1991:CTP

[702] Panos M. Pardalos. Construction of test problems in quadratic bivalent programming. *ACM Transactions on Mathematical Software*, 17 (1):74–87, March 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-1/p74-pardalos/`.

Klier:1991:FCB

[703] Peter Klier and Richard J. Fateman. On finding the closest bitwise matches in a fixed set. *ACM Transactions on Mathematical Software*, 17(1):88–97, March 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-1/p88-klier/`.

LEcuyer:1991:IRN

[704] Pierre L'Ecuyer and Serge Côté. Implementing a random number package with splitting facilities. *ACM Transactions on Mathematical Software*, 17(1):98–111, March 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-1/p98-lecuyer/`.

Liu:1991:GEM

[705] Joseph W. H. Liu. A generalized envelope method for sparse factorization by rows. *ACM Transactions on Mathematical Software*, 17(1): 112–129, March 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-1/p112-liu/`.

Mohideen:1991:RCG

[706] Saleem Mohideen and Vladimir Cherkassky. On recursive calculation of the generalized inverse of a matrix. *ACM Transactions on Mathematical Software*, 17(1):130–147, March 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-1/p130-mohideen/`.

Keast:1991:AEM

[707] P. Keast and P. H. Muir. Algorithm 688: EPDCOL: a more efficient PDECOL code. *ACM Transactions on Mathematical Software*, 17(2): 153–166, June 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-2/p153-keast/`.

Blom:1991:ADC

[708] J. G. Blom and H. Brunner. Algorithm 689: Discretized collocation and iterated collocation for nonlinear Volterra integral equations of the second kind. *ACM Transactions on Mathematical Software*, 17(2):167–177, June 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-2/p167-blom/`.

Berzins:1991:ACP

[709] M. Berzins and P. M. Dew. Algorithm 690: Chebyshev polynomial software for elliptic-parabolic systems of PDEs. *ACM Transactions on Mathematical Software*, 17(2):178–206, June 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-2/p178-berzins/`.

Favati:1991:IIF

[710] Paola Favati, Grazia Lotti, and Francesco Romani. Interpolatory integration formulas for optimal composition. *ACM Transactions on Mathematical Software*, 17(2):207–217, June 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-2/p207-favati/`.

Favati:1991:AIQ

[711] Paola Favati, Grazia Lotti, and Francesco Romani. Algorithm 691: Improving QUADPACK automatic integration routines. *ACM Transactions on Mathematical Software*, 17(2):218–232, June 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-2/p218-favati/`.

Berntsen:1991:EEA

[712] Jarle Berntsen and Terje O. Espelid. Error estimation in automatic quadrature routines. *ACM Transactions on Mathematical Software*, 17 (2):233–252, June 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-2/p233-berntsen/`.

Dodson:1991:SEF

[713] David S. Dodson, Roger G. Grimes, and John G. Lewis. Sparse extensions to the FORTRAN Basic Linear Algebra Subroutines. *ACM Transactions on Mathematical Software*, 17(2):253–263, June 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-2/p253-dodson/`.

Dodson:1991:AMI

[714] David S. Dodson, Roger G. Grimes, and John G. Lewis. Algorithm 692: Model implementation and test package for the sparse Basic Linear Algebra Subroutines. *ACM Transactions on Mathematical Software*, 17 (2):264–272, June 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-2/p264-dodson/`.

Smith:1991:AFP

[715] David M. Smith. Algorithm 693: A FORTRAN package for floating-point multiple-precision arithmetic. *ACM Transactions on Mathematical Software*, 17(2):273–283, June 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-2/p273-smith/`.

Higham:1991:ACT

[716] Nicholas J. Higham. Algorithm 694: a collection of test matrices in MATLAB. *ACM Transactions on Mathematical Software*, 17(3):289–305, September 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-3/p289-higham/`.

Eskow:1991:ASN

[717] Elizabeth Eskow and Robert B. Schnabel. Algorithm 695: Software for a new modified Cholesky factorization. *ACM Transactions on Mathematical Software*, 17(3):306–312, September 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-3/p306-eskow/`.

Rothberg:1991:ESM

[718] Edward Rothberg and Anoop Gupta. Efficient sparse matrix factorization on high-performance workstations—exploiting the memory hierarchy. *ACM Transactions on Mathematical Software*, 17(3):313–334, September 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-3/p313-rothberg/`.

Schrauf:1991:AIR

[719] Géza Schrauf. Algorithm 696: An inverse Rayleigh iteration for complex band matrices. *ACM Transactions on Mathematical Software*, 17(3):335–340, September 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-3/p335-schrauf/`.

Akima:1991:MUI

[720] Hiroshi Akima. A method for univariate interpolation that has the accuracy of a third-degree polynomial. *ACM Transactions on Mathematical Software*, 17(3):341–366, September 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-3/p341-akima/`.

Akima:1991:AUI

[721] Hiroshi Akima. Algorithm 697: Univariate interpolation that has the accuracy of a third-degree polynomial. *ACM Transactions on Mathematical Software*, 17(3):367, September 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-3/p367-akima/`.

Higham:1991:HCR

[722] D. J. Higham. Highly continuous Runge–Kutta interpolants. *ACM Transactions on Mathematical Software*, 17(3):368–386, September 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-3/p368-higham/`.

Sharp:1991:NCS

[723] P. W. Sharp. Numerical comparisons of some explicit Runge–Kutta pair of orders 3 through 8. *ACM Transactions on Mathematical Software*, 17(3):387–409, September 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-3/p387-sharp/`.

Ziv:1991:FEE

[724] Abraham Ziv. Fast evaluation of elementary mathematical functions with correctly rounded last bit. *ACM Transactions on Mathematical Software*, 17(3):410–423, September 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-3/p410-ziv/`.

Higham:1991:RBF

[725] Desmond J. Higham. Remark on "Algorithm 669: BRKF45: A FORTRAN subroutine for solving first-order systems of nonstiff initial value problems for ordinary differential equations". *ACM Transactions on Mathematical Software*, 17(3):424–426, September 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-3/p424-higham/`. See [633].

Krogh:1991:AAP

[726] Fred T. Krogh. ACM algorithms policy. *ACM Transactions on Mathematical Software*, 17(3):427–430, September 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Berntsen:1991:AAA

[727] Jarle Berntsen, Terje O. Espelid, and Alan Genz. An adaptive algorithm for the approximate calculation of multiple integrals. *ACM Transactions on Mathematical Software*, 17(4):437–451, December 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-4/p437-berntsen/`.

Berntsen:1991:ADA

[728] Jarle Berntsen, Terje O. Espelid, and Alan Genz. Algorithm 698: DCUHRE: An adaptive multidimensional integration routine for a vector of integrals. *ACM Transactions on Mathematical Software*, 17(4): 452–456, December 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-4/p452-berntsen/`.

Krogh:1991:ANR

[729] Fred T. Krogh and W. Van Snyder. Algorithm 699: a new representation of Patterson's quadrature formulae. *ACM Transactions on Mathematical Software*, 17(4):457–461, December 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-4/p457-krogh/`.

Broughan:1991:SHL

[730] Kevin A. Broughan. SENAC: a high-level interface for the NAG library. *ACM Transactions on Mathematical Software*, 17(4):462–480, December 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-4/p462-broughan/`.

Marletta:1991:CAN

[731] Marco Marletta. Certification of Algorithm 700: Numerical tests of the SLEIGN software for Sturm–Liouville problems. *ACM Transactions on Mathematical Software*, 17(4):481–490, December 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-4/p481-marletta/`.

Bailey:1991:EEC

[732] Paul B. Bailey, Burton S. Garbow, Hans G. Kaper, and Anton Zettl. Eigenvalue and eigenfunction computations for Sturm–Liouville problems. *ACM Transactions on Mathematical Software*, 17(4):491–499, December 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295

(electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-4/p491-bailey/`.

Bailey:1991:AFS

[733] Paul B. Bailey, Burton S. Garbow, Hans G. Kaper, and Anton Zettl. Algorithm 700: A FORTRAN software package for Sturm–Liouville problems. *ACM Transactions on Mathematical Software*, 17(4):500–501, December 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-4/p500-bailey/`.

Alfeld:1991:EAS

[734] Peter Alfeld and David J. Eyre. The exact analysis of sparse rectangular linear systems. *ACM Transactions on Mathematical Software*, 17(4): 502–518, December 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-4/p502-alfeld/`.

Alfeld:1991:AGE

[735] Peter Alfeld and David J. Eyre. Algorithm 701: Goliath—a software system for the exact analysis of rank-deficient sparse rational linear systems. *ACM Transactions on Mathematical Software*, 17(4):519–532, December 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-4/p519-alfeld/`.

Gustafsson:1991:CTT

[736] Kjell Gustafsson. Control theoretic techniques for stepsize selection in explicit Runge–Kutta methods. *ACM Transactions on Mathematical Software*, 17(4):533–554, December 1991. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1991-17-4/p533-gustafsson/`.

Boubez:1992:PED

[737] Toufic I. Boubez, Andy M. Froncioni, and Richard L. Peskin. A prototyping envelope for differential equations. *ACM Transactions on Mathematical Software*, 18(1):1–10, March 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-1/p1-boubez/`.

Lucks:1992:ASM

[738] Michael Lucks and Ian Gladwell. Automated selection of mathematical software. *ACM Transactions on Mathematical Software*, 18(1):11–34,

March 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-1/p11-lucks/`.

Olszewski:1992:FTA

[739] Jan Olszewski. A flexible thinning algorithm allowing parallel, sequential, and distributed application. *ACM Transactions on Mathematical Software*, 18(1):35–45, March 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-1/p35-olszewski/`.

Schlick:1992:TETa

[740] Tamar Schlick and Aaron Fogelson. TNPACK—a truncated Newton minimization package for large-scale problems: I. algorithm and usage. *ACM Transactions on Mathematical Software*, 18(1):46–70, March 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-1/p46-schlick/`.

Schlick:1992:TETb

[741] Tamar Schlick and Aaron Fogelson. TNPACK—a truncated Newton minimization package for large-scale problems: II. implementation examples. *ACM Transactions on Mathematical Software*, 18(1):71–111, March 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-1/p71-schlick/`.

Hanson:1992:QTM

[742] R. J. Hanson and Fred T. Krogh. A quadratic-tensor model algorithm for nonlinear least-squares problems with linear constraints. *ACM Transactions on Mathematical Software*, 18(2):115–133, June 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-2/p115-hanson/`.

Gurwitz:1992:TCE

[743] Chaya Gurwitz. A test for cancellation errors in quasi-Newton methods. *ACM Transactions on Mathematical Software*, 18(2):134–140, June 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-2/p134-gurwitz/`.

Schlick:1992:ATE

[744] Tamar Schlick and Aaron Fogelson. Algorithm 702: TNPACK—a truncated Newton minimization package for large-scale problems: I. algorithm and usage. *ACM Transactions on Mathematical Software*, 18(2): 141, June 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remark [982].

Cash:1992:MCS

[745] J. R. Cash and S. Considine. An MEBDF code for stiff initial value problems. *ACM Transactions on Mathematical Software*, 18(2):142–155, June 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-2/p142-cash/`.

Cash:1992:AMF

[746] J. R. Cash and S. Considine. Algorithm 703: MEBDF: A FORTRAN subroutine for solving first-order systems of stiff initial value problems for ordinary differential equations. *ACM Transactions on Mathematical Software*, 18(2):156–158, June 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-2/p156-cash/`.

Neidinger:1992:EMN

[747] Richard D. Neidinger. An efficient method for the numerical evaluation of partial derivatives of arbitrary order. *ACM Transactions on Mathematical Software*, 18(2):159–173, June 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-2/p159-neidinger/`.

Edwards:1992:EEN

[748] John A. Edwards. Exact equations of the nonlinear spline. *ACM Transactions on Mathematical Software*, 18(2):174–192, June 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-2/p174-edwards/`.

Majaess:1992:SAB

[749] Fouad Majaess, Patrick Keast, Graeme Fairweather, and Karin R. Bennett. The solution of almost block diagonal linear systems arising in spline collocation at Gaussian points with monomial basis functions. *ACM Transactions on Mathematical Software*, 18(2):193–204, June

1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-2/p193-majaess/`.

Majaess:1992:AAA

[750] Fouad Majaess, Patrick Keast, Graeme Fairweather, and Karin R. Bennett. Algorithm 704: ABDPACK and ABBPACK—FORTRAN programs for the solution of almost block diagonal linear systems arising in spline collocation at Gaussian points with monomial basis functions. *ACM Transactions on Mathematical Software*, 18(2):205–210, June 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-2/p205-majaess/`.

Tang:1992:TDI

[751] Ping Tak Peter Tang. Table-driven implementation of the `Expm1` function in IEEE floating-point arithmetic. *ACM Transactions on Mathematical Software*, 18(2):211–222, June 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-2/p211-tang/`. See independent analysis and accuracy confirmation of this algorithm in [32].

Gardiner:1992:SSM

[752] Judith D. Gardiner, Alan J. Laub, James J. Amato, and Cleve B. Moler. Solution of the Sylvester matrix equation $AXB^T + CXD^T = E$. *ACM Transactions on Mathematical Software*, 18(2):223–231, June 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-2/p223-gardiner/`.

Gardiner:1992:AFS

[753] Judith D. Gardiner, Matthew R. Wette, Alan J. Laub, James J. Amato, and Cleve B. Moler. Algorithm 705: A FORTRAN-77 software package for solving the Sylvester matrix equation $AXB^T + CXD^T = E$. *ACM Transactions on Mathematical Software*, 18(2):232–238, June 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-2/p232-gardiner/`. See corrections [1071].

Weerawarana:1992:PCG

[754] Sanjiva Weerawarana and Paul S. Wang. A portable code generator for CRAY FORTRAN. *ACM Transactions on Mathematical Software*, 18(3): 241–255, September 1992. CODEN ACMSCU. ISSN 0098-3500 (print),

1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-3/p241-weerawarana/`.

Hansen:1992:FSG

[755] Per Christian Hansen and Tony F. Chan. FORTRAN subroutines for general Toeplitz systems. *ACM Transactions on Mathematical Software*, 18(3):256–273, September 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-3/p256-hansen/`. See also [820].

Demmel:1992:SBA

[756] James W. Demmel and Nicholas J. Higham. Stability of block algorithms with fast level-3 BLAS. *ACM Transactions on Mathematical Software*, 18(3):274–291, September 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-3/p274-demmel/`. See [664, 690, 823].

Ammar:1992:IDC

[757] G. S. Ammar, L. Reichel, and D. C. Sorensen. An implementation of a divide and conquer algorithm for the unitary eigenproblem. *ACM Transactions on Mathematical Software*, 18(3):292–307, September 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-3/p292-ammar/`. See also [821].

Toint:1992:LFS

[758] Ph. L. Toint and D. Tuyttens. LSNNO, A FORTRAN subroutine for solving large-scale nonlinear network optimization problems. *ACM Transactions on Mathematical Software*, 18(3):308–328, September 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-3/p308-toint/`.

Berntsen:1992:ADA

[759] Jarle Berntsen and Terje O. Espelid. Algorithm 706: DCUTRI: An algorithm for adaptive cubature over a collection of triangles. *ACM Transactions on Mathematical Software*, 18(3):329–342, September 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-3/p329-berntsen/`. See remark [958].

Hopkins:1992:RPG

[760] Tim Hopkins. Remark on "Algorithm 540: PDECOL, general collocation software for partial differential equations [D3]". *ACM Transactions on Mathematical Software*, 18(3):343–344, September 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-3/p343-hopkins/`. See [239].

Nardin:1992:ACN

[761] Mark Nardin, W. F. Perger, and Atul Bhalla. Algorithm 707: CONHYP: a numerical evaluator of the confluent hypergeometric function for complex arguments of large magnitudes. *ACM Transactions on Mathematical Software*, 18(3):345–349, September 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-3/p345-nardin/`.

Schweikard:1992:RZI

[762] Achim Schweikard. Real zero isolation for trigonometric polynomials. *ACM Transactions on Mathematical Software*, 18(3):350–359, September 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-3/p350-schweikard/`.

DiDonato:1992:ASD

[763] Armido R. DiDonato and Alfred H. Morris, Jr. Algorithm 708: Significant digit computation of the incomplete beta function ratios. *ACM Transactions on Mathematical Software*, 18(3):360–373, September 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-3/p360-didonato/`. See also [834].

Buckley:1992:ATA

[764] A. G. Buckley. Algorithm 709: Testing algorithm implementations. *ACM Transactions on Mathematical Software*, 18(4):375–391, December 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-4/p375-buckley/`.

Dongarra:1992:AFS

[765] J. J. Dongarra, G. A. Geist, and C. H. Romine. Algorithm 710: FORTRAN subroutines for computing the eigenvalues and eigenvectors of a general matrix by reduction to general tridiagonal form.

ACM Transactions on Mathematical Software, 18(4):392–400, December 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-4/p392-dongarra/`.

Fisher:1992:DTO

[766] M. E. Fisher and L. S. Jennings. Discrete-time optimal control problems with general constraints. *ACM Transactions on Mathematical Software*, 18(4):401–413, December 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-4/p401-fisher/`.

Nash:1992:ABS

[767] Stephen G. Nash and Ariela Sofer. Algorithm 711: BTN: Software for parallel unconstrained optimization. *ACM Transactions on Mathematical Software*, 18(4):414–448, December 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-4/p414-nash/`.

Leva:1992:FNR

[768] Joseph L. Leva. A fast normal random number generator. *ACM Transactions on Mathematical Software*, 18(4):449–453, December 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-4/p449-leva/`.

Leva:1992:ANR

[769] Joseph L. Leva. Algorithm 712: a normal random number generator. *ACM Transactions on Mathematical Software*, 18(4):454–455, December 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-4/p454-leva/`.

Boisvert:1992:PVS

[770] Ronald F. Boisvert and Bonita V. Saunders. Portable vectorized software for Bessel function evaluation. *ACM Transactions on Mathematical Software*, 18(4):456–469, December 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-4/p456-boisvert/`. See also [781].

Drezner:1992:CMN

[771] Zvi Drezner. Computation of the multivariate normal integral. *ACM Transactions on Mathematical Software*, 18(4):470–480, December 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-4/p470-drezner/`. See also [809].

Aberth:1992:PCU

[772] Oliver Aberth and Mark J. Schaefer. Precise computation using range arithmetic, via C++. *ACM Transactions on Mathematical Software*, 18(4):481–491, December 1992. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1992-18-4/p481-aberth/`.

Cody:1993:ACP

[773] W. J. Cody. Algorithm 714: CELEFUNT: a portable test package for complex elementary functions. *ACM Transactions on Mathematical Software*, 19(1):1–21, March 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-1/p1-cody/` ; `http://www.acm.org/pubs/toc/Abstracts/toms/151272.html`.

Cody:1993:ASE

[774] W. J. Cody. Algorithm 715: SPECFUN—a portable FORTRAN package of special function routines and test drivers. *ACM Transactions on Mathematical Software*, 19(1):22–32, March 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-1/p22-cody/`. See remark [891].

Wu:1993:ACH

[775] Trong Wu. An accurate computation of the hypergeometric distribution function. *ACM Transactions on Mathematical Software*, 19(1):33–43, March 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-1/p33-wu/`.

Kamel:1993:OES

[776] M. S. Kamel, K. S. Ma, and W. H. Enright. ODEXPERT: An expert system to select numerical solvers for initial value ODE systems. *ACM Transactions on Mathematical Software*, 19(1):44–62, March

1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-1/p44-kamel/`.

Cash:1993:MAM

[777] J. R. Cash and S. Semnani. A modified Adams method for NonStiff and mildly stiff initial value problems. *ACM Transactions on Mathematical Software*, 19(1):63–80, March 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-1/p63-cash/`.

Renka:1993:ATT

[778] R. J. Renka. Algorithm 716: TSPACK: Tension spline curve-fitting package. *ACM Transactions on Mathematical Software*, 19(1):81–94, March 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remark [978].

Snow:1993:CTP

[779] Dennis M. Snow. Computing tensor product decompositions. *ACM Transactions on Mathematical Software*, 19(1):95–108, March 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-1/p95-snow/`.

Bunch:1993:ASM

[780] David S. Bunch, David M. Gay, and Roy E. Welsch. Algorithm 717: Subroutines for maximum likelihood and quasi-likelihood estimation of parameters in nonlinear regression models. *ACM Transactions on Mathematical Software*, 19(1):109–130, March 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-1/p109-bunch/`.

Boisvert:1993:CPV

[781] Ronald F. Boisvert and Bonita V. Saunders. Corrigendum: "Algorithm 713: Portable vectorized software for Bessel function evaluation". *ACM Transactions on Mathematical Software*, 19(1):131, March 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [770].

Boisvert:1993:E

[782] Ronald F. Boisvert. Editorial. *ACM Transactions on Mathematical Software*, 19(2):135, June 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Duff:1993:CSE

[783] I. S. Duff and J. A. Scott. Computing selected eigenvalues of sparse unsymmetric matrices using subspace iteration. *ACM Transactions on Mathematical Software*, 19(2):137–159, June 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-2/p137-duff/`. See [877].

Demmel:1993:GSDa

[784] James Demmel and Bo Kågström. The generalized Schur decomposition of an arbitrary pencil $A - \lambda B$: Robust software with error bounds and applications. Part I: Theory and algorithms. *ACM Transactions on Mathematical Software*, 19(2):160–174, June 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-2/p160-demmel/`.

Demmel:1993:GSDb

[785] James Demmel and Bo Kågström. The generalized Schur decomposition of an arbitrary pencil $A - \lambda B$: Robust software with error bounds and applications. Part II: Software and applications. *ACM Transactions on Mathematical Software*, 19(2):175–201, June 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-2/p175-demmel/`.

Bai:1993:CCN

[786] Z. Bai, J. Demmel, and A. McKenney. On computing condition numbers for the nonsymmetric eigenproblem. *ACM Transactions on Mathematical Software*, 19(2):202–223, June 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-2/p202-bai/`.

Miminis:1993:AFS

[787] George Miminis and Michael Reid. Algorithm 718: A FORTRAN subroutine to solve the eigenvalues allocation problem for single-input systems. *ACM Transactions on Mathematical Software*, 19(2):224–232, June 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-2/p224-miminis/`.

Greenberg:1993:EAC

[788] Harvey J. Greenberg. Enhancements of ANALYZE: a computer-assisted analysis system for linear programming. *ACM Transactions on Mathematical Software*, 19(2):233–256, June 1993. CODEN ACMSCU. ISSN

0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-2/p233-greenberg/`.

Fishman:1993:GSC

[789] George S. Fishman and L. Stephen Yarberry. Generating a sample from a k-cell table with changing probabilities in $O(\log_2 k)$ time. *ACM Transactions on Mathematical Software*, 19(2):257–261, June 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-2/p257-fishman/`.

Bentley:1993:TDI

[790] Jon L. Bentley, Mary F. Fernandez, Brian W. Kernighan, and Norman L. Schryer. Template-driven interfaces for numerical subroutines. *ACM Transactions on Mathematical Software*, 19(3):265–287, September 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-3/p265-bentley/`.

Bailey:1993:AMT

[791] David H. Bailey. Algorithm 719: Multiprecision translation and execution of FORTRAN programs. *ACM Transactions on Mathematical Software*, 19(3):288–319, September 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-3/p288-bailey/`.

Berntsen:1993:AAA

[792] Jarle Berntsen, Ronald Cools, and Terje O. Espelid. Algorithm 720: An algorithm for adaptive cubature over a collection of 3-dimensional simplices. *ACM Transactions on Mathematical Software*, 19(3):320–332, September 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Duffy:1993:NIL

[793] Dean G. Duffy. On the numerical inversion of Laplace transforms: Comparison of three new methods on characteristic problems from applications. *ACM Transactions on Mathematical Software*, 19(3):333–359, September 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-3/p333-duffy/`.

Pruess:1993:MSS

[794] Steven Pruess and Charles T. Fulton. Mathematical software for Sturm–Liouville problems. *ACM Transactions on Mathematical Software*, 19(3): 360–376, September 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-3/p360-pruess/`.

Shirts:1993:CES

[795] Randall B. Shirts. The computation of eigenvalues and solutions of Mathieu's differential equation for noninteger order. *ACM Transactions on Mathematical Software*, 19(3):377–390, September 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-3/p377-shirts/`.

Shirts:1993:AMM

[796] Randall B. Shirts. Algorithm 721: MTIEU1 and MTIEU2: Two subroutines to compute eigenvalues and solutions to Mathieu's differential equation for noninteger and integer order. *ACM Transactions on Mathematical Software*, 19(3):391–406, September 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-3/p391-shirts/`.

Haag:1993:QLA

[797] J. B. Haag and D. S. Watkins. QR-like algorithms for the nonsymmetric eigenvalue problem. *ACM Transactions on Mathematical Software*, 19(3): 407–418, September 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-3/p407-haag/`.

Chang:1993:ICR

[798] S. Frank Chang and S. Thomas McCormick. Implementation and computational results for the hierarchical algorithm for making sparse matrices sparser. *ACM Transactions on Mathematical Software*, 19(3):419–441, September 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-3/p419-chang/`.

Cody:1993:AFS

[799] W. J. Cody and Jerome T. Coonen. Algorithm 722: Functions to support the IEEE standard for binary floating-point arithmetic. *ACM Transactions on Mathematical Software*, 19(4):443–451, December 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (elec-

tronic). URL http://www.acm.org/pubs/citations/journals/toms/1993-19-4/p443-cody/.

Snyder:1993:AFI

[800] W. Van Snyder. Algorithm 723: Fresnel integrals. *ACM Transactions on Mathematical Software*, 19(4):452–456, December 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1993-19-4/p452-van_snyder/. See remarks [910, 1703].

Ribbens:1993:TPM

[801] Calvin J. Ribbens, Layne T. Watson, and Colin Desa. Toward parallel mathematical software for elliptic partial differential equations. *ACM Transactions on Mathematical Software*, 19(4):457–473, December 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1993-19-4/p457-ribbens/.

Abernathy:1993:ASE

[802] Roger W. Abernathy and Robert P. Smith. Applying series expansion to the inverse beta distribution to find percentiles of the F-distribution. *ACM Transactions on Mathematical Software*, 19(4):474–480, December 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1993-19-4/p474-abernathy/.

Abernathy:1993:APC

[803] Roger W. Abernathy and Robert P. Smith. Algorithm 724: Program to calculate F-percentiles. *ACM Transactions on Mathematical Software*, 19(4):481–483, December 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1993-19-4/p481-abernathy/.

Clarkson:1993:RAF

[804] Douglas B. Clarkson, Yuan an Fan, and Harry Joe. A remark on Algorithm 643: FEXACT: An algorithm for performing Fisher's exact test in $r \times c$ contingency tables. *ACM Transactions on Mathematical Software*, 19(4):484–488, December 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1993-19-4/p484-clarkson/. See [542].

Hormann:1993:PRN

[805] Wolfgang Hörmann and G. Deflinger. A portable random number generator well suited for the rejection method. *ACM Transactions on Mathematical Software*, 19(4):489–495, December 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-4/p489-hormann/`.

Grassmann:1993:REC

[806] Winifred K. Grassmann. Rounding errors in certain algorithms involving Markov chains. *ACM Transactions on Mathematical Software*, 19(4): 496–508, December 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-4/p496-grassmann/`.

Khoury:1993:TPG

[807] B. N. Khoury, P. M. Pardalos, and D.-Z. Du. A test problem generator for the Steiner problem in graphs. *ACM Transactions on Mathematical Software*, 19(4):509–522, December 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-4/p509-khoury/`.

Joe:1993:ILM

[808] Stephen Joe and Ian H. Sloan. Implementation of a lattice method for numerical multiple integration. *ACM Transactions on Mathematical Software*, 19(4):523–545, December 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-4/p523-joe/`. See also [826].

Drezner:1993:CAC

[809] Zvi Drezner. Corrigendum: "Algorithm 725. computation of the multivariate normal integral". *ACM Transactions on Mathematical Software*, 19(4):546, December 1993. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1993-19-4/p546-drezner/`. See [771].

Boisvert:1994:CST

[810] Ronald F. Boisvert. Charter and scope: Transactions on mathematical software (TOMS). *ACM Transactions on Mathematical Software*, 20(1): 1–2, March 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Renka:1994:CSC

[811] Robert J. Renka. Charter and scope: Collected algorithms (CALGO). *ACM Transactions on Mathematical Software*, 20(1):3, March 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Neusius:1994:NTA

[812] Christian Neusius and Jan Olszewski. A noniterative thinning algorithm. *ACM Transactions on Mathematical Software*, 20(1):5–20, March 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-1/p5-neusius/`.

Gautschi:1994:ACP

[813] Walter Gautschi. Algorithm 726: ORTHPOL—a package of routines for generating orthogonal polynomials and Gauss-type quadrature rules. *ACM Transactions on Mathematical Software*, 20(1):21–62, March 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-1/p21-gautschi/`. See remark [962].

Pennington:1994:NNL

[814] S. V. Pennington and M. Berzins. New NAG library software for first-order partial differential equations. *ACM Transactions on Mathematical Software*, 20(1):63–99, March 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-1/p63-pennington/`.

Hashem:1994:AQE

[815] Sherif Hashem and Bruce Schmeiser. Algorithm 727: Quantile estimation using overlapping batch statistics. *ACM Transactions on Mathematical Software*, 20(1):100–102, March 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-1/p100-hashem/`.

Calamai:1994:GQB

[816] Paul H. Calamai and Luis N. Vicente. Generating quadratic bilevel programming test problems. *ACM Transactions on Mathematical Software*, 20(1):103–119, March 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-1/p103-calamai/`.

Calamai:1994:AFS

[817] Paul H. Calamai and Luis N. Vicente. Algorithm 728: FORTRAN subroutines for generating quadratic bilevel programming test problems. *ACM Transactions on Mathematical Software*, 20(1):120–123, March 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-1/p120-calamai/`.

Jeffrey:1994:ETI

[818] D. J. Jeffrey and A. D. Rich. The evaluation of trigonometric integrals avoiding spurious discontinuities. *ACM Transactions on Mathematical Software*, 20(1):124–135, March 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-1/p124-jeffrey/`.

Matstoms:1994:SQF

[819] Pontus Matstoms. Sparse QR factorization in MATLAB. *ACM Transactions on Mathematical Software*, 20(1):136–159, March 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-1/p136-matstoms/`.

Hansen:1994:CAF

[820] Per Christian Hansen and Tony F. Chan. Corrigendum: "Algorithm 729: FORTRAN subroutines for general Toeplitz systems". *ACM Transactions on Mathematical Software*, 20(1):160, March 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-1/p160-hansen/`. See [755].

Ammar:1994:CAI

[821] G. S. Ammar, L. Reichel, and D. C. Sorensen. Corrigendum: "Algorithm 730: An implementation of a divide and conquer algorithm for the unitary eigenproblem". *ACM Transactions on Mathematical Software*, 20(1):161, March 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-1/p161-ammar/`. See [757].

Salvy:1994:GMP

[822] Bruno Salvy and Paul Zimmerman. GFUN: a Maple package for the manipulation of generating and holonomic functions in one variable. *ACM Transactions on Mathematical Software*, 20(2):163–177, June

1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-2/p163-salvy/`.

Dayde:1994:PBI

[823] Michael J. Daydé, Iain S. Duff, and Antoine Petitet. A parallel block implementation of level-3 BLAS for MIMD vector processors. *ACM Transactions on Mathematical Software*, 20(2):178–193, June 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-2/p178-dayde/`. See [664, 690, 756].

Blom:1994:AMG

[824] J. G. Blom and P. A. Zegeling. Algorithm 731: a moving-grid interface for systems of one-dimensional time-dependent partial differential equations. *ACM Transactions on Mathematical Software*, 20(2):194–214, June 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-2/p194-blom/`.

Hull:1994:ICE

[825] T. E. Hull, Thomas F. Fairgrieve, and Ping Tak Peter Tang. Implementing complex elementary functions using exception handling. *ACM Transactions on Mathematical Software*, 20(2):215–244, June 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-2/p215-hull/`. See correction [846], and improved analysis, tightened bounds, and exhibition of worst cases for complex square roots [1864].

Joe:1994:CIL

[826] Stephen Joe and Ian H. Sloan. Corrigendum: "Implementation of a lattice method for numerical multiple integration". *ACM Transactions on Mathematical Software*, 20(2):245, June 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [808].

Cummins:1994:ASS

[827] Patrick F. Cummins and Geoffrey K. Vallis. Algorithm 732: Solvers for self-adjoint elliptic problems in irregular two-dimensional domains. *ACM Transactions on Mathematical Software*, 20(3):247–261, September 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-3/p247-cummins/`.

Kraft:1994:ATF

[828] Dieter Kraft. Algorithm 733: TOMP—Fortran modules for optimal control calculations. *ACM Transactions on Mathematical Software*, 20(3): 262–281, September 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-3/p262-kraft/`.

Averbukh:1994:RA

[829] Victoria Z. Averbukh, Samuel Figueroa, and Tamar Schlick. Remark on Algorithm 566. *ACM Transactions on Mathematical Software*, 20(3): 282–285, September 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-3/p282-averbukh/`. See [327].

More:1994:LSA

[830] Jorge J. Moré and David J. Thuente. Line search algorithms with guaranteed sufficient decrease. *ACM Transactions on Mathematical Software*, 20(3):286–307, September 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-3/p286-more/`.

Buckley:1994:CFC

[831] A. G. Buckley. Conversion to Fortran 90: a case study. *ACM Transactions on Mathematical Software*, 20(3):308–353, September 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-3/p308-buckley/`.

Buckley:1994:AFC

[832] A. G. Buckley. Algorithm 734: a Fortran 90 code for unconstrained nonlinear minimization. *ACM Transactions on Mathematical Software*, 20(3):354–372, September 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-3/p354-buckley/`.

Kim:1994:PNA

[833] K. Kim and J. L. Nazareth. A primal null-space affine-scaling method. *ACM Transactions on Mathematical Software*, 20(3):373–392, September 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-3/p373-kim/`.

Brown:1994:CAS

[834] Barry W. Brown and Lawrence Levy. Certification of Algorithm 708: Significant digit computation of the incomplete beta. *ACM Transactions on Mathematical Software*, 20(3):393–397, September 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-3/p393-brown/`. See [763].

Taswell:1994:AWT

[835] Carl Taswell and Kevin C. McGill. Algorithm 735: Wavelet transform algorithms for finite-duration discrete-time signals. *ACM Transactions on Mathematical Software*, 20(3):398–412, September 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-3/p398-taswell/`.

Dunkl:1994:CHI

[836] Charles F. Dunkl and Donald E. Ramirez. Computing hyperelliptic integrals for surface measure of ellipsoids. *ACM Transactions on Mathematical Software*, 20(4):413–426, December 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-4/p413-dunkl/`.

Dunkl:1994:AHI

[837] Charles F. Dunkl and Donald E. Ramirez. Algorithm 736: Hyperelliptic integrals and the surface measure of ellipsoids. *ACM Transactions on Mathematical Software*, 20(4):427–435, December 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-4/p427-dunkl/`.

Fruchtl:1994:NAE

[838] H. Früchtl and P. Otto. A new algorithm for the evaluation of the incomplete gamma function on vector computers. *ACM Transactions on Mathematical Software*, 20(4):436–446, December 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kearfott:1994:AIP

[839] R. B. Kearfott, M. Dawande, K. Du, and C. Hu. Algorithm 737: INTLIB: a portable Fortran-77 elementary function library. *ACM Transactions on Mathematical Software*, 20(4):447–459, December 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/`

1994-20-4/p447-kearfott/. See companion interval arithmetic package [901].

Peters:1994:EAE

[840] Jörg Peters. Evaluation and approximate evaluation of the multivariate Bernstein–Bézier form on a regularly partitioned simplex. *ACM Transactions on Mathematical Software*, 20(4):460–480, December 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1994-20-4/p460-peters/.

Li:1994:RSA

[841] Kim-Hung Li. Reservoir sampling algorithms of time complexity $O(n(1+\log(N/n)))$. *ACM Transactions on Mathematical Software*, 20(4):481–493, December 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1994-20-4/p481-li/.

Bratley:1994:APG

[842] Paul Bratley, Bennett L. Fox, and Harald Niederreiter. Algorithm 738: Programs to generate Niederreiter's low-discrepancy sequences. *ACM Transactions on Mathematical Software*, 20(4):494–495, December 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1994-20-4/p494-bratley/.

Gustafsson:1994:CTT

[843] Kjell Gustafsson. Control theoretic techniques for stepsize selection in implicit Runge–Kutta methods. *ACM Transactions on Mathematical Software*, 20(4):496–517, December 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1994-20-4/p496-gustafsson/.

Chow:1994:ASP

[844] Ta-Tung Chow, Elizabeth Eskow, and Robert B. Schnabel. Algorithm 739: a software package for unconstrained optimization using tensor methods. *ACM Transactions on Mathematical Software*, 20(4):518–530, December 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1994-20-4/p518-chow/.

Pinar:1994:DPL

[845] Mustafa Pinar and Stavros A. Zenios. Data-level parallel linear-quadratic penalty algorithm for multicommodity network flows. *ACM Transactions on Mathematical Software*, 20(4):531–552, December 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1994-20-4/p531-pinar/`.

Anonymous:1994:C

[846] Anonymous. Corrigenda. *ACM Transactions on Mathematical Software*, 20(4):553, December 1994. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [825].

Boisvert:1995:PST

[847] Ronald F. Boisvert. Purpose and scope: TOMS. *ACM Transactions on Mathematical Software*, 21(1):1–2, March 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hopkins:1995:PSC

[848] Tim R. Hopkins. Purpose and scope: CALGO. *ACM Transactions on Mathematical Software*, 21(1):3, March 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Jones:1995:IIC

[849] Mark T. Jones and Paul E. Plassmann. An improved incomplete Cholesky factorization. *ACM Transactions on Mathematical Software*, 21(1):5–17, March 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-1/p5-jones/`.

Jones:1995:AFS

[850] Mark T. Jones and Paul E. Plassmann. Algorithm 740: Fortran subroutines to compute improved incomplete Cholesky factorizations. *ACM Transactions on Mathematical Software*, 21(1):18–19, March 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-1/p18-jones/`.

Ray:1995:ALS

[851] Richard D. Ray. Algorithm 741: Least squares solution of a linear bordered, block-diagonal system of equations. *ACM Transactions on Mathematical Software*, 21(1):20–25, March 1995. CODEN ACMSCU. ISSN

0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-1/p20-ray/`.

Fateman:1995:FFP

[852] Richard J. Fateman, Kevin A. Broughan, Diane K. Willcock, and Duane Rettig. Fast floating point processing in Common Lisp. *ACM Transactions on Mathematical Software*, 21(1):26–62, March 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-1/p26-fateman/`. See remark [909].

Kearfott:1995:FER

[853] R. Baker Kearfott. A Fortran 90 environment for research and prototyping of enclosure algorithms for nonlinear equations and global optimization. *ACM Transactions on Mathematical Software*, 21(1):63–78, March 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-1/p63-kearfott/`.

Dongarra:1995:SDX

[854] Jack Dongarra, Tom Rowan, and Reed Wade. Software distribution using XNETLIB. *ACM Transactions on Mathematical Software*, 21(1):79–88, March 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-1/p79-dongarra/`.

Grosse:1995:RM

[855] Eric Grosse. Repository mirroring. *ACM Transactions on Mathematical Software*, 21(1):89–97, March 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-1/p89-grosse/`.

Demetriou:1995:ALF

[856] I. C. Demetriou. Algorithm 742: L2CXFT: A Fortran subroutine for least squares data fitting with nonnegative second divided differences. *ACM Transactions on Mathematical Software*, 21(1):98–110, March 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-1/p98-demetriou/`.

Weber:1995:AIG

[857] Kenneth Weber. The accelerated integer GCD algorithm. *ACM Transactions on Mathematical Software*, 21(1):111–122, March 1995.

CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-1/p111-weber/`.

Bongartz:1995:CCU

[858] I. Bongartz, A. R. Conn, Nick Gould, and Ph.L. Toint. CUTE: Constrained and unconstrained testing environment. *ACM Transactions on Mathematical Software*, 21(1):123–160, March 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-1/p123-bongartz/`.

Barry:1995:RVW

[859] D. A. Barry, P. J. Culligan-Hensley, and S. J. Barry. Real values of the W-function. *ACM Transactions on Mathematical Software*, 21(2):161–171, June 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-2/p161-barry/`.

Barry:1995:AWF

[860] D. A. Barry, S. J. Barry, and P. J. Culligan-Hensley. Algorithm 743: WAPR: A Fortran routine for calculating real values of the W-function. *ACM Transactions on Mathematical Software*, 21(2):172–181, June 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-2/p172-barry/`.

Hormann:1995:RTS

[861] Wolfgang Hörmann. A rejection technique for sampling from T-concave distributions. *ACM Transactions on Mathematical Software*, 21(2):182–193, June 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-2/p182-hormann/`.

Rabinowitz:1995:ASA

[862] F. Michael Rabinowitz. Algorithm 744: a stochastic algorithm for global optimization with constraints. *ACM Transactions on Mathematical Software*, 21(2):194–213, June 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-2/p194-rabinowitz/`.

Goano:1995:ACC

[863] Michele Goano. Algorithm 745: Computation of the complete and incomplete Fermi–Dirac integral. *ACM Transactions on Mathemat-*

ical Software, 21(3):221–232, September 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-3/p221-goano/`. See remark [927].

Dobmann:1995:APF

[864] M. Dobmann, M. Liepelt, and K. Schittkowski. Algorithm 746: PCOMP: A Fortran code for automatic differentiation. *ACM Transactions on Mathematical Software*, 21(3):233–266, September 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-3/p233-dobmann/`.

Sullivan:1995:NAU

[865] Stephen J. Sullivan and Benjamin G. Zorn. Numerical analysis using nonprocedural paradigms. *ACM Transactions on Mathematical Software*, 21(3):267–298, September 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-3/p267-sullivan/`.

Miminis:1995:AFS

[866] George Miminis and Helmut Roth. Algorithm 747: A Fortran subroutine to solve the eigenvalue assignment problem for multiinput systems using state feedback. *ACM Transactions on Mathematical Software*, 21(3): 299–326, September 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-3/p299-miminis/`.

Alefeld:1995:AEZ

[867] G. E. Alefeld, F. A. Potra, and Yixun Shi. Algorithm 748: Enclosing zeros of continuous functions. *ACM Transactions on Mathematical Software*, 21(3):327–344, September 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-3/p327-alefeld/`.

Rizzardi:1995:MTM

[868] Mariarosaria Rizzardi. A modification of Talbot's method for the simultaneous approximation of several values of the inverse Laplace transform. *ACM Transactions on Mathematical Software*, 21(4):347–371, December 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-4/p347-rizzardi/`.

Sherlock:1995:AFD

[869] Barry G. Sherlock and Donald M. Monro. Algorithm 749: Fast discrete cosine transform. *ACM Transactions on Mathematical Software*, 21(4): 372–378, December 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-4/p372-sherlock/`.

Bailey:1995:FBM

[870] David H. Bailey. A Fortran-90 based multiprecision system. *ACM Transactions on Mathematical Software*, 21(4):379–387, December 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-4/p379-bailey/`. See also extension to complex arithmetic [963].

Amos:1995:RAP

[871] D. E. Amos. A remark on Algorithm 644: a portable package for Bessel functions of a complex argument and nonnegative order. *ACM Transactions on Mathematical Software*, 21(4):388–393, December 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-4/p388-amos/`. See [551, 694, 1222].

Carpaneto:1995:ESL

[872] G. Carpaneto, M. Dell'Amico, and P. Toth. Exact solution of large scale asymmetric travelling salesman problems. *ACM Transactions on Mathematical Software*, 21(4):394–409, December 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-4/p394-carpaneto/`.

Carpaneto:1995:ACS

[873] G. Carpaneto, M. Dell'Amico, and P. Toth. Algorithm 750: CDT: a subroutine for the exact solution of large-scale asymmetric travelling salesman problems. *ACM Transactions on Mathematical Software*, 21(4): 410–415, December 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-4/p410-carpaneto/`.

Doman:1995:SAP

[874] B. G. S. Doman, C. J. Pursglove, and W. M. Coen. A set of Ada packages for high precision calculations. *ACM Transactions on Mathematical Software*, 21(4):416–431, December 1995. CODEN ACMSCU. ISSN

0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-4/p416-doman/`.

Scott:1995:ACC

[875] Jennifer A. Scott. An Arnoldi code for computing selected eigenvalues of sparse, real, unsymmetric matrices. *ACM Transactions on Mathematical Software*, 21(4):432–475, December 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-4/p432-scott/`.

Kaufman:1995:CMD

[876] Linda Kaufman. Computing the MDM^T decomposition. *ACM Transactions on Mathematical Software*, 21(4):476–489, December 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-4/p476-kaufman/`.

Duff:1995:CCS

[877] Iain S. Duff and Jennifer A. Scott. Corrigendum: Computing selected eigenvalues of sparse unsymmetric matrices using subspace iteration. *ACM Transactions on Mathematical Software*, 21(4):490, December 1995. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1995-21-4/p490-duff/`. See [783].

Renka:1996:ATC

[878] R. J. Renka. Algorithm 751: TRIPACK: a constrained two-dimensional Delaunay triangulation package. *ACM Transactions on Mathematical Software*, 22(1):1–8, March 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remark [979].

Renka:1996:ASS

[879] R. J. Renka. Algorithm 752: SRFPACK: software for scattered data fitting with a constrained surface under tension. *ACM Transactions on Mathematical Software*, 22(1):9–17, March 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remark [980].

Buis:1996:EVP

[880] Paul E. Buis and Wayne R. Dyksen. Efficient vector and parallel manipulation of tensor products. *ACM Transactions on Mathematical Software*, 22(1):18–23, March 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-1/p18-buis/`.

Buis:1996:ATL

[881] Paul E. Buis and Wayne R. Dyksen. Algorithm 753: TENPACK: a LAPACK-based library for the computer manipulation of tensor products. *ACM Transactions on Mathematical Software*, 22(1):24–29, March 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-1/p24-buis/`.

Duff:1996:DNF

[882] I. S. Duff and J. A. Scott. The design of a new frontal code for solving sparse, unsymmetric systems. *ACM Transactions on Mathematical Software*, 22(1):30–45, March 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-1/p30-duff/`.

Freund:1996:QPQ

[883] Roland W. Freund and Noël M. Nachtigal. QMRPACK: a package of QMR algorithms. *ACM Transactions on Mathematical Software*, 22 (1):46–77, March 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-1/p46-freund/`.

Kaagstrom:1996:LAS

[884] Bo Kågström and Peter Poromaa. LAPACK-style algorithms and software for solving the generalized Sylvester equation and estimating the separation between regular matrix pairs. *ACM Transactions on Mathematical Software*, 22(1):78–103, March 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-1/p78-kagstrom/`.

Resende:1996:AFS

[885] Mauricio G. C. Resende, Panos M. Pardalos, and Yong Li. Algorithm 754: Fortran subroutines for approximate solution of dense quadratic assignment problems using GRASP. *ACM Transactions on Mathematical Software*, 22(1):104–118, March 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-1/p104-resende/`.

Wallace:1996:FPG

[886] C. S. Wallace. Fast pseudorandom generators for normal and exponential variates. *ACM Transactions on Mathematical Software*, 22(1):119–127, March 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295

(electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-1/p119-wallace/`. See comments [1861].

Griewank:1996:AAP

[887] Andreas Griewank, David Juedes, and Jean Utke. Algorithm 755: ADOL-C: a package for the automatic differentiation of algorithms written in C/C++. *ACM Transactions on Mathematical Software*, 22(2):131–167, June 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-2/p131-griewank/`.

Driscoll:1996:AMT

[888] Tobin A. Driscoll. Algorithm 756: a MATLAB toolbox for Schwarz–Christoffel mapping. *ACM Transactions on Mathematical Software*, 22 (2):168–186, June 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-2/p168-driscoll/`.

Duff:1996:DMC

[889] I. S. Duff and J. K. Reid. The design of MA48: a code for the direct solution of sparse unsymmetric linear systems of equations. *ACM Transactions on Mathematical Software*, 22(2):187–226, June 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-2/p187-duff/`.

Duff:1996:EZD

[890] I. S. Duff and J. K. Reid. Exploiting zeros on the diagonal in the direct solution of indefinite sparse symmetric linear systems. *ACM Transactions on Mathematical Software*, 22(2):227–257, June 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-2/p227-duff/`.

Price:1996:RA

[891] David T. Price. Remark on Algorithm 715. *ACM Transactions on Mathematical Software*, 22(2):258, June 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-2/p258-price/`. See [774].

Hull:1996:MBP

[892] T. E. Hull and R. Mathon. The mathematical basis and a prototype implementation of a new polynomial rootfinder with quadratic convergence.

ACM Transactions on Mathematical Software, 22(3):261–280, September 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-3/p261-hull/`.

Sosonkina:1996:NEG

[893] Maria Sosonkina, Layne T. Watson, and David E. Stewart. Note on the end game in homotopy zero curve tracking. *ACM Transactions on Mathematical Software*, 22(3):281–287, September 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-3/p281-sosonkina/`.

Macleod:1996:AMS

[894] Allan J. Macleod. Algorithm 757: MISCFUN, a software package to compute uncommon special functions. *ACM Transactions on Mathematical Software*, 22(3):288–301, September 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-3/p288-macleod/`.

Blom:1996:AVVa

[895] J. G. Blom, R. A. Trompert, and J. G. Verwer. Algorithm 758: VLUGR2: a vectorizable adaptive-grid solver for PDEs in 2D. *ACM Transactions on Mathematical Software*, 22(3):302–328, September 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-3/p302-blom/`.

Blom:1996:AVVb

[896] J. G. Blom and J. G. Verwer. Algorithm 759: VLUGR3: a vectorizable adaptive-grid solver for PDEs in 3D — Part II. code description. *ACM Transactions on Mathematical Software*, 22(3):329–347, September 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-3/p329-blom/`.

Andersen:1996:MSM

[897] Knud D. Andersen. A modified Schur-complement method for handling dense columns in interior-point methods for linear programming. *ACM Transactions on Mathematical Software*, 22(3):348–356, September 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-3/p348-andersen/`.

Akima:1996:ARS

[898] Hiroshi Akima. Algorithm 760: rectangular-grid-data surface fitting that has the accuracy of a bicubic polynomial. *ACM Transactions on Mathematical Software*, 22(3):357–361, September 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-3/p357-akima/`.

Akima:1996:ASS

[899] Hiroshi Akima. Algorithm 761: scattered-data surface fitting that has the accuracy of a cubic polynomial. *ACM Transactions on Mathematical Software*, 22(3):362–371, September 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-3/p362-akima/`. See remarks [965, 1002].

Brown:1996:ALL

[900] Barry W. Brown, Lawrence B. Levy, James Lovato, Kathy Russell, and Floyd M. Spears. Algorithm 762: LLDRLF, log-likelihood and some derivatives for log-F models. *ACM Transactions on Mathematical Software*, 22(3):372–382, September 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-3/p372-brown/`.

Kearfott:1996:IFM

[901] R. Baker Kearfott. Algorithm 763: INTERVAL_ARITHMETIC: A Fortran 90 module for an interval data type. *ACM Transactions on Mathematical Software*, 22(4):385–392, December 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-4/p385-kearfott/`. See [839].

Lehoucq:1996:CEU

[902] R. B. Lehoucq. The computation of elementary unitary matrices. *ACM Transactions on Mathematical Software*, 22(4):393–400, December 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-4/p393-lehoucq/`.

Butcher:1996:DMS

[903] J. C. Butcher, J. R. Cash, and M. T. Diamantakis. DESI methods for stiff initial value problems. *ACM Transactions on Mathematical Software*, 22(4):401–422, December 1996. CODEN ACMSCU. ISSN 0098-

3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1996-22-4/p401-butcher/.

Eastham:1996:USP

[904] Michael S. P. Eastham, Charles T. Fulton, and Steven Pruess. Using the SLEDGE package on Sturm–Liouville problems having nonempty essential spectrum. *ACM Transactions on Mathematical Software*, 22(4): 423–446, December 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1996-22-4/p423-eastham/.

Weerawarana:1996:PKB

[905] Sanjiva Weerawarana, Elias N. Houstis, John R. Rice, Anupam Joshi, and Catherine E. Houstis. PYTHIA: a knowledge based system for intelligent scientific computing. *ACM Transactions on Mathematical Software*, 22(4):447–468, December 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1996-22-4/p447-weerawarana/.

Barber:1996:QAC

[906] C. Bradford Barber, David P. Dobkin, and Hannu Huhdanpaa. The Quickhull algorithm for convex hulls. *ACM Transactions on Mathematical Software*, 22(4):469–483, December 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1996-22-4/p469-barber/.

Sarkar:1996:CAM

[907] T. K. Sarkar. A composition-alias method for generating gamma variates with shape parameter greater than 1. *ACM Transactions on Mathematical Software*, 22(4):484–492, December 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1996-22-4/p484-sarkar/.

Koenker:1996:RBC

[908] Roger W. Koenker and Pin T. Ng. A remark on Bartels and Conn's linearly constrained, discrete l_1 problems. *ACM Transactions on Mathematical Software*, 22(4):493–495, December 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1996-22-4/p493-koenker/. See [316].

Reid:1996:RFF

[909] J. K. Reid. Remark on "Fast Floating-Point Processing in Common Lisp". *ACM Transactions on Mathematical Software*, 22(4):496–497, December 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1996-22-4/p496-reid/`. See [852].

Snyder:1996:RAF

[910] W. Van Snyder. Remark on Algorithm 723: Fresnel integrals. *ACM Transactions on Mathematical Software*, 22(4):498–500, December 1996. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [800].

Cools:1997:ACC

[911] Ronald Cools, Dirk Laurie, and Luc Pluym. Algorithm 764: Cubpack++ — A C++ package for automatic two-dimensional cubature. *ACM Transactions on Mathematical Software*, 23(1):1–15, March 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-1/p1-cools/`.

Favati:1997:LEE

[912] Paola Favati, Guiseppe Fiorentino, Grazia Lotti, and Francesco Romani. Local error estimates and regularity tests for the implementation of double adaptive quadrature. *ACM Transactions on Mathematical Software*, 23(1):16–31, March 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-1/p16-favati/`.

Machiels:1997:FEO

[913] L. Machiels and M. O. Deville. Fortran 90: An entry to object-oriented programming for solution of partial differential equations. *ACM Transactions on Mathematical Software*, 23(1):32–49, March 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-1/p32-machiels/`.

Bruaset:1997:OOD

[914] Are Magnus Bruaset and Hans Petter Langtangen. Object-oriented design of preconditioned iterative methods in Diffpack. *ACM Transactions on Mathematical Software*, 23(1):50–80, March 1997. CODEN ACMSCU.

ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-1/p50-bruaset/`.

Bouaricha:1997:ASS

[915] Ali Bouaricha. Algorithm 765: STENMIN — a software package for large, sparse unconstrained optimization using tensor methods. *ACM Transactions on Mathematical Software*, 23(1):81–90, March 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-1/p81-bouaricha/`.

Cabay:1997:AEW

[916] S. Cabay, A. R. Jones, and G. Labahn. Algorithm 766: Experiments with a weakly stable algorithm for computing Padé and simultaneous Padé approximants. *ACM Transactions on Mathematical Software*, 23 (1):91–110, March 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-1/p91-cabay/`.

Geurts:1997:AFP

[917] A. J. Geurts and C. Praagman. Algorithm 767: a Fortran 77 package for column reduction of polynomial matrices. *ACM Transactions on Mathematical Software*, 23(1):111–129, March 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-1/p111-geurts/`.

Blackford:1997:PEN

[918] L. S. Blackford, A. Cleary, A. Petitet, R. C. Whaley, J. Demmel, I. Dhillon, H. Ren, K. Stanley, J. Dongarra, and S. Hammarling. Practical experience in the numerical dangers of heterogeneous computing. *ACM Transactions on Mathematical Software*, 23(2):133–147, June 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-2/p133-blackford/`.

Ho:1997:DND

[919] James K. Ho and R. P. Sundarraj. Distributed nested decomposition of staircase linear programs. *ACM Transactions on Mathematical Software*, 23(2):148–173, June 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-2/p148-ho/`.

Bouaricha:1997:TSP

[920] Ali Bouaricha and Robert B. Schnabel. Algorithm 768: TENSOLVE: a software package for solving systems of nonlinear equations and nonlinear least-squares problems using tensor methods. *ACM Transactions on Mathematical Software*, 23(2):174–195, June 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-2/p174-bouaricha/`.

Pardalos:1997:AFS

[921] Panos M. Pardalos, Leonidas S. Pitsolulis, and Mauricio G. C. Resende. Algorithm 769: Fortran subroutines for approximate solution of sparse quadratic assignment problems using GRASP. *ACM Transactions on Mathematical Software*, 23(2):196–208, June 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-2/p196-pardalos/`.

Siarry:1997:ESA

[922] Patrick Siarry, Gérard Berthiau, François Durdin, and Jacques Haussy. Enhanced simulated annealing for globally minimizing functions of many-continuous variables. *ACM Transactions on Mathematical Software*, 23 (2):209–228, June 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-2/p209-siarry/`.

Costantini:1997:BVS

[923] P. Costantini. Boundary-valued shape-preserving interpolating splines. *ACM Transactions on Mathematical Software*, 23(2):229–251, June 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-2/p229-costantini/`.

Costantini:1997:APC

[924] P. Costantini. Algorithm 770: BVSPIS — a package for computing boundary-valued shape-preserving interpolating splines. *ACM Transactions on Mathematical Software*, 23(2):252–254, June 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-2/p252-costantini/`.

Wu:1997:MCR

[925] Pei-Chi Wu. Multiplicative, congruential random-number generators with multiplier $\pm 2^{k_1} \pm 2^{k_2}$ and modulus $2^p - 1$. *ACM Transactions on*

Mathematical Software, 23(2):255–265, June 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-2/p255-wu/`.

Kocis:1997:CIL

[926] Ladislav Kocis and William J. Whiten. Computational investigations of low-discrepancy sequences. *ACM Transactions on Mathematical Software*, 23(2):266–294, June 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-2/p266-kocis/`.

Goano:1997:RA7

[927] Michele Goano. Remark on Algorithm 745. *ACM Transactions on Mathematical Software*, 23(2):295, June 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [863].

Hull:1997:ICA

[928] T. E. Hull, Thomas F. Fairgrieve, and Ping Tak Peter Tang. Implementing the complex arcsine and arccosine functions using exception handling. *ACM Transactions on Mathematical Software*, 23(3):299–335, September 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-3/p299-hull/`.

Carr:1997:CBD

[929] Steve Carr and R. B. Lehoucq. Compiler blockability of dense matrix factorizations. *ACM Transactions on Mathematical Software*, 23(3):336–361, September 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-3/p336-carr/`.

Carrig:1997:EHQ

[930] James J. Carrig Jr. and Gerald G. L. Meyer. Efficient Householder QR factorization for superscalar processors. *ACM Transactions on Mathematical Software*, 23(3):362–378, September 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-3/p362-carrig/`.

Duff:1997:LBL

[931] Iain S. Duff, Michele Marrone, Giuseppe Radicati, and Carlo Vittoli. Level 3 Basic Linear Algebra Subprograms for sparse matrices: a user level interface. *ACM Transactions on Mathematical Software*, 23(3):379–401, September 1997. CODEN ACMSCU. ISSN 0098-3500 (print),

1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1997-23-3/p379-duff/.

Brankin:1997:ARF

[932] R. W. Brankin and I. Gladwell. Algorithm 771. rksuite_90: Fortran software for ordinary differential equation initial value problems. *ACM Transactions on Mathematical Software*, 23(3):402–415, September 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1997-23-3/p402-brankin/.

Renka:1997:ASD

[933] Robert J. Renka. Algorithm 772. STRIPACK: Delaunay triangulation and Voronoi diagram on the surface of a sphere. *ACM Transactions on Mathematical Software*, 23(3):416–434, September 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1997-23-3/p416-renka/.

Renka:1997:ASI

[934] Robert J. Renka. Algorithm 773. SSRFPACK: Interpolation of scattered data on the surface of a sphere with a surface under tension. *ACM Transactions on Mathematical Software*, 23(3):435–442, September 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1997-23-3/p435-renka/.

Facchinei:1997:GBC

[935] Francisco Facchinei, Joaquim Júdice, and João Soares. Generating box constrained optimization problems. *ACM Transactions on Mathematical Software*, 23(3):443–447, September 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1997-23-3/p443-facchinei/.

Facchinei:1997:AFS

[936] Francisco Facchinei, Joaquim Júdice, and João Soares. Algorithm 774. FORTRAN subroutine for generating box constrained optimization problems. *ACM Transactions on Mathematical Software*, 23(3):448–450, September 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1997-23-3/p448-facchinei/.

Greenberg:1997:ACS

[937] Leon Greenberg and Marco Marletta. Algorithm 775. the code SLEUTH for solving fourth-order Sturm–Liouville problems. *ACM Transactions on Mathematical Software*, 23(4):453–493, December 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1997-23-4/p453-greenberg/`.

Bai:1997:ASF

[938] Z. Bai and G. W. Stewart. Algorithm 776. SRRIT — a FORTRAN subroutine to calculate the dominant invariant subspace of a nonsymmetric matrix. *ACM Transactions on Mathematical Software*, 23(4):494–513, December 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Watson:1997:ASF

[939] Layne T. Watson, Robert C. Melville, Alexander P. Morgan, and Homer F. Walker. Algorithm 777. HOMPACK90: a suite of Fortran 90 codes for globally convergent homotopy algorithms. *ACM Transactions on Mathematical Software*, 23(4):514–549, December 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Zhu:1997:ALF

[940] Ciyou Zhu, Richard H. Byrd, Peihuang Lu, and Jorge Nocedal. Algorithm 778. L-BFGS-B: Fortran subroutines for Large-Scale bound constrained optimization. *ACM Transactions on Mathematical Software*, 23(4):550–560, December 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remark [1349].

Karp:1997:HPD

[941] Alan H. Karp and Peter Markstein. High-precision division and square root. *ACM Transactions on Mathematical Software*, 23(4):561–589, December 1997. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/articles/journals/toms/forthcoming/a0-karp/a0-karp.ps; http://www.acm.org/pubs/citations/journals/toms/1997-23-4/p561-karp/`.

MacLeod:1998:AFD

[942] Allan J. MacLeod. Algorithm 779: Fermi–Dirac functions of order $-1/2, 1/2, 3/2, 5/2$. *ACM Transactions on Mathematical Software*, 24(1):1–12, March 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sharp:1998:GHO

[943] P. W. Sharp and J. H. Verner. Generation of high-order interpolants for explicit Runge–Kutta pairs. *ACM Transactions on Mathematical Software*, 24(1):13–29, March 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Houstis:1998:PPS

[944] E. N. Houstis, J. R. Rice, S. Weerawarana, A. C. Catlin, P. Papachiou, K.-Y. Wang, and M. Gaitatzes. PELLPACK: a problem solving environment for PDE based applications on multicomputer platforms. *ACM Transactions on Mathematical Software*, 24(1):30–73, March 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gupta:1998:DIE

[945] Anshul Gupta, Fred G. Gustavson, Mahesh Joshi, and Sivan Toledo. The design, implementation and evaluation of a symmetric banded linear solver for distributed-memory parallel computers. *ACM Transactions on Mathematical Software*, 24(1):74–101, March 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hamilton:1998:AEP

[946] K. G. Hamilton. Algorithm 780: Exponential pseudorandom distribution. *ACM Transactions on Mathematical Software*, 24(1):102–106, March 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fulton:1998:CSD

[947] Charles T. Fulton and Steven Pruess. The computation of spectral density functions for singular Sturm–Liouville problems involving simple continuous spectra. *ACM Transactions on Mathematical Software*, 24 (1):107–129, March 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sidje:1998:ESP

[948] Roger B. Sidje. EXPOKIT: Software package for computing matrix exponentials. *ACM Transactions on Mathematical Software*, 24(1):130–156, March 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Chow:1998:OFB

[949] Edmond Chow and Michael A. Heroux. An object-oriented framework for block preconditioning. *ACM Transactions on Mathematical Soft-*

ware, 24(2):159–183, June 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-2/p159-chow/`.

Breinholt:1998:AGH

[950] Greg Breinholt and Christoph Schierz. Algorithm 781: generating Hilbert's space-filling curve by recursion. *ACM Transactions on Mathematical Software*, 24(2):184–189, June 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-2/p184-breinholt/`.

Bik:1998:AGS

[951] Aart J. C. Bik, Peter J. H. Brinkhaus, Peter M. W. Knijnenburg, and Harry A. G. Wijshoff. The automatic generation of sparse primitives. *ACM Transactions on Mathematical Software*, 24(2):190–225, June 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-2/p190-bik/`.

Bischof:1998:CRQ

[952] Christian H. Bischof and G. Quintana-Ortí. Computing rank-revealing QR factorizations of dense matrices. *ACM Transactions on Mathematical Software*, 24(2):226–253, June 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-2/p226-bischof/`.

Bischof:1998:ACR

[953] C. H. Bischof and G. Quintana-Ortí. Algorithm 782: Codes for rank-revealing QR factorizations of dense matrices. *ACM Transactions on Mathematical Software*, 24(2):254–257, June 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-2/p254-bischof/`.

Peters:1998:APF

[954] Jörg Peters. Algorithm 783: Pcp2Nurb — smooth free-form surfacing with linearly trimmed bicubic B-splines. *ACM Transactions on Mathematical Software*, 24(3):261–267, September 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-3/p261-peters/`.

Kaagstrom:1998:GLB

[955] Bo Kågström, Per Ling, and Charles Van Loan. GEMM-based level 3 BLAS: high-performance model implementations and performance eval-

uation benchmark. *ACM Transactions on Mathematical Software*, 24 (3):268–302, September 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-3/p268-kagstrom/`.

Kaagstrom:1998:AGL

[956] Bo Kågström, Per Ling, and Charles Van Loan. Algorithm 784: GEMM-based level 3 BLAS: portability and optimization issues. *ACM Transactions on Mathematical Software*, 24(3):303–316, September 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-3/p303-kagstrom/`.

Hu:1998:ASP

[957] Chenglie Hu. Algorithm 785: a software package for computing Schwarz–Christoffel conformal transformation for doubly connected polygonal regions. *ACM Transactions on Mathematical Software*, 24(3):317–333, September 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-3/p317-hu/`.

Espelid:1998:RAD

[958] Terje O. Espelid. Remark on Algorithm 706: DCUTRI — an algorithm for adaptive cubature over a collection of triangles. *ACM Transactions on Mathematical Software*, 24(3):334–335, September 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-3/p334-espelid/`. See [759].

Levin:1998:RAS

[959] Stewart A. Levin. Remark on Algorithm 622: a simple macroprocessor. *ACM Transactions on Mathematical Software*, 24(3):336–340, September 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-3/p336-levin/`. See [478].

Marsaglia:1998:MPM

[960] George Marsaglia and Wai Wan Tsang. The Monty Python method for generating random variables. *ACM Transactions on Mathematical Software*, 24(3):341–350, September 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hopkins:1998:CAF

[961] Tim Hopkins. Certification of Algorithm 734: a Fortran 90 code for unconstrained nonlinear minimization. *ACM Transactions on Mathematical Software*, 24(3):351–354, September 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-3/p351-hopkins/`.

Gautschi:1998:RAO

[962] Walter Gautschi. Remark on Algorithm 726: ORTHPOL — a package of routines for generating orthogonal polynomials and Gauss-type quadrature rules. *ACM Transactions on Mathematical Software*, 24(3): 355, September 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-3/p355-gautschi/`. See [813].

Smith:1998:AMP

[963] David M. Smith. Algorithm 786: Multiple-precision complex arithmetic and functions. *ACM Transactions on Mathematical Software*, 24(4):359–367, December 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-4/p359-smith/`. See also [870, 171, 257, 276].

Ekeland:1998:SDE

[964] Kersti Ekeland, Brynjulf Owren, and Eivor Øines. Stiffness detection and estimation of dominant spectra with explicit Runge–Kutta methods. *ACM Transactions on Mathematical Software*, 24(4):368–382, December 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-3/p368-ekeland/`.

Renka:1998:RA

[965] Robert J. Renka and Ron Brown. Remark on Algorithm 761. *ACM Transactions on Mathematical Software*, 24(4):383–385, December 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [899, 1002].

Resende:1998:AFS

[966] Mauricio G. C. Resende, Thomas A. Feo, and Stuart H. Smith. Algorithm 787: Fortran subroutines for approximate solution of maximum independent set problems using GRASP. *ACM Transactions on Mathematical Software*, 24(4):386–394, December 1998. CODEN ACMSCU.

ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-4/p386-resende/`.

Atkinson:1998:AAB

[967] Kendall Atkinson and Youngmok Jeon. Algorithm 787: Automatic boundary integral equation programs for the planar Laplace equation. *ACM Transactions on Mathematical Software*, 24(4):395–417, December 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-4/p395-atkinson/`.

Govaerts:1998:IHD

[968] W. Govaerts, F. W. O. Kuznetsov, and B. Sijnave. Implementation of Hopf and double-Hopf continuation using bordering methods. *ACM Transactions on Mathematical Software*, 24(4):418–436, December 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-4/p418-govaerts/`.

Giering:1998:RAC

[969] Ralf Giering and Thomas Kaminski. Recipes for adjoint code construction. *ACM Transactions on Mathematical Software*, 24(4):437–474, December 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-4/p437-giering/`.

Berzins:1998:SAS

[970] M. Berzins, R. Fairlie, S. V. Pennington, J. M. Ware, and L. E. Scales. SPRINT2D: adaptive software for PDEs. *ACM Transactions on Mathematical Software*, 24(4):475–499, December 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1998-24-4/p475-berzins/`.

Anonymous:1998:AI

[971] Anonymous. 1998 author index. *ACM Transactions on Mathematical Software*, 24(4):500–502, December 1998. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Davis:1999:CUM

[972] Timothy A. Davis and Iain S. Duff. Combined unifrontal/multifrontal method for unsymmetric sparse matrices. *ACM Transactions on Mathematical Software*, 25(1):1–20, March 1999. CODEN ACMSCU. ISSN

0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org:80/pubs/citations/journals/toms/1999-25-1/p1-davis/.

Pryce:1999:TPS

[973] J. D. Pryce. A test package for Sturm–Liouville solvers. *ACM Transactions on Mathematical Software*, 25(1):21–57, March 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org:80/pubs/citations/journals/toms/1999-25-1/p21-pryce/p21-pryce/.

Pryce:1999:AST

[974] J. D. Pryce. Algorithm 789: SLTSTPAK: a test package for Sturm–Liouville solvers. *ACM Transactions on Mathematical Software*, 25(1):58–69, March 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL ftp://netlib.bell-labs.com/netlib/toms/789.gz; http://phase.etl.go.jp/netlib/toms/789; http://www.acm.org:80/pubs/citations/journals/toms/1999-25-1/p58-pryce/; http://www.hensa.ac.uk/netlib/toms/789.gz; http://www.netlib.no/netlib/toms/789; http://www.netlib.org/toms/789.

Renka:1999:ACC

[975] R. J. Renka. Algorithm 790: CSHEP2D: Cubic Shepard method for bivariate interpolation of scattered data. *ACM Transactions on Mathematical Software*, 25(1):70–73, March 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL ftp://netlib.bell-labs.com/netlib/toms/790.gz; http://phase.etl.go.jp/netlib/toms/790; http://www.acm.org:80/pubs/citations/journals/toms/1999-25-1/p70-renka/; http://www.hensa.ac.uk/netlib/toms/790.gz; http://www.netlib.no/netlib/toms/790; http://www.netlib.org/toms/790.

Renka:1999:ATC

[976] R. J. Renka and Ron Brown. Algorithm 791: TSHEP2D: Cosine series Shepard method for bivariate interpolation of scattered data. *ACM Transactions on Mathematical Software*, 25(1):74–77, March 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL ftp://netlib.bell-labs.com/netlib/toms/791.gz; http://phase.etl.go.jp/netlib/toms/791; http://www.acm.org:80/pubs/citations/journals/toms/1999-25-1/p74-renka/; http://www.hensa.ac.uk/netlib/toms/791.gz; http://www.netlib.no/netlib/toms/791; http://www.netlib.org/toms/791.

Renka:1999:AAT

[977] R. J. Renka and Ron Brown. Algorithm 792: Accuracy tests of ACM algorithms for interpolation of scattered data in the plane. *ACM Transactions on Mathematical Software*, 25(1):78–94, March 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `ftp://netlib.bell-labs.com/netlib/toms/792.gz; http://phase.etl.go.jp/netlib/toms/792; http://www.acm.org:80/pubs/citations/journals/toms/1999-25-1/p78-renka/; http://www.hensa.ac.uk/netlib/toms/792.gz; http://www.netlib.no/netlib/toms/792; http://www.netlib.org/toms/792`.

Testa:1999:RA

[978] F. J. Testa and R. J. Renka. Remark on Algorithm 716. *ACM Transactions on Mathematical Software*, 25(1):95–96, March 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1999-25-1/p95-testa/`. See [778].

Renka:1999:RAa

[979] R. J. Renka. Remark on Algorithm 751. *ACM Transactions on Mathematical Software*, 25(1):97–98, March 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1999-25-1/p97-renka/`. See [878].

Renka:1999:RAb

[980] R. J. Renka. Remark on Algorithm 752. *ACM Transactions on Mathematical Software*, 25(1):99–100, March 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1999-25-1/p99-renka/`. See [879].

Gautschi:1999:NRC

[981] Walter Gautschi. A note on the recursive calculation of incomplete gamma functions. *ACM Transactions on Mathematical Software*, 25(1):101–107, March 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1999-25-1/p101-gautschi/`.

Xie:1999:RAU

[982] Dexuan Xie and Tamar Schlick. Remark on Algorithm 702: The updated truncated Newton minimization package. *ACM Transactions on*

Mathematical Software, 25(1):108–122, March 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org:80/pubs/citations/journals/toms/1999-25-1/p108-xie/`. See [744].

Gay:1999:SAF

[983] David M. Gay and Eric Grosse. Self-adapting Fortran 77 machine constants: Comment on Algorithm 528. *ACM Transactions on Mathematical Software*, 25(1):123–126, March 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://cm.bell-labs.com/who/ehg/mach/d1mach.ps; http://www.acm.org/pubs/citations/journals/toms/cgi-bin/TOMSbibget?Gay:1999:SAF; http://www.acm.org/pubs/citations/journals/toms/cgi-bin/TOMScitation?Fox:1978:AFP; http://www.acm.org:80/pubs/citations/journals/toms/1999-25-1/p123-gay/`. See [183].

Flores:1999:CFR

[984] Juan Flores. Complex fans: a representation for vectors in polar form with interval attributes. *ACM Transactions on Mathematical Software*, 25(2):129–156, June 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1999-25-2/p129-flores/`.

Heinkenschloss:1999:IBO

[985] Matthias Heinkenschloss and Luis N. Vicente. An interface between optimization and application for the numerical solution of optimal control problems. *ACM Transactions on Mathematical Software*, 25(2):157–190, June 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1999-25-2/p157-heinkenschloss/`.

Gockenbach:1999:CCL

[986] Mark S. Gockenbach, Matthew J. Petro, and William W. Symes. C++ classes for linking optimization with complex simulations. *ACM Transactions on Mathematical Software*, 25(2):191–212, June 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/1999-25-2/p191-gockenbach/`.

Gautschi:1999:AGG

[987] Walter Gautschi. Algorithm 793: GQRAT — Gauss quadrature for rational functions. *ACM Transactions on Mathematical Software*, 25(2):213–239, June 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295

(electronic). URL ftp://netlib.bell-labs.com/netlib/toms/793.gz; http://phase.etl.go.jp/netlib/toms/793; http://www.acm.org/pubs/citations/journals/toms/1999-25-2/p213-gautschi/; http://www.hensa.ac.uk/netlib/toms/793.gz; http://www.netlib.no/netlib/toms/793; http://www.netlib.org/toms/793.

Wieder:1999:ANH

[988] Thomas Wieder. Algorithm 794: Numerical Hankel transform by the Fortran program HANKEL. *ACM Transactions on Mathematical Software*, 25(2):240–250, June 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Verschelde:1999:APG

[989] Jan Verschelde. Algorithm 795: PHCPACK: a general-purpose solver for polynomial systems by homotopy continuation. *ACM Transactions on Mathematical Software*, 25(2):251–276, June 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL ftp://netlib.bell-labs.com/netlib/toms/795.gz.

DAmore:1999:IFS

[990] Luisa D'Amore, Giuliano Laccetti, and Almerico Murli. An implementation of a Fourier series method for the numerical inversion of the Laplace transform. *ACM Transactions on Mathematical Software*, 25(3):279–305, September 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

DAmore:1999:AFS

[991] Luisa D'Amore, Guiliano Laccetti, and Almerico Murli. Algorithm 796: a Fortran software package for the numerical inversion of the Laplace transform based on a Fourier series method. *ACM Transactions on Mathematical Software*, 25(3):306–315, September 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dayde:1999:RBB

[992] Michel J. Daydé and Iain S. Duff. The RISC BLAS: a blocked implementation of Level 3 BLAS for RISC processors. *ACM Transactions on Mathematical Software*, 25(3):316–340, September 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ribeiro:1999:AFS

[993] Celso C. Ribeiro and Mauricio G. C. Resende. Algorithm 797: Fortran subroutines for approximate solution of graph planarization problems using GRASP. *ACM Transactions on Mathematical Software*,

25(3):341–352, September 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/articles/journals/toms/1999-25-3/p341-ribeiro/p341-ribeiro.pdf; http://www.acm.org/pubs/citations/journals/toms/1999-25-3/p341-ribeiro/; http://www.acm.org/pubs/citations/journals/toms/1999-25-3/p341-ribeiro/#abstract; http://www.acm.org/pubs/citations/journals/toms/1999-25-3/p341-ribeiro/#indterms.

Berry:1999:AHD

[994] Michael W. Berry and Karen S. Minser. Algorithm 798: High-dimensional interpolation using the modified Shepard method. *ACM Transactions on Mathematical Software*, 25(3):353–366, September 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

LEcuyer:1999:BLC

[995] Pierre L'Ecuyer and Richard Simard. Beware of linear congruential generators with multipliers of the form $a = \pm 2^q \pm 2^r$. *ACM Transactions on Mathematical Software*, 25(3):367–374, September 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/1999-25-3/p367-l_ecuyer/; http://www.acm.org/pubs/citations/journals/toms/1999-25-3/p367-l_ecuyer/p367-l_ecuyer.pdf.

Kees:1999:CIN

[996] Christopher E. Kees and Cass T. Miller. C++ implementations of numerical methods for solving differential-algebraic equations: design and optimization considerations. *ACM Transactions on Mathematical Software*, 25(4):377–403, December 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/articles/journals/toms/1999-25-4/p377-kees/p377-kees.pdf; http://www.acm.org/pubs/citations/journals/toms/1999-25-4/p377-kees/.

Duff:1999:FCS

[997] Iain S. Duff and Jennifer A. Scott. A frontal code for the solution of sparse positive-definite symmetric systems arising from finite-element applications. *ACM Transactions on Mathematical Software*, 25(4):404–424, December 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dackland:1999:BAS

[998] Krister Dackland and Bo Kågström. Blocked algorithms and software for reduction of a regular matrix pair to generalized Schur form. *ACM*

Transactions on Mathematical Software, 25(4):425–454, December 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Edwards:1999:CSC

[999] John A. Edwards. Characteristic spectra of the curvature functional: a numerical study in bifurcation. *ACM Transactions on Mathematical Software*, 25(4):455–475, December 1999. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ferris:2000:NCS

[1000] Michael C. Ferris, Michael P. Mesnier, and Jorge J. Moré. NEOS and Condor: solving optimization problems over the Internet. *ACM Transactions on Mathematical Software*, 26(1):1–18, March 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Griewank:2000:ARI

[1001] Andreas Griewank and Andrea Walther. Algorithm 799: Revolve: an implementation of checkpointing for the reverse or adjoint mode of computational differentiation. *ACM Transactions on Mathematical Software*, 26(1):19–45, March 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/2000-26-1/p19-griewank/; http://www.acm.org/pubs/citations/journals/toms/2000-26-1/p19-griewank/p19-griewank.pdf`.

DeTisi:2000:RAS

[1002] Flavia De Tisi and Alba Valtulina. Remark on Algorithm 761: scattered-data surface fitting that has the accuracy of a cubic polynomial. *ACM Transactions on Mathematical Software*, 26(1):46–48, March 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/2000-26-1/p46-de_tisi/; http://www.acm.org/pubs/citations/journals/toms/2000-26-1/p46-de_tisi/p46-de_tisi.pdf`. See [899, 965].

Benner:2000:AFS

[1003] Peter Benner, Ralph Byers, and Eric Barth. Algorithm 800: Fortran 77 subroutines for computing the eigenvalues of Hamiltonian matrices I: the square-reduced method. *ACM Transactions on Mathematical Software*, 26(1):49–77, March 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.acm.org/pubs/citations/journals/toms/2000-26-1/p49-benner/;`

http://www.acm.org/pubs/citations/journals/toms/2000-26-1/p49-benner/p49-benner.pdf.

Leydold:2000:ASR

[1004] Josef Leydold. Automatic sampling with the ratio-of-uniforms method. *ACM Transactions on Mathematical Software*, 26(1):78–98, March 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/2000-26-1/p78-leydold/; http://www.acm.org/pubs/citations/journals/toms/2000-26-1/p78-leydold/p78-leydold.pdf.

Hu:2000:HHP

[1005] Y. Charlie Hu, Guohua Jin, S. Lennart Johnsson, Dimitris Kehagias, and Nadia Shalaby. HPFBench: a High Performance Fortran benchmark suite. *ACM Transactions on Mathematical Software*, 26 (1):99–149, March 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/2000-26-1/p99-hu/; http://www.acm.org/pubs/citations/journals/toms/2000-26-1/p99-hu/p99-hu.pdf.

Coleman:2000:AAD

[1006] Thomas F. Coleman and Arun Verma. ADMIT-1: Automatic differentiation and MATLAB interface toolbox. *ACM Transactions on Mathematical Software*, 26(1):150–175, March 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Wise:2000:APP

[1007] Steven M. Wise, Andrew J. Sommese, and Layne T. Watson. Algorithm 801: POLSYS_PLP: a partitioned linear product homotopy code for solving polynomial systems of equations. *ACM Transactions on Mathematical Software*, 26(1):176–200, March 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/2000-26-1/p176-wise/; http://www.acm.org/pubs/citations/journals/toms/2000-26-1/p176-wise/p176-wise.pdf.

Hormann:2000:AAG

[1008] Wolfgang Hörmann. Algorithm 802: an automatic generator for bivariate log-concave distributions. *ACM Transactions on Mathematical Software*, 26(1):201–219, March 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL http://www.acm.org/pubs/citations/journals/toms/2000-26-1/p201-hormann/;

http://www.acm.org/pubs/citations/journals/toms/2000-26-1/p201-hormann/p201-hormann.pdf.

Boisvert:2000:ESI

[1009] Ronald F. Boisvert, Wayne R. Dyksen, and Elias N. Houstis. Editorial: special issue in honor of John Rice's 65th birthday. *ACM Transactions on Mathematical Software*, 26(2):223, June 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Anonymous:2000:JRR

[1010] Anonymous. John R. Rice: biographical and professional notes. *ACM Transactions on Mathematical Software*, 26(2):225–226, June 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Houstis:2000:PIK

[1011] Elias N. Houstis, Ann C. Catlin, John R. Rice, Vassilios S. Verykios, Naren Ramakrishnan, and Catherine E. Houstis. PYTHIA-II: a knowledge/database system for managing performance data and recommending scientific software. *ACM Transactions on Mathematical Software*, 26 (2):227–253, June 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ramakrishnan:2000:MVR

[1012] Naren Ramakrishnan and Calvin J. Ribbens. Mining and visualizing recommendation spaces for elliptic PDEs with continuous attributes. *ACM Transactions on Mathematical Software*, 26(2):254–273, June 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Enright:2000:AAS

[1013] W. H. Enright. Accurate approximate solution of partial differential equations at off-mesh points. *ACM Transactions on Mathematical Software*, 26(2):274–292, June 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Grosz:2000:HVA

[1014] Lutz Grosz. How to vectorize the algebraic multi-level iteration. *ACM Transactions on Mathematical Software*, 26(2):293–309, June 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ward:2000:ASM

[1015] William A. Ward, Jr. Algorithm 803: a simpler macro processor. *ACM Transactions on Mathematical Software*, 26(2):310–319, June 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Enright:2000:SIC

[1016] Wayne H. Enright and Ramanan Sivasothinathan. Superconvergent interpolants for collocation methods applied to mixed-order BVODEs. *ACM Transactions on Mathematical Software*, 26(3):323–351, September 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Liepelt:2000:RAN

[1017] Michael Liepelt and Klaus Schittkowski. Remark on algorithm 746: new features of PCOMP: a Fortran code for automatic differentiation. *ACM Transactions on Mathematical Software*, 26(3):352–362, September 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Marsaglia:2000:SMG

[1018] George Marsaglia and Wai Wan Tsang. A simple method for generating gamma variables. *ACM Transactions on Mathematical Software*, 26(3): 363–372, September 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kearfott:2000:SCV

[1019] R. B. Kearfott and G. W. Walster. On stopping criteria in verified nonlinear systems or optimization algorithms. *ACM Transactions on Mathematical Software*, 26(3):373–389, September 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Alhargan:2000:ACA

[1020] Fayez A. Alhargan. Algorithms for the computation of all Mathieu functions of integer orders. *ACM Transactions on Mathematical Software*, 26(3):390–407, September 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Alhargan:2000:ASC

[1021] Fayez A. Alhargan. Algorithm 804: subroutines for the computation of Mathieu functions of integer orders. *ACM Transactions on Mathematical Software*, 26(3):408–414, September 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kolda:2000:ACU

[1022] Tamara G. Kolda and Dianne P. O'Leary. Algorithm 805: computation and uses of the semidiscrete matrix decomposition. *ACM Transactions on Mathematical Software*, 26(3):415–435, September 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Mascagni:2000:ASS

[1023] Michael Mascagni and Ashok Srinivasan. Algorithm 806: SPRNG: a scalable library for pseudorandom number generation. *ACM Transactions on Mathematical Software*, 26(3):436–461, September 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See correction [1032].

Weideman:2000:MDM

[1024] J. A. C. Weideman and S. C. Reddy. A MATLAB differentiation matrix suite. *ACM Transactions on Mathematical Software*, 26(4):465–519, December 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kaufman:2000:OBS

[1025] Linda Kaufman. An observation on bisection software for the symmetric tridiagonal eigenvalue problem. *ACM Transactions on Mathematical Software*, 26(4):520–526, December 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Filippone:2000:PLP

[1026] Salvatore Filippone and Michele Colajanni. PSBLAS: a library for parallel linear algebra computation on sparse matrices. *ACM Transactions on Mathematical Software*, 26(4):527–550, December 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kaufman:2000:BRA

[1027] Linda Kaufman. Band reduction algorithms revisited. *ACM Transactions on Mathematical Software*, 26(4):551–567, December 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ramakrishnan:2000:NGE

[1028] Naren Ramakrishnan and Raúl E. Valdés-Pérez. Note on generalization in experimental algorithmics. *ACM Transactions on Mathematical Software*, 26(4):568–580, December 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bischof:2000:FSB

[1029] Christian H. Bischof, Bruno Lang, and Xiaobai Sun. A framework for symmetric band reduction. *ACM Transactions on Mathematical Software*, 26(4):581–601, December 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bischof:2000:AST

[1030] Christian H. Bischof, Bruno Lang, and Xiaobai Sun. Algorithm 807: The SBR Toolbox—software for successive band reduction. *ACM Transactions on Mathematical Software*, 26(4):602–616, December 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Anderson:2000:RAF

[1031] Stuart Anderson. Remark on Algorithm 723: Fresnel integrals. *ACM Transactions on Mathematical Software*, 26(4):617, December 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Mascagni:2000:CAS

[1032] Michael Mascagni and Ashok Srinivasan. Corrigendum: Algorithm 806: SPRNG: a scalable library for pseudorandom number generation. *ACM Transactions on Mathematical Software*, 26(4):618–619, December 2000. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [1023].

Langtangen:2001:SSP

[1033] Hans Petter Langtangen and Otto Munthe. Solving systems of partial differential equations using object-oriented programming techniques with coupled heat and fluid flow as example. *ACM Transactions on Mathematical Software*, 27(1):1–26, March 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Neumaier:2001:EPE

[1034] Arnold Neumaier and Tapio Schneider. Estimation of parameters and eigenmodes of multivariate autoregressive models. *ACM Transactions on Mathematical Software*, 27(1):27–57, March 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Schneider:2001:AAM

[1035] Tapio Schneider and Arnold Neumaier. Algorithm 808: ARfit—a Matlab package for the estimation of parameters and eigenmodes of multivariate autoregressive models. *ACM Transactions on Mathematical Software*, 27(1):58–65, March 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Leydold:2001:SUG

[1036] Josef Leydold. A simple universal generator for continuous and discrete univariate T-concave distributions. *ACM Transactions on Mathematical*

Software, 27(1):66–82, March 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Morales:2001:APF

[1037] José Luis Morales and Jorge Nocedal. Algorithm 809: PREQN: Fortran 77 subroutines for preconditioning the conjugate gradient method. *ACM Transactions on Mathematical Software*, 27(1):83–91, March 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Verdonk:2001:PRIa

[1038] Brigitte Verdonk, Annie Cuyt, and Dennis Verschaeren. A precision- and range-independent tool for testing floating-point arithmetic I: basic operations, square root, and remainder. *ACM Transactions on Mathematical Software*, 27(1):92–118, March 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.win.ua.ac.be/~cant/ieeecc754.html`.

Verdonk:2001:PRIb

[1039] Brigitte Verdonk, Annie Cuyt, and Dennis Verschaeren. A precision- and range-independent tool for testing floating-point arithmetic II: conversions. *ACM Transactions on Mathematical Software*, 27(1):119–140, March 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.win.ua.ac.be/~cant/ieeecc754.html`.

Bailey:2001:ASS

[1040] P. B. Bailey, W. N. Everitt, and A. Zettl. Algorithm 810: The SLEIGN2 Sturm–Liouville code. *ACM Transactions on Mathematical Software*, 27 (2):143–192, June 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Luksan:2001:ANA

[1041] Ladislav Lukšan and Jan Vlček. Algorithm 811: NDA: algorithms for nondifferentiable optimization. *ACM Transactions on Mathematical Software*, 27(2):193–213, June 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Andersen:2001:RFC

[1042] Bjarne S. Andersen, Jerzy Waśniewski, and Fred G. Gustavson. A recursive formulation of Cholesky factorization of a matrix in packed storage. *ACM Transactions on Mathematical Software*, 27(2):214–244, June 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cash:2001:ACS

[1043] J. R. Cash, G. Moore, and R. W. Wright. An automatic continuation strategy for the solution of singularly perturbed nonlinear boundary value problems. *ACM Transactions on Mathematical Software*, 27(2): 245–266, June 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Tsai:2001:ABO

[1044] Yi-Feng Tsai and Rida T. Farouki. Algorithm 812: BPOLY: an object-oriented library of numerical algorithms for polynomials in Bernstein form. *ACM Transactions on Mathematical Software*, 27(2):267–296, June 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kierzenka:2001:BSB

[1045] Jacek Kierzenka and Lawrence F. Shampine. A BVP solver based on residual control and the Matlab PSE. *ACM Transactions on Mathematical Software*, 27(3):299–316, September 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Yang:2001:CPD

[1046] Dow-Yung Yang, Ananth Grama, Vivek Sarin, and Naren Ramakrishnan. Compression of particle data from hierarchical approximate methods. *ACM Transactions on Mathematical Software*, 27(3):317–339, September 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Birgin:2001:ASS

[1047] Ernesto G. Birgin, José Mario Martínez, and Marcos Raydan. Algorithm 813: SPG—software for Convex-Constrained Optimization. *ACM Transactions on Mathematical Software*, 27(3):340–349, September 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Azulay:2001:RSM

[1048] David-Olivier Azulay and Jean-François Pique. A revised simplex method with integer Q-matrices. *ACM Transactions on Mathematical Software*, 27(3):350–360, September 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Benson:2001:CSP

[1049] Steven J. Benson, Lois Curfman McInnes, and Jorge J. Moré. A case study in the performance and scalability of optimization algorithms.

ACM Transactions on Mathematical Software, 27(3):361–376, September 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Smith:2001:AFS

[1050] David M. Smith. Algorithm 814: Fortran 90 software for floating-point multiple precision arithmetic, gamma and related functions. *ACM Transactions on Mathematical Software*, 27(4):377–387, December 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Amestoy:2001:ACT

[1051] Patrick R. Amestoy, Iain S. Duff, Jean-Yves L'Excellent, and Xiaoye S. Li. Analysis and comparison of two general sparse solvers for distributed memory computers. *ACM Transactions on Mathematical Software*, 27 (4):388–421, December 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gunnels:2001:FFL

[1052] John A. Gunnels, Fred G. Gustavson, Greg M. Henry, and Robert A. van de Geijn. FLAME: Formal Linear Algebra Methods Environment. *ACM Transactions on Mathematical Software*, 27(4):422–455, December 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Festa:2001:AFS

[1053] Paola Festa, Panos M. Pardalos, and Mauricio G. C. Resende. Algorithm 815: FORTRAN subroutines for computing approximate solutions of feedback set problems using GRASP. *ACM Transactions on Mathematical Software*, 27(4):456–464, December 2001. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Engelborghs:2002:NBA

[1054] K. Engelborghs, T. Luzyanina, and D. Roose. Numerical bifurcation analysis of delay differential equations using DDE-BIFTOOL. *ACM Transactions on Mathematical Software*, 28(1):1–21, March 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gockenbach:2002:EAI

[1055] Mark S. Gockenbach, Daniel R. Reynolds, Peng Shen, and William W. Symes. Efficient and automatic implementation of the adjoint state method. *ACM Transactions on Mathematical Software*, 28(1):22–44, March 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gansterer:2002:EDC

[1056] Wilfried N. Gansterer, Robert C. Ward, and Richard P. Muller. An extension of the divide-and-conquer method for a class of symmetric block-tridiagonal eigenproblems. *ACM Transactions on Mathematical Software*, 28(1):45–58, March 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hopkins:2002:RCA

[1057] Tim Hopkins. Renovating the Collected Algorithms from ACM. *ACM Transactions on Mathematical Software*, 28(1):59–74, March 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Robinson:2002:ARA

[1058] Ian Robinson and Michael Hill. Algorithm 816: *r2d2lri*: an algorithm for automatic two-dimensional cubature. *ACM Transactions on Mathematical Software*, 28(1):75–100, March 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bertolazzi:2002:APG

[1059] Enrico Bertolazzi and Gianmarco Manzini. Algorithm 817: P2MESH: generic object-oriented interface between 2-D unstructured meshes and FEM/FVM-based PDE solvers. *ACM Transactions on Mathematical Software*, 28(1):101–132, March 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Boisvert:2002:PSI

[1060] Ronald F. Boisvert and Jack J. Dongarra. Preface to the special issue on the Basic Linear Algebra Subprograms (BLAS). *ACM Transactions on Mathematical Software*, 28(2):133–134, June 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Blackford:2002:USB

[1061] L. Susan Blackford, James Demmel, Jack Dongarra, Iain Duff, Sven Hammarling, Greg Henry, Michael Heroux, Linda Kaufman, Andrew Lumsdaine, Antoine Petitet, Roldan Pozo, Karin Remington, and R. Clint Whaley. An updated set of Basic Linear Algebra Subprograms (BLAS). *ACM Transactions on Mathematical Software*, 28(2):135–151, June 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Li:2002:DIT

[1062] Xiaoye S. Li, James W. Demmel, David H. Bailey, Greg Henry, Yozo Hida, Jimmy Iskandar, William Kahan, Suh Y. Kang, Anil Kapur, Michael C. Martin, Brandon J. Thompson, Teresa Tung, and Daniel J. Yoo. Design, implementation and testing of extended and mixed precision BLAS. *ACM Transactions on Mathematical Software*, 28(2):152–205, June 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bindel:2002:CGR

[1063] David Bindel, James Demmel, William Kahan, and Osni Marques. On computing Givens rotations reliably and efficiently. *ACM Transactions on Mathematical Software*, 28(2):206–238, June 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Duff:2002:OSB

[1064] Iain S. Duff, Michael A. Heroux, and Roldan Pozo. An overview of the Sparse Basic Linear Algebra Subprograms: The new standard from the BLAS Technical Forum. *ACM Transactions on Mathematical Software*, 28(2):239–267, June 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Duff:2002:ARM

[1065] Iain S. Duff and Christof Vömel. Algorithm 818: a reference model implementation of the Sparse BLAS in Fortran 95. *ACM Transactions on Mathematical Software*, 28(2):268–283, June 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hopkins:2002:CPT

[1066] Tim Hopkins. A comment on the presentation and testing of CALGO codes and a remark on Algorithm 639: To integrate some infinite oscillating tails. *ACM Transactions on Mathematical Software*, 28(3):285–300, September 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gupta:2002:RAD

[1067] Anshul Gupta. Recent advances in direct methods for solving unsymmetric sparse systems of linear equations. *ACM Transactions on Mathematical Software*, 28(3):301–324, September 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gil:2002:AAB

[1068] Amparo Gil, Javier Segura, and Nico M. Temme. Algorithm 819: AIZ, BIZ: two Fortran 77 routines for the computation of complex Airy functions. *ACM Transactions on Mathematical Software*, 28(3):325–336, September 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ferrando:2002:AFI

[1069] Sebastian E. Ferrando, Lawrence A. Kolasa, and Natasha Kovačević. Algorithm 820: a flexible implementation of matching pursuit for Gabor functions on the interval. *ACM Transactions on Mathematical Software*, 28(3):337–353, September 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hanson:2002:AFI

[1070] Richard J. Hanson, Clay P. Breshears, and Henry A. Gabb. Algorithm 821: a Fortran interface to POSIX threads. *ACM Transactions on Mathematical Software*, 28(3):354–371, September 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hopkins:2002:RAF

[1071] Tim Hopkins. Remark on Algorithm 705: a Fortran-77 software package for solving the Sylvester matrix equation $AXB^T + CXD^T = E$. *ACM Transactions on Mathematical Software*, 28(3):372–375, September 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [753].

Reid:2002:IHE

[1072] John K. Reid and Jennifer A. Scott. Implementing Hager's exchange methods for matrix profile reduction. *ACM Transactions on Mathematical Software*, 28(4):377–391, December 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Jonsson:2002:RBAa

[1073] Isak Jonsson and Bo Kågström. Recursive blocked algorithms for solving triangular systems: Part I: one-sided and coupled Sylvester-type matrix equations. *ACM Transactions on Mathematical Software*, 28(4):392–415, December 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Jonsson:2002:RBAb

[1074] Isak Jonsson and Bo Kågström. Recursive blocked algorithms for solving triangular systems: Part II: Two-sided and generalized Sylvester and Lyapunov matrix equations. *ACM Transactions on Mathematical Software*, 28(4):416–435, December 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gil:2002:AGH

[1075] Amparo Gil, Javier Segura, and Nico M. Temme. Algorithm 822: GIZ, HIZ: two Fortran 77 routines for the computation of complex Scorer functions. *ACM Transactions on Mathematical Software*, 28(4):436–447, December 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Edlund:2002:SPS

[1076] Ove Edlund. A software package for sparse orthogonal factorization and updating. *ACM Transactions on Mathematical Software*, 28(4):448–482, December 2002. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Soderlind:2003:DFA

[1077] Gustaf Söderlind. Digital filters in adaptive time-stepping. *ACM Transactions on Mathematical Software*, 29(1):1–26, March 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Nievergelt:2003:SFM

[1078] Yves Nievergelt. Scalar fused multiply-add instructions produce floating-point matrix arithmetic provably accurate to the penultimate digit. *ACM Transactions on Mathematical Software*, 29(1):27–48, March 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Joe:2003:RAI

[1079] Stephen Joe and Frances Y. Kuo. Remark on Algorithm 659: Implementing Sobol's quasirandom sequence generator. *ACM Transactions on Mathematical Software*, 29(1):49–57, March 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gertz:2003:OOS

[1080] E. Michael Gertz and Stephen J. Wright. Object-oriented software for quadratic programming. *ACM Transactions on Mathematical Software*, 29(1):58–81, March 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Wenzel:2003:IWD

[1081] Lothar Wenzel, Ram Rajagopal, and Dinesh Nair. Induced well-distributed sets in Riemannian spaces. *ACM Transactions on Mathematical Software*, 29(1):82–94, March 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hong:2003:AIS

[1082] Hee Sun Hong and Fred J. Hickernell. Algorithm 823: Implementing scrambled digital sequences. *ACM Transactions on Mathematical Software*, 29(2):95–109, June 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Li:2003:SSD

[1083] Xiaoye S. Li and James W. Demmel. SuperLU_DIST: a scalable distributed-memory sparse direct solver for unsymmetric linear systems. *ACM Transactions on Mathematical Software*, 29(2):110–140, June 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dhooge:2003:MMP

[1084] A. Dhooge, W. Govaerts, and Yu. A. Kuznetsov. MATCONT: A MATLAB package for numerical bifurcation analysis of ODEs. *ACM Transactions on Mathematical Software*, 29(2):141–164, June 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Henrion:2003:GGO

[1085] Didier Henrion and Jean-Bernard Lasserre. GloptiPoly: Global optimization over polynomials with Matlab and SeDuMi. *ACM Transactions on Mathematical Software*, 29(2):165–194, June 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sarra:2003:SSP

[1086] Scott A. Sarra. The spectral signal processing suite. *ACM Transactions on Mathematical Software*, 29(2):195–217, June 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Quintana-Orti:2003:FDA

[1087] Enrique S. Quintana-Ortí and Robert A. van de Geijn. Formal derivation of algorithms: The triangular Sylvester equation. *ACM Transactions on Mathematical Software*, 29(2):218–243, June 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Martins:2003:CSD

[1088] Joaquim R. R. A. Martins, Peter Sturdza, and Juan J. Alonso. The complex-step derivative approximation. *ACM Transactions on Mathematical Software*, 29(3):245–262, September 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Eble:2003:ASP

[1089] Ingo Eble and Markus Neher. ACETAF: a software package for computing validated bounds for Taylor coefficients of analytic functions. *ACM Transactions on Mathematical Software*, 29(3):263–286, September 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cools:2003:ACP

[1090] Ronald Cools and Ann Haegemans. Algorithm 824: *CUBPACK*: a package for automatic cubature; framework description. *ACM Transactions on Mathematical Software*, 29(3):287–296, September 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Genz:2003:ANC

[1091] Alan Genz and Ronald Cools. An adaptive numerical cubature algorithm for simplices. *ACM Transactions on Mathematical Software*, 29(3):297–308, September 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Shellman:2003:ADC

[1092] Spencer Shellman and K. Sikorski. Algorithm 825: a deep-cut bisection envelope algorithm for fixed points. *ACM Transactions on Mathematical Software*, 29(3):309–325, September 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fahey:2003:APE

[1093] Mark R. Fahey. Algorithm 826: a parallel eigenvalue routine for complex Hessenberg matrices. *ACM Transactions on Mathematical Software*, 29(3):326–336, September 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Baglama:2003:AIM

[1094] J. Baglama, D. Calvetti, and L. Reichel. Algorithm 827: `irbleigs`: A MATLAB program for computing a few eigenpairs of a large sparse Hermitian matrix. *ACM Transactions on Mathematical Software*, 29(3): 337–348, September 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hopkins:2003:RAF

[1095] Tim Hopkins. Remark on Algorithm 769: Fortran subroutines for approximate solution of sparse quadratic assignment problems using GRASP. *ACM Transactions on Mathematical Software*, 29(3):349–351, September 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gould:2003:GLT

[1096] Nicholas I. M. Gould, Dominique Orban, and Philippe L. Toint. GALAHAD, a library of thread-safe Fortran 90 packages for large-scale nonlinear optimization. *ACM Transactions on Mathematical Software*, 29(4): 353–372, December 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gould:2003:CSC

[1097] Nicholas I. M. Gould, Dominique Orban, and Philippe L. Toint. CUTEr and SifDec: a constrained and unconstrained testing environment, revisited. *ACM Transactions on Mathematical Software*, 29(4):373–394, December 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Scott:2003:PFS

[1098] Jennifer A. Scott. Parallel frontal solvers for large sparse linear systems. *ACM Transactions on Mathematical Software*, 29(4):395–417, December 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bradbury:2003:FCS

[1099] Emma L. Bradbury and Wayne H. Enright. Fast contouring of solutions to partial differential equations. *ACM Transactions on Mathematical Software*, 29(4):418–439, December 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bucker:2003:MPI

[1100] H. Martin Bücker and Arno Rasch. Modeling the performance of interface contraction. *ACM Transactions on Mathematical Software*, 29(4):440–457, December 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Renka:2003:ADD

[1101] Robert J. Renka. Algorithm 828: DNSPLIN1: discrete nonlinear spline interpolation. *ACM Transactions on Mathematical Software*, 29(4):458–

468, December 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gaviano:2003:ASG

[1102] Marco Gaviano, Dmitri E. Kvasov, Daniela Lera, and Yaroslav D. Sergeyev. Algorithm 829: Software for generation of classes of test functions with known local and global minima for global optimization. *ACM Transactions on Mathematical Software*, 29(4):469–480, December 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gonzalez–Pinto:2004:TSE

[1103] S. González-Pinto, J. I. Montijano, and S. Pérez-Rodríguez. Two-step error estimators for implicit Runge–Kutta methods applied to stiff systems. *ACM Transactions on Mathematical Software*, 30(1):1–18, March 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rotkin:2004:DIN

[1104] Vladimir Rotkin and Sivan Toledo. The design and implementation of a new out-of-core sparse Cholesky factorization method. *ACM Transactions on Mathematical Software*, 30(1):19–46, March 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Vaz:2004:SSI

[1105] A. Ismael F. Vaz, Edite M. G. P. Fernandes, and M. Paula S. F. Gomes. SIPAMPL: Semi-infinite programming with AMPL. *ACM Transactions on Mathematical Software*, 30(1):47–61, March 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bartlett:2004:VRT

[1106] Roscoe A. Bartlett, Bart G. Van Bloemen Waanders, and Michael A. Heroux. Vector reduction/transformation operators. *ACM Transactions on Mathematical Software*, 30(1):62–85, March 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hanson:2004:AAV

[1107] Richard J. Hanson and Tim Hopkins. Algorithm 830: Another visit with standard and modified Givens transformations and a remark on Algorithm 539. *ACM Transactions on Mathematical Software*, 30(1):86–94, March 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [238].

Duff:2004:PDS

[1108] Iain S. Duff and Jennifer A. Scott. A parallel direct solver for large sparse highly unsymmetric linear systems. *ACM Transactions on Mathematical Software*, 30(2):95–117, June 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Duff:2004:MCS

[1109] Iain S. Duff. MA57—a code for the solution of sparse symmetric definite and indefinite systems. *ACM Transactions on Mathematical Software*, 30(2):118–144, June 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gil:2004:CSM

[1110] Amparo Gil, Javier Segura, and Nico M. Temme. Computing solutions of the modified Bessel differential equation for imaginary orders and positive arguments. *ACM Transactions on Mathematical Software*, 30(2):145–158, June 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gil:2004:AMB

[1111] Amparo Gil, Javier Segura, and Nico M. Temme. Algorithm 831: Modified Bessel functions of imaginary order and positive argument. *ACM Transactions on Mathematical Software*, 30(2):159–164, June 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Davis:2004:CPO

[1112] Timothy A. Davis. A column pre-ordering strategy for the unsymmetric-pattern multifrontal method. *ACM Transactions on Mathematical Software*, 30(2):165–195, June 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Davis:2004:AUV

[1113] Timothy A. Davis. Algorithm 832: UMFPACK V4.3—an unsymmetric-pattern multifrontal method. *ACM Transactions on Mathematical Software*, 30(2):196–199, June 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Renka:2004:ACI

[1114] Robert J. Renka. Algorithm 833: CSRFPACK—interpolation of scattered data with a C^1 convexity-preserving surface. *ACM Transactions on Mathematical Software*, 30(2):200–211, June 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Renka:2004:AGI

[1115] Robert J. Renka. Algorithm 834: `glsurf` — an interactive surface plotting program using OpenGL. *ACM Transactions on Mathematical Software*, 30(2):212–217, June 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Zeng:2004:AMM

[1116] Zhonggang Zeng. Algorithm 835: MultRoot—a Matlab package for computing polynomial roots and multiplicities. *ACM Transactions on Mathematical Software*, 30(2):218–236, June 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Matthey:2004:POO

[1117] Thierry Matthey, Trevor Cickovski, Scott Hampton, Alice Ko, Qun Ma, Matthew Nyerges, Troy Raeder, Thomas Slabach, and Jesús A. Izaguirre. ProtoMol, an object-oriented framework for prototyping novel algorithms for molecular dynamics. *ACM Transactions on Mathematical Software*, 30(3):237–265, September 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Forth:2004:JCG

[1118] Shaun A. Forth, Mohamed Tadjouddine, John D. Pryce, and John K. Reid. Jacobian code generated by source transformation and vertex elimination can be as efficient as hand-coding. *ACM Transactions on Mathematical Software*, 30(3):266–299, September 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gould:2004:NEH

[1119] Nicholas I. M. Gould and Jennifer A. Scott. A numerical evaluation of HSL packages for the direct solution of large sparse, symmetric linear systems of equations. *ACM Transactions on Mathematical Software*, 30(3): 300–325, September 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bai:2004:BTE

[1120] Yihua Bai, Wilfried N. Gansterer, and Robert C. Ward. Block tridiagonalization of "effectively" sparse symmetric matrices. *ACM Transactions on Mathematical Software*, 30(3):326–352, September 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Davis:2004:CAM

[1121] Timothy A. Davis, John R. Gilbert, Stefan I. Larimore, and Esmond G. Ng. A column approximate minimum degree ordering algorithm. *ACM Transactions on Mathematical Software*, 30(3):353–376, September 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Davis:2004:ACC

[1122] Timothy A. Davis, John R. Gilbert, Stefan I. Larimore, and Esmond G. Ng. Algorithm 836: COLAMD, a column approximate minimum degree ordering algorithm. *ACM Transactions on Mathematical Software*, 30(3): 377–380, September 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Amestoy:2004:AAA

[1123] Patrick R. Amestoy, Timothy A. Davis, and Iain S. Duff. Algorithm 837: AMD, an approximate minimum degree ordering algorithm. *ACM Transactions on Mathematical Software*, 30(3):381–388, September 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Priest:2004:ESC

[1124] Douglas M. Priest. Efficient scaling for complex division. *ACM Transactions on Mathematical Software*, 30(4):389–401, December 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Nievergelt:2004:AAP

[1125] Yves Nievergelt. Analysis and applications of Priest's distillation. *ACM Transactions on Mathematical Software*, 30(4):402–433, December 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Whittle:2004:AIK

[1126] Jon Whittle and Johann Schumann. Automating the implementation of Kalman filter algorithms. *ACM Transactions on Mathematical Software*, 30(4):434–453, December 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Wang:2004:BBS

[1127] R. Wang, P. Keast, and P. Muir. BACOL: B-spline adaptive collocation software for 1-D parabolic PDEs. *ACM Transactions on Mathematical Software*, 30(4):454–470, December 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fabijonas:2004:CCA

[1128] B. R. Fabijonas, D. W. Lozier, and F. W. J. Olver. Computation of complex Airy functions and their zeros using asymptotics and the differential equation. *ACM Transactions on Mathematical Software*, 30(4):471–490, December 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fabijonas:2004:AAF

[1129] B. R. Fabijonas. Algorithm 838: Airy functions. *ACM Transactions on Mathematical Software*, 30(4):491–501, December 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kirby:2004:AFN

[1130] Robert C. Kirby. Algorithm 839: FIAT, a new paradigm for computing finite element basis functions. *ACM Transactions on Mathematical Software*, 30(4):502–516, December 2004. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bientinesi:2005:SDD

[1131] Paolo Bientinesi, John A. Gunnels, Margaret E. Myers, Enrique S. Quintana-Ortí, and Robert A. van de Geijn. The science of deriving dense linear algebra algorithms. *ACM Transactions on Mathematical Software*, 31(1):1–26, March 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bientinesi:2005:RLA

[1132] Paolo Bientinesi, Enrique S. Quintana-Ortí, and Robert A. van de Geijn. Representing linear algebra algorithms in code: the FLAME application program interfaces. *ACM Transactions on Mathematical Software*, 31 (1):27–59, March 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gunter:2005:PCC

[1133] Brian C. Gunter and Robert A. Van De Geijn. Parallel out-of-core computation and updating of the QR factorization. *ACM Transactions on Mathematical Software*, 31(1):60–78, March 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Shampine:2005:UAS

[1134] L. F. Shampine, Robert Ketzscher, and Shaun A. Forth. Using AD to solve BVPs in MATLAB. *ACM Transactions on Mathematical Software*,

31(1):79–94, March 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dercole:2005:SAD

[1135] Fabio Dercole and Yuri A. Kuznetsov. SlideCont: an AUTO97 driver for bifurcation analysis of Filippov systems. *ACM Transactions on Mathematical Software*, 31(1):95–119, March 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Jin:2005:SFE

[1136] Guohua Jin and John Mellor-Crummey. SFCGen: a framework for efficient generation of multi-dimensional space-filling curves by recursion. *ACM Transactions on Mathematical Software*, 31(1):120–148, March 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Boyd:2005:ACG

[1137] John P. Boyd. Algorithm 840: Computation of grid points, quadrature weights and derivatives for spectral element methods using prolate spheroidal wave functions—prolate elements. *ACM Transactions on Mathematical Software*, 31(1):149–165, March 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Howell:2005:ABG

[1138] Gary W. Howell and Nadia Diaa. Algorithm 841: BHESS: Gaussian reduction to a similar banded Hessenberg form. *ACM Transactions on Mathematical Software*, 31(1):166–185, March 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Xin:2005:IHB

[1139] Jianguo Xin, Katia Pinchedez, and Joseph E. Flaherty. Implementation of hierarchical bases in FEMLAB for simplicial elements. *ACM Transactions on Mathematical Software*, 31(2):187–200, June 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Andersen:2005:FPH

[1140] Bjarne S. Andersen, John A. Gunnels, Fred G. Gustavson, John K. Reid, and Jerzy Waśniewski. A fully portable high performance minimal storage hybrid format Cholesky algorithm. *ACM Transactions on Mathematical Software*, 31(2):201–227, June 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fraysse:2005:ASG

[1141] Valŕie Frayssé, Luc Giraud, Serge Gratton, and Julien Langou. Algorithm 842: a set of GMRES routines for real and complex arithmetics on high performance computers. *ACM Transactions on Mathematical Software*, 31(2):228–238, June 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Driscoll:2005:AIS

[1142] Tobin A. Driscoll. Algorithm 843: Improvements to the Schwarz–Christoffel toolbox for MATLAB. *ACM Transactions on Mathematical Software*, 31(2):239–251, June 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Berry:2005:ACS

[1143] Michael W. Berry, Shakhina A. Pulatova, and G. W. Stewart. Algorithm 844: Computing sparse reduced-rank approximations to sparse matrices. *ACM Transactions on Mathematical Software*, 31(2):252–269, June 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Money:2005:AEM

[1144] James H. Money and Qiang Ye. Algorithm 845: EIGIFP: a MATLAB program for solving large symmetric generalized eigenvalue problems. *ACM Transactions on Mathematical Software*, 31(2):270–279, June 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Boisvert:2005:ISI

[1145] Ronald F. Boisvert, L. A. Drummond, and Osni A. Marques. Introduction to the special issue on the Advanced CompuTational Software (ACTS) collection. *ACM Transactions on Mathematical Software*, 31 (3):281, September 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Drummond:2005:OAC

[1146] L. A. Drummond and O. A. Marques. An overview of the Advanced CompuTational Software (ACTS) collection. *ACM Transactions on Mathematical Software*, 31(3):282–301, September 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Li:2005:OSA

[1147] Xiaoye S. Li. An overview of SuperLU: Algorithms, implementation, and user interface. *ACM Transactions on Mathematical Software*, 31(3):

302–325, September 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Falgout:2005:PSH

[1148] Robert D. Falgout, Jim E. Jones, and Ulrike Meier Yang. Pursuing scalability for *hypre*'s conceptual interfaces. *ACM Transactions on Mathematical Software*, 31(3):326–350, September 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hernandez:2005:SSF

[1149] Vicente Hernandez, Jose E. Roman, and Vicente Vidal. SLEPc: a scalable and flexible toolkit for the solution of eigenvalue problems. *ACM Transactions on Mathematical Software*, 31(3):351–362, September 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hindmarsh:2005:SSN

[1150] Alan C. Hindmarsh, Peter N. Brown, Keith E. Grant, Steven L. Lee, Radu Serban, Dan E. Shumaker, and Carol S. Woodward. SUNDIALS: Suite of nonlinear and differential/algebraic equation solvers. *ACM Transactions on Mathematical Software*, 31(3):363–396, September 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Heroux:2005:OTP

[1151] Michael A. Heroux, Roscoe A. Bartlett, Vicki E. Howle, Robert J. Hoekstra, Jonathan J. Hu, Tamara G. Kolda, Richard B. Lehoucq, Kevin R. Long, Roger P. Pawlowski, Eric T. Phipps, Andrew G. Salinger, Heidi K. Thornquist, Ray S. Tuminaro, James M. Willenbring, Alan Williams, and Kendall S. Stanley. An overview of the Trilinos project. *ACM Transactions on Mathematical Software*, 31(3):397–423, September 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Castillo:2005:FOO

[1152] Paul Castillo, Robert Rieben, and Daniel White. FEMSTER: an object-oriented class library of high-order discrete differential forms. *ACM Transactions on Mathematical Software*, 31(4):425–457, December 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Naumann:2005:DEF

[1153] Uwe Naumann and Jan Riehme. A differentiation-enabled Fortran 95 compiler. *ACM Transactions on Mathematical Software*, 31(4):458–474, December 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Tang:2005:DNI

[1154] Ping Tak Peter Tang. DFTI — a new interface for Fast Fourier Transform libraries. *ACM Transactions on Mathematical Software*, 31(4):475–507, December 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Mu:2005:PMN

[1155] Mo Mu. PDE.Mart: a network-based problem-solving environment for PDEs. *ACM Transactions on Mathematical Software*, 31(4):508–531, December 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ledoux:2005:MMP

[1156] V. Ledoux, M. Van Daele, and G. Vanden Berghe. MATSLISE: A MATLAB package for the numerical solution of Sturm–Liouville and Schrödinger equations. *ACM Transactions on Mathematical Software*, 31(4):532–554, December 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gao:2005:AMS

[1157] Tangan Gao, T. Y. Li, and Mengnien Wu. Algorithm 846: MixedVol: a software package for mixed-volume computation. *ACM Transactions on Mathematical Software*, 31(4):555–560, December 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Klimke:2005:ASP

[1158] Andreas Klimke and Barbara Wohlmuth. Algorithm 847: Spinterp: piecewise multilinear hierarchical sparse grid interpolation in MATLAB. *ACM Transactions on Mathematical Software*, 31(4):561–579, December 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Shellman:2005:ARF

[1159] Spencer Shellman and K. Sikorski. Algorithm 848: a recursive fixed-point algorithm for the infinity-norm case. *ACM Transactions on Mathematical Software*, 31(4):580–586, December 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Davis:2005:ACS

[1160] Timothy A. Davis. Algorithm 849: a concise sparse Cholesky factorization package. *ACM Transactions on Mathematical Software*, 31(4):

587–591, December 2005. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Panneton:2006:ILP

[1161] François Panneton, Pierre L'Ecuyer, and Makoto Matsumoto. Improved long-period generators based on linear recurrences modulo 2. *ACM Transactions on Mathematical Software*, 32(1):1–16, March 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Guermouche:2006:CMM

[1162] Abdou Guermouche and Jean-Yves L'Excellent. Constructing memory-minimizing schedules for multifrontal methods. *ACM Transactions on Mathematical Software*, 32(1):17–32, March 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Koyuturk:2006:NDB

[1163] Mehmet Koyutürk, Ananth Grama, and Naren Ramakrishnan. Nonorthogonal decomposition of binary matrices for bounded-error data compression and analysis. *ACM Transactions on Mathematical Software*, 32 (1):33–69, March 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gil:2006:CRP

[1164] Amparo Gil, Javier Segura, and Nico M. Temme. Computing the real parabolic cylinder functions $U(a, x)$, $V(a, x)$. *ACM Transactions on Mathematical Software*, 32(1):70–101, March 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gil:2006:ARP

[1165] Amparo Gil, Javier Segura, and Nico M. Temme. Algorithm 850: Real parabolic cylinder functions $U(a, x)$, $V(a, x)$. *ACM Transactions on Mathematical Software*, 32(1):102–112, March 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hager:2006:ACD

[1166] William W. Hager and Hongchao Zhang. Algorithm 851: CG_DESCENT, a conjugate gradient method with guaranteed descent. *ACM Transactions on Mathematical Software*, 32(1):113–137, March 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Granvilliers:2006:ARI

[1167] Laurent Granvilliers and Frédéric Benhamou. Algorithm 852: RealPaver: an interval solver using constraint satisfaction techniques.

ACM Transactions on Mathematical Software, 32(1):138–156, March 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://www.sciences.univ-nantes.fr/info/perso/permanents/granvil/papers/gbtoms05.pdf`.

Foster:2006:AEA

[1168] Leslie Foster and Rajesh Kommu. Algorithm 853: an efficient algorithm for solving rank-deficient least squares problems. *ACM Transactions on Mathematical Software*, 32(1):157–165, March 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hasselman:2006:RAF

[1169] Berend Hasselman. Remark on Algorithm 815: FORTRAN subroutines for computing approximate solutions of feedback set problems using GRASP. *ACM Transactions on Mathematical Software*, 32(1):166–168, March 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Joffrain:2006:AHT

[1170] Thierry Joffrain, Tze Meng Low, Enrique S. Quintana-Ortí, Robert van de Geijn, and Field G. Van Zee. Accumulating Householder transformations, revisited. *ACM Transactions on Mathematical Software*, 32 (2):169–179, June 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Quintana-Orti:2006:IPR

[1171] Gregorio Quintana-Ortí and Robert van de Geijn. Improving the performance of reduction to Hessenberg form. *ACM Transactions on Mathematical Software*, 32(2):180–194, June 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Forth:2006:EOI

[1172] Shaun A. Forth. An efficient overloaded implementation of forward mode automatic differentiation in MATLAB. *ACM Transactions on Mathematical Software*, 32(2):195–222, June 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kirby:2006:OFL

[1173] Robert C. Kirby. Optimizing FIAT with Level 3 BLAS. *ACM Transactions on Mathematical Software*, 32(2):223–235, June 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Brisebarre:2006:CME

[1174] Nicolas Brisebarre, Jean-Michel Muller, and Arnaud Tisserand. Computing machine-efficient polynomial approximations. *ACM Transactions on Mathematical Software*, 32(2):236–256, June 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kolonko:2006:SRS

[1175] M. Kolonko and D. Wäsch. Sequential reservoir sampling with a nonuniform distribution. *ACM Transactions on Mathematical Software*, 32(2): 257–273, June 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cameron:2006:MPA

[1176] Frank Cameron. A Matlab package for automatically generating Runge–Kutta trees, order conditions, and truncation error coefficients. *ACM Transactions on Mathematical Software*, 32(2):274–298, June 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Lerch:2006:FFI

[1177] Michael Lerch, German Tischler, Jürgen Wolff Von Gudenberg, Werner Hofschuster, and Walter Krämer. FILIB++, a fast interval library supporting containment computations. *ACM Transactions on Mathematical Software*, 32(2):299–324, June 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Demmel:2006:EBE

[1178] James Demmel, Yozo Hida, William Kahan, Xiaoye S. Li, Sonil Mukherjee, and E. Jason Riedy. Error bounds from extra-precise iterative refinement. *ACM Transactions on Mathematical Software*, 32(2):325–351, June 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Benner:2006:AFS

[1179] Peter Benner and Daniel Kressner. Algorithm 854: Fortran 77 subroutines for computing the eigenvalues of Hamiltonian matrices II. *ACM Transactions on Mathematical Software*, 32(2):352–373, June 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sharp:2006:BSP

[1180] Philip W. Sharp. N-body simulations: The performance of some integrators. *ACM Transactions on Mathematical Software*, 32(3):375–395,

September 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sala:2006:OOF

[1181] Marzio Sala. An object-oriented framework for the development of scalable parallel multilevel preconditioners. *ACM Transactions on Mathematical Software*, 32(3):396–416, September 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kirby:2006:CVF

[1182] Robert C. Kirby and Anders Logg. A compiler for variational forms. *ACM Transactions on Mathematical Software*, 32(3):417–444, September 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Meshar:2006:CSS

[1183] Omer Meshar, Dror Irony, and Sivan Toledo. An out-of-core sparse symmetric-indefinite factorization method. *ACM Transactions on Mathematical Software*, 32(3):445–471, September 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Alhargan:2006:ASC

[1184] Fayez A. Alhargan. Algorithm 855: Subroutines for the computation of Mathieu characteristic numbers and their general orders. *ACM Transactions on Mathematical Software*, 32(3):472–484, September 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gray:2006:AAA

[1185] Genetha A. Gray and Tamara G. Kolda. Algorithm 856: APPSPACK 4.0: asynchronous parallel pattern search for derivative-free optimization. *ACM Transactions on Mathematical Software*, 32(3):485–507, September 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

LEcuyer:2006:ISB

[1186] Pierre L'Ecuyer and Richard Simard. Inverting the symmetrical beta distribution. *ACM Transactions on Mathematical Software*, 32(4):509–520, December 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kressner:2006:BAR

[1187] Daniel Kressner. Block algorithms for reordering standard and generalized Schur forms. *ACM Transactions on Mathematical Software*, 32(4):

521–532, December 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dhillon:2006:DIM

[1188] Inderjit S. Dhillon, Beresford N. Parlett, and Christof Vömel. The design and implementation of the MRRR algorithm. *ACM Transactions on Mathematical Software*, 32(4):533–560, December 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Su:2006:APP

[1189] Hai-Jun Su, J. Michael McCarthy, Masha Sosonkina, and Layne T. Watson. Algorithm 857: POLSYS_GLP—a parallel general linear product homotopy code for solving polynomial systems of equations. *ACM Transactions on Mathematical Software*, 32(4):561–579, December 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

VanDeun:2006:ACI

[1190] Joris Van Deun and Ronald Cools. Algorithm 858: Computing infinite range integrals of an arbitrary product of Bessel functions. *ACM Transactions on Mathematical Software*, 32(4):580–596, December 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Amodio:2006:ABF

[1191] Pierluigi Amodio and Giuseppe Romanazzi. Algorithm 859: BABDCR—a Fortran 90 package for the solution of bordered ABD linear systems. *ACM Transactions on Mathematical Software*, 32(4):597–608, December 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Goncalves:2006:ASE

[1192] Eduardo N. Gonçalves, Reinaldo M. Palhares, Ricardo H. C. Takahashi, and Renato C. Mesquita. Algorithm 860: SimpleS—an extension of Freudenthal's simplex subdivision. *ACM Transactions on Mathematical Software*, 32(4):609–621, December 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Erricolo:2006:AFS

[1193] Danilo Erricolo. Algorithm 861: Fortran 90 subroutines for computing the expansion coefficients of Mathieu functions using Blanch's algorithm. *ACM Transactions on Mathematical Software*, 32(4):622–634, December 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bader:2006:AMT

[1194] Brett W. Bader and Tamara G. Kolda. Algorithm 862: MATLAB tensor classes for fast algorithm prototyping. *ACM Transactions on Mathematical Software*, 32(4):635–653, December 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Enright:2007:RRD

[1195] W. H. Enright and Wayne B. Hayes. Robust and reliable defect control for Runge–Kutta methods. *ACM Transactions on Mathematical Software*, 33(1):1:1–1:19, March 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Neher:2007:CSF

[1196] Markus Neher. Complex standard functions and their implementation in the CoStLy library. *ACM Transactions on Mathematical Software*, 33 (1):2:1–2:27, March 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gould:2007:FFF

[1197] Nicholas I. M. Gould and Philippe L. Toint. FILTRANE, a Fortran 95 filter-trust-region package for solving nonlinear least-squares and nonlinear feasibility problems. *ACM Transactions on Mathematical Software*, 33(1):3:1–3:23, March 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Berland:2007:EMP

[1198] Håvard Berland, Bård Skaflestad, and Will M. Wright. EXPINT — a MATLAB package for exponential integrators. *ACM Transactions on Mathematical Software*, 33(1):4:1–4:17, March 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Morandini:2007:UDS

[1199] Marco Morandini and Paolo Mantegazza. Using dense storage to solve small sparse linear systems. *ACM Transactions on Mathematical Software*, 33(1):5:1–5:12, March 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Demetriou:2007:ALF

[1200] Ioannis C. Demetriou. Algorithm 863: L2WPMA, a Fortran 77 package for weighted least-squares piecewise monotonic data approximation. *ACM Transactions on Mathematical Software*, 33(1):6:1–6:19, March

2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Martello:2007:AGR

[1201] Silvano Martello, David Pisinger, Daniele Vigo, Edgar Den Boef, and Jan Korst. Algorithm 864: General and robot-packable variants of the three-dimensional bin packing problem. *ACM Transactions on Mathematical Software*, 33(1):7:1–7:12, March 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gustavson:2007:AFS

[1202] Fred G. Gustavson, John K. Reid, and Jerzy Waśniewski. Algorithm 865: Fortran 95 subroutines for Cholesky factorization in block hybrid format. *ACM Transactions on Mathematical Software*, 33(1):8:1–8:5, March 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Zhang:2007:SSI

[1203] Hong Zhang, Barry Smith, Michael Sternberg, and Peter Zapol. SIPs: Shift-and-invert parallel spectral transformations. *ACM Transactions on Mathematical Software*, 33(2):1–19, June 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gould:2007:NES

[1204] Nicholas I. M. Gould, Jennifer A. Scott, and Yifan Hu. A numerical evaluation of sparse direct solvers for the solution of large sparse symmetric linear systems of equations. *ACM Transactions on Mathematical Software*, 33(2):1–32, June 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Benson:2007:UGT

[1205] Steven Benson, Manojkumar Krishnan, Lois Mcinnes, Jarek Nieplocha, and Jason Sarich. Using the GA and TAO toolkits for solving large-scale optimization problems on parallel computers. *ACM Transactions on Mathematical Software*, 33(2):1–21, June 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Meza:2007:OPO

[1206] J. C. Meza, R. A. Oliva, P. D. Hough, and P. J. Williams. OPT++: an object-oriented toolkit for nonlinear optimization. *ACM Transactions on Mathematical Software*, 33(2):1–27, June 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fousse:2007:MMP

[1207] Laurent Fousse, Guillaume Hanrot, Vincent Lefèvre, Patrick Pélissier, and Paul Zimmermann. MPFR: a multiple-precision binary floating-point library with correct rounding. *ACM Transactions on Mathematical Software*, 33(2):1–15, June 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Elman:2007:AIM

[1208] Howard C. Elman, Alison Ramage, and David J. Silvester. Algorithm 866: IFISS, a Matlab toolbox for modelling incompressible flow. *ACM Transactions on Mathematical Software*, 33(2):1–18, June 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Crouse:2007:RAG

[1209] David F. Crouse. Remark on Algorithm 515: Generation of a vector from the lexicographical index combinations. *ACM Transactions on Mathematical Software*, 33(2):1–2, June 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rioux:2007:ANF

[1210] J. Rioux, M. Halse, E. Aubanel, B. J. Balcom, J. Kaffanke, S. Romanzetti, T. Dierkes, and N. J. Shah. An accurate nonuniform Fourier transform for SPRITE magnetic resonance imaging data. *ACM Transactions on Mathematical Software*, 33(3):16:1–16:21, August 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kirby:2007:ECC

[1211] Robert C. Kirby and Anders Logg. Efficient compilation of a class of variational forms. *ACM Transactions on Mathematical Software*, 33(3): 17:1–17:20, August 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Scott:2007:ESD

[1212] Jennifer A. Scott and Yifan Hu. Experiences of sparse direct symmetric solvers. *ACM Transactions on Mathematical Software*, 33(3):18:1–18:28, August 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ball:2007:EGR

[1213] James S. Ball and Nelson H. F. Beebe. Efficient Gauss-related quadrature for two classes of logarithmic weight functions. *ACM Transactions on*

Mathematical Software, 33(3):19:1–19:21, August 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Beebe:2007:AQP

[1214] Nelson H. F. Beebe and James S. Ball. Algorithm 867: QUADLOG—a package of routines for generating Gauss-related quadrature for two classes of logarithmic weight functions. *ACM Transactions on Mathematical Software*, 33(3):20:1–20:30, August 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Espelid:2007:AGD

[1215] Terje O. Espelid. Algorithm 868: Globally doubly adaptive quadrature—reliable Matlab codes. *ACM Transactions on Mathematical Software*, 33(3):21:1–21:21, August 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

LEcuyer:2007:TCL

[1216] Pierre L'Ecuyer and Richard Simard. TestU01: A C library for empirical testing of random number generators. *ACM Transactions on Mathematical Software*, 33(4):22:1–22:40, August 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Pesch:2007:HSF

[1217] Lars Pesch, Alexander Bell, Henk Sollie, Vijaya R. Ambati, Onno Bokhove, and Jaap J. W. Van Der Vegt. hpGEM — a software framework for discontinuous Galerkin finite element methods. *ACM Transactions on Mathematical Software*, 33(4):23:1–23:25, August 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bangerth:2007:DIG

[1218] W. Bangerth, R. Hartmann, and G. Kanschat. deal.II — a general-purpose object-oriented finite element library. *ACM Transactions on Mathematical Software*, 33(4):24:1–24:27, August 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bai:2007:PSB

[1219] Yihua Bai and Robert C. Ward. A parallel symmetric block-tridiagonal divide-and-conquer algorithm. *ACM Transactions on Mathematical Software*, 33(4):25:1–25:23, August 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Shampine:2007:AND

[1220] L. F. Shampine. Accurate numerical derivatives in MATLAB. *ACM Transactions on Mathematical Software*, 33(4):26:1–26:17, August 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Zwolak:2007:AOW

[1221] Jason W. Zwolak, Paul T. Boggs, and Layne T. Watson. Algorithm 869: ODRPACK95: a weighted orthogonal distance regression code with bound constraints. *ACM Transactions on Mathematical Software*, 33(4): 27:1–27:12, August 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kodama:2007:RA

[1222] Masao Kodama. Remark on Algorithm 644. *ACM Transactions on Mathematical Software*, 33(4):28:1–28:3, August 2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [551, 694, 871].

Kressner:2008:BVH

[1223] Daniel Kressner. Block variants of Hammarling's method for solving Lyapunov equations. *ACM Transactions on Mathematical Software*, 34 (1):1:1–1:15, January 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rouson:2008:GFA

[1224] Damian W. I. Rouson, Robert Rosenberg, Xiaofeng Xu, Irene Moulitsas, and Stavros C. Kassinos. A grid-free abstraction of the Navier–Stokes equations in Fortran 95/2003. *ACM Transactions on Mathematical Software*, 34(1):2:1–2:33, January 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Walther:2008:CSH

[1225] Andrea Walther. Computing sparse Hessians with automatic differentiation. *ACM Transactions on Mathematical Software*, 34(1):3:1–3:15, January 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Linardakis:2008:ASG

[1226] Leonidas Linardakis and Nikos Chrisochoides. Algorithm 870: a static geometric Medial Axis domain decomposition in 2D Euclidean space. *ACM Transactions on Mathematical Software*, 34(1):4:1–4:28, January 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Schreppers:2008:ACC

[1227] Walter Schreppers and Annie Cuyt. Algorithm 871: a C/C++ precompiler for autogeneration of multiprecision programs. *ACM Transactions on Mathematical Software*, 34(1):5:1–5:20, January 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Chernikov:2008:APC

[1228] Andrey N. Chernikov and Nikos P. Chrisochoides. Algorithm 872: Parallel 2D constrained Delaunay mesh generation. *ACM Transactions on Mathematical Software*, 34(1):6:1–6:20, January 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sala:2008:PHP

[1229] Marzio Sala, W. F. Spotz, and M. A. Heroux. PyTrilinos: High-performance distributed-memory solvers for Python. *ACM Transactions on Mathematical Software*, 34(2):7:1–7:33, March 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Avron:2008:PUP

[1230] Haim Avron, Gil Shklarski, and Sivan Toledo. Parallel unsymmetric-pattern multifrontal sparse LU with column preordering. *ACM Transactions on Mathematical Software*, 34(2):8:1–8:31, March 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sala:2008:DIS

[1231] Marzio Sala, Kendall S. Stanley, and Michael A. Heroux. On the design of interfaces to sparse direct solvers. *ACM Transactions on Mathematical Software*, 34(2):9:1–9:22, March 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

VanZee:2008:SPF

[1232] Field G. Van Zee, Paolo Bientinesi, Tze Meng Low, and Robert A. van de Geijn. Scalable parallelization of FLAME code via the workqueuing model. *ACM Transactions on Mathematical Software*, 34(2):10:1–10:29, March 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rojas:2008:ALM

[1233] Marielba Rojas, Sandra A. Santos, and Danny C. Sorensen. Algorithm 873: LSTRS: MATLAB software for large-scale trust-region subproblems and regularization. *ACM Transactions on Mathematical Software*, 34(2):

11:1–11:28, March 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Goto:2008:AHP

[1234] Kazushige Goto and Robert A. van de Geijn. Anatomy of high-performance matrix multiplication. *ACM Transactions on Mathematical Software*, 34(3):12:1–12:25, May 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Piiroinen:2008:EDM

[1235] Petri T. Piiroinen and Yuri A. Kuznetsov. An event-driven method to simulate Filippov systems with accurate computing of sliding motions. *ACM Transactions on Mathematical Software*, 34(3):13:1–13:24, May 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Howell:2008:CEB

[1236] Gary W. Howell, James W. Demmel, Charles T. Fulton, Sven Hammarling, and Karen Marmol. Cache efficient bidiagonalization using BLAS 2.5 operators. *ACM Transactions on Mathematical Software*, 34(3):14:1–14:33, May 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Wang:2008:ABS

[1237] R. Wang, P. Keast, and P. H. Muir. Algorithm 874: BACOLR-spatial and temporal error control software for PDEs based on high-order adaptive collocation. *ACM Transactions on Mathematical Software*, 34(3): 15:1–15:28, May 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Benson:2008:ADS

[1238] Steven J. Benson and Yinyu Ye. Algorithm 875: DSDP5-software for semidefinite programming. *ACM Transactions on Mathematical Software*, 34(3):16:1–16:20, May 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Buttari:2008:UMP

[1239] Alfredo Buttari, Jack Dongarra, Jakub Kurzak, Piotr Luszczek, and Stanimir Tomov. Using mixed precision for sparse matrix computations to enhance the performance while achieving 64-bit accuracy. *ACM Transactions on Mathematical Software*, 34(4):17:1–17:22, July 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Utke:2008:OFM

[1240] Jean Utke, Uwe Naumann, Mike Fagan, Nathan Tallent, Michelle Strout, Patrick Heimbach, Chris Hill, and Carl Wunsch. OpenAD/F: a modular open-source tool for automatic differentiation of Fortran codes. *ACM Transactions on Mathematical Software*, 34(4):18:1–18:36, July 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Goldani-Moghaddam:2008:ECU

[1241] Hassan Goldani-Moghaddam and Wayne H. Enright. Efficient contouring on unstructured meshes for partial differential equations. *ACM Transactions on Mathematical Software*, 34(4):19:1–19:25, July 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gao:2008:IEA

[1242] Weiguo Gao, Xiaoye S. Li, Chao Yang, and Zhaojun Bai. An implementation and evaluation of the AMLS method for sparse eigenvalue problems. *ACM Transactions on Mathematical Software*, 34(4):20:1–20:28, July 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Atkinson:2008:ASF

[1243] Kendall E. Atkinson and Lawrence F. Shampine. Algorithm 876: Solving Fredholm integral equations of the second kind in Matlab. *ACM Transactions on Mathematical Software*, 34(4):21:1–21:20, July 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kodama:2008:ASP

[1244] Masao Kodama. Algorithm 877: a subroutine package for cylindrical functions of complex order and nonnegative argument. *ACM Transactions on Mathematical Software*, 34(4):22:1–22:21, July 2008. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bartlett:2009:HDS

[1245] Roscoe A. Bartlett, Bart G. Van Bloemen Waanders, and Martin Berggren. Hybrid differentiation strategies for simulation and analysis of applications in C++. *ACM Transactions on Mathematical Software*, 35(1):1:1–1:29, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Naumann:2009:OVE

[1246] Uwe Naumann and Yuxiao Hu. Optimal vertex elimination in single-expression-use graphs. *ACM Transactions on Mathematical Software*, 35

(1):2:1–2:20, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bientinesi:2009:FAR

[1247] Paolo Bientinesi, Brian Gunter, and Robert A. van de Geijn. Families of algorithms related to the inversion of a Symmetric Positive Definite matrix. *ACM Transactions on Mathematical Software*, 35(1):3:1–3:22, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Goto:2009:HPI

[1248] Kazushige Goto and Robert Van De Geijn. High-performance implementation of the level-3 BLAS. *ACM Transactions on Mathematical Software*, 35(1):4:1–4:14, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Jonasson:2009:EEV

[1249] Kristjan Jonasson and Sebastian E. Ferrando. Evaluating exact VARMA likelihood and its gradient when data are incomplete. *ACM Transactions on Mathematical Software*, 35(1):5:1–5:16, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Jonasson:2009:AEV

[1250] Kristjan Jonasson. Algorithm 878: Exact VARMA likelihood and its gradient for complete and incomplete data with Matlab. *ACM Transactions on Mathematical Software*, 35(1):6:1–6:11, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Lee:2009:AET

[1251] Che-Rung Lee and G. W. Stewart. Algorithm 879: EIGENTEST — a test matrix generator for large-scale eigenproblems. *ACM Transactions on Mathematical Software*, 35(1):7:1–7:11, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Marques:2009:ATI

[1252] Osni A. Marques, Christof Vömel, James W. Demmel, and Beresford N. Parlett. Algorithm 880: a testing infrastructure for symmetric tridiagonal eigensolvers. *ACM Transactions on Mathematical Software*, 35 (1):8:1–8:13, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Huyer:2009:SSN

[1253] Waltraud Huyer and Arnold Neumaier. SNOBFIT – Stable Noisy Optimization by Branch and Fit. *ACM Transactions on Mathematical Software*, 35(2):9:1–9:25, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kirby:2009:BDS

[1254] Robert C. Kirby and Anders Logg. Benchmarking domain-specific compiler optimizations for variational forms. *ACM Transactions on Mathematical Software*, 35(2):10:1–10:18, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Quintana-Orti:2009:ULF

[1255] Enrique S. Quintana-Ortí and Robert A. Van De Geijn. Updating an LU factorization with pivoting. *ACM Transactions on Mathematical Software*, 35(2):11:1–11:16, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Drmac:2009:FRR

[1256] Zlatko Drmač and Zvonimir Bujanović. On the failure of rank-revealing QR factorization software – a case study. *ACM Transactions on Mathematical Software*, 35(2):12:1–12:28, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fraysse:2009:ASF

[1257] Valérie Frayssé, Luc Giraud, and Serge Gratton. Algorithm 881: a set of flexible GMRES routines for real and complex arithmetics on high-performance computers. *ACM Transactions on Mathematical Software*, 35(2):13:1–13:12, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

VanDeun:2009:ANB

[1258] Joris Van Deun, Karl Deckers, Adhemar Bultheel, and J. A. C. Weideman. Algorithm 882: Near-best fixed pole rational interpolation with applications in spectral methods. *ACM Transactions on Mathematical Software*, 35(2):14:1–14:21, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Waki:2009:ASS

[1259] Hayato Waki, Sunyoung Kim, Masakazu Kojima, Masakazu Muramatsu, and Hiroshi Sugimoto. Algorithm 883: SparsePOP — a sparse semidefinite programming relaxation of polynomial optimization problems. *ACM*

Transactions on Mathematical Software, 35(2):15:1–15:13, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dominguez:2009:ASM

[1260] Víctor Domínguez and Francisco-Javier Sayas. Algorithm 884: a simple Matlab implementation of the Argyris element. *ACM Transactions on Mathematical Software*, 35(2):16:1–16:11, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Jansson:2009:ADS

[1261] Johan Jansson and Anders Logg. Algorithms and data structures for multi-adaptive time-stepping. *ACM Transactions on Mathematical Software*, 35(3):17:1–17:24, October 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gordon:2009:CRR

[1262] Dan Gordon and Rachel Gordon. CGMN revisited: Robust and efficient solution of stiff linear systems derived from elliptic partial differential equations. *ACM Transactions on Mathematical Software*, 35(3):18:1–18:27, October 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dumas:2009:DLA

[1263] Jean-Guillaume Dumas, Pascal Giorgi, and Clément Pernet. Dense linear algebra over word-size prime fields: the FFLAS and FFPACK packages. *ACM Transactions on Mathematical Software*, 35(3):19:1–19:35, October 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Linhart:2009:ACL

[1264] Jean Marie Linhart. Algorithm 885: Computing the logarithm of the normal distribution. *ACM Transactions on Mathematical Software*, 35(3):20:1–20:10, October 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Caliari:2009:APL

[1265] Marco Caliari, Stefanode Marchi, and Marco Vianello. Algorithm 886: Padua2D — Lagrange interpolation at Padua points on bivariate domains. *ACM Transactions on Mathematical Software*, 35(3):21:1–21:11, October 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Chen:2009:ACS

[1266] Yanqing Chen, Timothy A. Davis, William W. Hager, and Sivasankaran Rajamanickam. Algorithm 887: CHOLMOD, supernodal sparse Cholesky factorization and update/downdate. *ACM Transactions on Mathematical Software*, 35(3):22:1–22:14, October 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Drake:2009:ASH

[1267] John B. Drake, Pat Worley, and Eduardo D'Azevedo. Algorithm 888: Spherical harmonic transform algorithms. *ACM Transactions on Mathematical Software*, 35(3):23:1–23:23, October 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cazals:2009:AJG

[1268] Frédéric Cazals and Marc Pouget. Algorithm 889: Jet_fitting_3: — a generic C++ package for estimating the differential properties on sampled surfaces via polynomial fitting. *ACM Transactions on Mathematical Software*, 35(3):24:1–24:20, October 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Eijkhout:2009:SSN

[1269] Victor Eijkhout and Erika Fuentes. A standard and software for numerical metadata. *ACM Transactions on Mathematical Software*, 35(4): 25:1–25:20, February 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Taylor:2009:CCT

[1270] Alan Taylor and Desmond J. Higham. CONTEST: a controllable test matrix toolbox for MATLAB. *ACM Transactions on Mathematical Software*, 35(4):26:1–26:17, February 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Davis:2009:DSS

[1271] Timothy A. Davis and William W. Hager. Dynamic supernodes in sparse Cholesky update/downdate and triangular solves. *ACM Transactions on Mathematical Software*, 35(4):27:1–27:23, February 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Demmel:2009:EPI

[1272] James Demmel, Yozo Hida, E. Jason Riedy, and Xiaoye S. Li. Extra-precise iterative refinement for overdetermined least squares problems.

ACM Transactions on Mathematical Software, 35(4):28:1–28:32, February 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

vandenBerg:2009:AST

[1273] Ewout van den Berg, Michael P. Friedlander, Gilles Hennenfent, Felix J. Herrmann, Rayan Saab, and Özgür Yilmaz. Algorithm 890: Sparco: a testing framework for sparse reconstruction. *ACM Transactions on Mathematical Software*, 35(4):29:1–29:16, February 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Mayer:2009:NEP

[1274] Jan Mayer. A numerical evaluation of preprocessing and ILU-type preconditioners for the solution of unsymmetric sparse linear systems using iterative methods. *ACM Transactions on Mathematical Software*, 36 (1):1:1–1:26, March 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Lourakis:2009:SSP

[1275] Manolis I. A. Lourakis and Antonis A. Argyros. SBA: a software package for generic sparse bundle adjustment. *ACM Transactions on Mathematical Software*, 36(1):2:1–2:30, March 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

DAlberto:2009:AWM

[1276] Paolo D'Alberto and Alexandru Nicolau. Adaptive Winograd's matrix multiplications. *ACM Transactions on Mathematical Software*, 36(1): 3:1–3:23, March 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bangerth:2009:DSR

[1277] W. Bangerth and O. Kayser-Herold. Data structures and requirements for *hp* finite element software. *ACM Transactions on Mathematical Software*, 36(1):4:1–4:31, March 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Reid:2009:AFV

[1278] John K. Reid and Jennifer A. Scott. Algorithm 891: a Fortran virtual memory system. *ACM Transactions on Mathematical Software*, 36(1): 5:1–5:12, March 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Jonasson:2009:ADF

[1279] Kristjan Jonasson. Algorithm 892: DISPMODULE, a Fortran 95 module for pretty-printing matrices. *ACM Transactions on Mathematical Software*, 36(1):6:1–6:7, March 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Renka:2009:ATT

[1280] Robert J. Renka. Algorithm 893: TSPACK: tension spline package for curve design and data fitting. *ACM Transactions on Mathematical Software*, 36(1):7:1–7:8, March 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Padula:2009:SFA

[1281] Anthony D. Padula, Shannon D. Scott, and William W. Symes. A software framework for abstract expression of coordinate-free linear algebra and optimization algorithms. *ACM Transactions on Mathematical Software*, 36(2):8:1–8:36, March 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Reid:2009:CSC

[1282] John K. Reid and Jennifer A. Scott. An out-of-core sparse Cholesky solver. *ACM Transactions on Mathematical Software*, 36(2):9:1–9:33, March 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Yang:2009:KMT

[1283] Chao Yang, Juan C. Meza, Byounghak Lee, and Lin-Wang Wang. KSSOLV — a MATLAB toolbox for solving the Kohn–Sham equations. *ACM Transactions on Mathematical Software*, 36(2):10:1–10:35, March 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gustavson:2009:DSC

[1284] Fred G. Gustavson, Lars Karlsson, and Bo Kågström. Distributed SBP Cholesky factorization algorithms with near-optimal scheduling. *ACM Transactions on Mathematical Software*, 36(2):11:1–11:25, March 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Koikari:2009:ABS

[1285] Souji Koikari. Algorithm 894: On a block Schur–Parlett algorithm for φ-functions based on the sep-inverse estimate. *ACM Transactions on*

Mathematical Software, 36(2):12:1–12:20, March 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Baker:2009:ASN

[1286] C. G. Baker, U. L. Hetmaniuk, R. B. Lehoucq, and H. K. Thornquist. Anasazi software for the numerical solution of large-scale eigenvalue problems. *ACM Transactions on Mathematical Software*, 36(3):13:1–13:23, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Quintana-Orti:2009:PMA

[1287] Gregorio Quintana-Ortí, Enrique S. Quintana-Ortí, Robert A. Van De Geijn, Field G. Van Zee, and Ernie Chan. Programming matrix algorithms-by-blocks for thread-level parallelism. *ACM Transactions on Mathematical Software*, 36(3):14:1–14:26, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Backeljauw:2009:ACF

[1288] Franky Backeljauw and Annie Cuyt. Algorithm 895: a continued fractions package for special functions. *ACM Transactions on Mathematical Software*, 36(3):15:1–15:20, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Luksan:2009:ALA

[1289] Ladislav Lukšan, Ctirad Matonoha, and Jan Vlček. Algorithm 896: LSA: Algorithms for large-scale optimization. *ACM Transactions on Mathematical Software*, 36(3):16:1–16:29, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

He:2009:AVS

[1290] Jian He, Layne T. Watson, and Masha Sosonkina. Algorithm 897: VTDIRECT95: Serial and parallel codes for the global optimization algorithm direct. *ACM Transactions on Mathematical Software*, 36(3):17:1–17:24, July 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remark [1453].

Ramachandran:2009:OOD

[1291] Prabhu Ramachandran and M. Ramakrishna. An object-oriented design for two-dimensional vortex particle methods. *ACM Transactions on Mathematical Software*, 36(4):18:1–18:28, August 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Keiner:2009:UNS

[1292] Jens Keiner, Stefan Kunis, and Daniel Potts. Using NFFT 3 — a software library for various nonequispaced Fast Fourier Transforms. *ACM Transactions on Mathematical Software*, 36(4):19:1–19:30, August 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Martins:2009:POO

[1293] Joaquim R. R. A. Martins, Christopher Marriage, and Nathan Tedford. pyMDO: An object-oriented framework for multidisciplinary design optimization. *ACM Transactions on Mathematical Software*, 36(4):20:1–20:25, August 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Garcia-Alonso:2009:ANI

[1294] Fernando García-Alonso, José A. Reyes, José M. Ferrándiz, and Jesús Vigo-Aguiar. Accurate numerical integration of perturbed oscillatory systems in two frequencies. *ACM Transactions on Mathematical Software*, 36(4):21:1–21:34, August 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Meerbergen:2009:CBE

[1295] Karl Meerbergen, Kresimir Fresl, and Toon Knapen. C++ bindings to external software libraries with examples from BLAS, LAPACK, UMFPACK, and MUMPS. *ACM Transactions on Mathematical Software*, 36(4):22:1–22:23, August 2009. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Vomel:2010:SMA

[1296] Christof Vömel. ScaLAPACK's MRRR algorithm. *ACM Transactions on Mathematical Software*, 37(1):1:1–1:35, January 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Daumas:2010:CBE

[1297] Marc Daumas and Guillaume Melquiond. Certification of bounds on expressions involving rounded operators. *ACM Transactions on Mathematical Software*, 37(1):2:1–2:20, January 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rouson:2010:DPM

[1298] Damian W. I. Rouson, Helgi Adalsteinsson, and Jim Xia. Design patterns for multiphysics modeling in Fortran 2003 and C++. *ACM Transactions*

on Mathematical Software, 37(1):3:1–3:30, January 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kornerup:2010:CCR

[1299] Peter Kornerup, Christoph Lauter, Vincent Lefèvre, Nicolas Louvet, and Jean-Michel Muller. Computing correctly rounded integer powers in floating-point arithmetic. *ACM Transactions on Mathematical Software*, 37(1):4:1–4:23, January 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kirby:2010:SFE

[1300] Robert C. Kirby. Singularity-free evaluation of collapsed-coordinate orthogonal polynomials. *ACM Transactions on Mathematical Software*, 37 (1):5:1–5:16, January 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Alnaes:2010:ESC

[1301] Martin Sandve Alnæs and Kent-André Mardal. On the efficiency of symbolic computations combined with code generation for finite element methods. *ACM Transactions on Mathematical Software*, 37(1):6:1–6:26, January 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Savage:2010:COA

[1302] John E. Savage and Mohammad Zubair. Cache-optimal algorithms for option pricing. *ACM Transactions on Mathematical Software*, 37(1): 7:1–7:30, January 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Olgaard:2010:OQR

[1303] Kristian B. Ølgaard and Garth N. Wells. Optimizations for quadrature representations of finite element tensors through automated code generation. *ACM Transactions on Mathematical Software*, 37(1):8:1–8:23, January 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Albrecht:2010:AEM

[1304] Martin Albrecht, Gregory Bard, and William Hart. Algorithm 898: Efficient multiplication of dense matrices over GF(2). *ACM Transactions on Mathematical Software*, 37(1):9:1–9:14, January 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sarra:2010:AMP

[1305] Scott A. Sarra. Algorithm 899: The Matlab postprocessing toolkit. *ACM Transactions on Mathematical Software*, 37(1):10:1–10:15, January 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Torres:2010:ADT

[1306] Germán A. Torres. Algorithm 900: a discrete time Kalman filter package for large scale problems. *ACM Transactions on Mathematical Software*, 37(1):11:1–11:16, January 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Vlachos:2010:ALP

[1307] D. S. Vlachos and T. E. Simos. Algorithm 901: LMEF — a program for the construction of linear multistep methods with exponential fitting for the numerical solution of ordinary differential equations. *ACM Transactions on Mathematical Software*, 37(1):12:1–12:10, January 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rasch:2010:EIE

[1308] Arno Rasch and H. Martin Bücker. EFCOSS: an interactive environment facilitating optimal experimental design. *ACM Transactions on Mathematical Software*, 37(2):13:1–13:37, April 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Chen:2010:ECF

[1309] Wei Chen and Gabor T. Herman. Efficient controls for finitely convergent sequential algorithms. *ACM Transactions on Mathematical Software*, 37 (2):14:1–14:23, April 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Krogh:2010:SSO

[1310] Fred T. Krogh. Stepsize selection for ordinary differential equations. *ACM Transactions on Mathematical Software*, 37(2):15:1–15:21, April 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rutten:2010:EFP

[1311] Luc Rutten and Marko Van Eekelen. Efficient and formally proven reduction of large integers by small moduli. *ACM Transactions on Mathematical Software*, 37(2):16:1–16:21, April 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hogg:2010:FRM

[1312] J. D. Hogg and J. A. Scott. A fast and robust mixed-precision solver for the solution of sparse symmetric linear systems. *ACM Transactions on Mathematical Software*, 37(2):17:1–17:24, April 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gustavson:2010:RFP

[1313] Fred G. Gustavson, Jerzy Waśniewski, Jack J. Dongarra, and Julien Langou. Rectangular full packed format for Cholesky's algorithm: factorization, solution, and inversion. *ACM Transactions on Mathematical Software*, 37(2):18:1–18:21, April 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Scott:2010:SPC

[1314] Jennifer A. Scott. Scaling and pivoting in an out-of-core sparse direct solver. *ACM Transactions on Mathematical Software*, 37(2):19:1–19:23, April 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Logg:2010:DAF

[1315] Anders Logg and Garth N. Wells. DOLFIN: Automated finite element computing. *ACM Transactions on Mathematical Software*, 37(2):20:1–20:28, April 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Stathopoulos:2010:PPI

[1316] Andreas Stathopoulos and James R. McCombs. PRIMME: preconditioned iterative multimethod eigensolver — methods and software description. *ACM Transactions on Mathematical Software*, 37(2):21:1–21:30, April 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rao:2010:AGM

[1317] Anil V. Rao, David A. Benson, Christopher Darby, Michael A. Patterson, Camila Francolin, Ilyssa Sanders, and Geoffrey T. Huntington. Algorithm 902: GPOPS, a MATLAB software [sic] for solving multiple-phase optimal control problems using the Gauss pseudospectral method. *ACM Transactions on Mathematical Software*, 37(2):22:1–22:39, April 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See corrigendum [1351].

Celledoni:2010:AFF

[1318] Elena Celledoni and Antonella Zanna. Algorithm 903: FRB — Fortran routines for the exact computation of free rigid body motions. *ACM Transactions on Mathematical Software*, 37(2):23:1–23:24, April 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Haggard:2010:CTP

[1319] Gary Haggard, David J. Pearce, and Gordon Royle. Computing Tutte polynomials. *ACM Transactions on Mathematical Software*, 37(3):24:1–24:17, September 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gonzalez-Pinto:2010:CBT

[1320] Severiano González-Pinto and Rogel Rojas-Bello. A code based on the two-stage Runge–Kutta Gauss formula for second-order initial value problems. *ACM Transactions on Mathematical Software*, 37(3):25:1–25:30, September 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gonnet:2010:IRA

[1321] Pedro Gonnet. Increasing the reliability of adaptive quadrature using explicit interpolants. *ACM Transactions on Mathematical Software*, 37 (3):26:1–26:32, September 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Yamazaki:2010:APS

[1322] Ichitaro Yamazaki, Zhaojun Bai, Horst Simon, Lin-Wang Wang, and Kesheng Wu. Adaptive projection subspace dimension for the thick-restart Lanczos method. *ACM Transactions on Mathematical Software*, 37(3):27:1–27:18, September 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Anand:2010:UTE

[1323] Christopher Kumar Anand and Anuroop Sharma. Unified tables for exponential and logarithm families. *ACM Transactions on Mathematical Software*, 37(3):28:1–28:23, September 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ollivier-Gooch:2010:IDS

[1324] Carl Ollivier-Gooch, Lori Diachin, Mark S. Shephard, Timothy Tautges, Jason Kraftcheck, Vitus Leung, Xiaojuan Luo, and Mark Miller. An interoperable, data-structure-neutral component for mesh query and

manipulation. *ACM Transactions on Mathematical Software*, 37(3):29:1–29:28, September 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

DAmbra:2010:MPP

[1325] Pasqua D'Ambra, Daniela Di Serafino, and Salvatore Filippone. MLD2P4: a package of parallel algebraic multilevel domain decomposition preconditioners in Fortran 95. *ACM Transactions on Mathematical Software*, 37(3):30:1–30:23, September 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Wendykier:2010:PCH

[1326] Piotr Wendykier and James G. Nagy. Parallel Colt: a high-performance Java library for scientific computing and image processing. *ACM Transactions on Mathematical Software*, 37(3):31:1–31:22, September 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Granat:2010:PSS

[1327] Robert Granat and Bo Kagstrom. Parallel solvers for Sylvester-type matrix equations with applications in condition estimation, Part I: Theory and algorithms. *ACM Transactions on Mathematical Software*, 37 (3):32:1–32:32, September 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Granat:2010:ASL

[1328] Robert Granat and Bo Kågström. Algorithm 904: The SCASY Library – parallel solvers for Sylvester-type matrix equations with applications in condition estimation, Part II. *ACM Transactions on Mathematical Software*, 37(3):33:1–33:4, September 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Thacker:2010:AMS

[1329] William I. Thacker, Jingwei Zhang, Laynet Watson, Jeffrey B. Birch, Manjula A. Iyer, and Michael W. Berry. Algorithm 905: Modified Shepard algorithm for interpolation of scattered multivariate data. *ACM Transactions on Mathematical Software*, 37(3):34:1–34:20, September 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Li:2010:AET

[1330] Tiancheng Li and Ian Robinson. Algorithm 906: *elrint3d* — a three-dimensional nonadaptive automatic cubature routine using a sequence of

embedded lattice rules. *ACM Transactions on Mathematical Software*, 37(3):35:1–35:17, September 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Davis:2010:AKD

[1331] Timothy A. Davis and Ekanathan Palamadai Natarajan. Algorithm 907: KLU, a direct sparse solver for circuit simulation problems. *ACM Transactions on Mathematical Software*, 37(3):36:1–36:17, September 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Zhu:2010:AOE

[1332] Yong-Kang Zhu and Wayne B. Hayes. Algorithm 908: Online exact summation of floating-point streams. *ACM Transactions on Mathematical Software*, 37(3):37:1–37:13, September 2010. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rozloznik:2011:PTT

[1333] Miroslav Rozložník, Gil Shklarski, and Sivan Toledo. Partitioned triangular tridiagonalization. *ACM Transactions on Mathematical Software*, 37(4):38:1–38:16, February 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cook:2011:SVS

[1334] William Cook and Daniel E. Steffy. Solving very sparse rational systems of equations. *ACM Transactions on Mathematical Software*, 37(4):39:1–39:21, February 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Lin:2011:SAS

[1335] Lin Lin, Chao Yang, Juan C. Meza, Jianfeng Lu, Lexing Ying, and Weinan E. SelInv—an algorithm for selected inversion of a sparse symmetric matrix. *ACM Transactions on Mathematical Software*, 37(4): 40:1–40:19, February 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Taylor:2011:CAS

[1336] Ken Taylor, Scott Rickard, and Konstantinos Drakakis. Costas arrays: Survey, standardization, and MATLAB toolbox. *ACM Transactions on Mathematical Software*, 37(4):41:1–41:31, February 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Silvester:2011:OIS

[1337] David J. Silvester and Valeria Simoncini. An optimal iterative solver for symmetric indefinite systems stemming from mixed approximation. *ACM Transactions on Mathematical Software*, 37(4):42:1–42:22, February 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Li:2011:SAI

[1338] Xiaoye S. Li and Meiyue Shao. A supernodal approach to incomplete LU factorization with partial pivoting. *ACM Transactions on Mathematical Software*, 37(4):43:1–43:20, February 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

LeDigabel:2011:ANN

[1339] Sébastien Le Digabel. Algorithm 909: NOMAD: Nonlinear optimization with the MADS algorithm. *ACM Transactions on Mathematical Software*, 37(4):44:1–44:15, February 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kormanyos:2011:APC

[1340] Christopher Kormanyos. Algorithm 910: a portable C++ multiple-precision system for special-function calculations. *ACM Transactions on Mathematical Software*, 37(4):45:1–45:27, February 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Smith:2011:AMP

[1341] David M. Smith. Algorithm 911: Multiple-precision exponential integral and related functions. *ACM Transactions on Mathematical Software*, 37(4):46:1–46:16, February 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kodama:2011:AMC

[1342] Masao Kodama. Algorithm 912: a module for calculating cylindrical functions of complex order and complex argument. *ACM Transactions on Mathematical Software*, 37(4):47:1–47:25, February 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Davis:2011:UFS

[1343] Timothy A. Davis and Yifan Hu. The University of Florida sparse matrix collection. *ACM Transactions on Mathematical Software*, 38(1):1:1–1:25, November 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dalberto:2011:EPM

[1344] Paolo D'alberto, Marco Bodrato, and Alexandru Nicolau. Exploiting parallelism in matrix-computation kernels for symmetric multiprocessor systems: Matrix-multiplication and matrix-addition algorithm optimizations by software pipelining and threads allocation. *ACM Transactions on Mathematical Software*, 38(1):2:1–2:30, November 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cazals:2011:CVU

[1345] Frederic Cazals, Harshad Kanhere, and Sébastien Loriot. Computing the volume of a union of balls: a certified algorithm. *ACM Transactions on Mathematical Software*, 38(1):3:1–3:20, November 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

VanDeGeijn:2011:HPD

[1346] Robert A. Van De Geijn and Field G. Van Zee. High-performance up-and-downdating via Householder-like transformations. *ACM Transactions on Mathematical Software*, 38(1):4:1–4:17, November 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

VanGijzen:2011:AEI

[1347] Martin B. Van Gijzen and Peter Sonneveld. Algorithm 913: an elegant IDR(s) variant that efficiently exploits biorthogonality properties. *ACM Transactions on Mathematical Software*, 38(1):5:1–5:19, November 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gil:2011:APC

[1348] Amparo Gil, Javier Segura, and Nico M. Temme. Algorithm 914: Parabolic cylinder function $W(a, x)$ and its derivative. *ACM Transactions on Mathematical Software*, 38(1):6:1–6:5, November 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Morales:2011:RAB

[1349] José Luis Morales and Jorge Nocedal. Remark on "Algorithm 778: L-BFGS-B: Fortran subroutines for large-scale bound constrained optimization". *ACM Transactions on Mathematical Software*, 38(1):7:1–7:4, November 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [940].

Davis:2011:ASM

[1350] Timothy A. Davis. Algorithm 915, SuiteSparseQR: Multifrontal multithreaded rank-revealing sparse QR factorization. *ACM Transactions on*

Mathematical Software, 38(1):8:1–8:22, November 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rao:2011:CAG

[1351] Anil V. Rao, David A. Benson, Christopher Darby, Michael A. Patterson, Camila Francolin, Ilyssa Sanders, and Geoffrey T. Huntington. Corrigendum: Algorithm 902: GPOPS, a MATLAB software for solving multiple-phase optimal control problems using the Gauss pseudospectral method. *ACM Transactions on Mathematical Software*, 38(1):9:1–9:2, November 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [1317].

Reid:2011:PFD

[1352] John K. Reid and Jennifer A. Scott. Partial factorization of a dense symmetric indefinite matrix. *ACM Transactions on Mathematical Software*, 38(2):10:1–10:19, December 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Colman:2011:VCC

[1353] Michel Colman, Annie Cuyt, and Joris Van Deun. Validated computation of certain hypergeometric functions. *ACM Transactions on Mathematical Software*, 38(2):11:1–11:20, December 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Beattie:2011:NSH

[1354] Christopher Beattie, Zlatko Drmavč, and Serkan Gugercin. A note on shifted Hessenberg systems and frequency response computation. *ACM Transactions on Mathematical Software*, 38(2):12:1–12:16, December 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Duff:2011:DIA

[1355] Iain S. Duff, Kamer Kaya, and Bora Uçcar. Design, implementation, and analysis of maximum transversal algorithms. *ACM Transactions on Mathematical Software*, 38(2):13:1–13:31, December 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bangerth:2011:ADS

[1356] Wolfgang Bangerth, Carsten Burstedde, Timo Heister, and Martin Kronbichler. Algorithms and data structures for massively parallel generic adaptive finite element codes. *ACM Transactions on Mathematical Software*, 38(2):14:1–14:28, December 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Zaghloul:2011:ACF

[1357] Mofreh R. Zaghloul and Ahmed N. Ali. Algorithm 916: Computing the Faddeyeva and Voigt functions. *ACM Transactions on Mathematical Software*, 38(2):15:1–15:22, December 2011. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remark [1487].

Lantoine:2012:UMV

[1358] Gregory Lantoine, Ryan P. Russell, and Thierry Dargent. Using multicomplex variables for automatic computation of high-order derivatives. *ACM Transactions on Mathematical Software*, 38(3):16:1–16:21, April 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gustavson:2012:PCE

[1359] Fred Gustavson, Lars Karlsson, and Bo Kågström. Parallel and cache-efficient in-place matrix storage format conversion. *ACM Transactions on Mathematical Software*, 38(3):17:1–17:32, April 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

DeWitte:2012:IIC

[1360] Virginie De Witte, Willy Govaerts, Yuri A. Kuznetsov, and Mark Friedman. Interactive initialization and continuation of homoclinic and heteroclinic orbits in MATLAB. *ACM Transactions on Mathematical Software*, 38(3):18:1–18:34, April 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

More:2012:EDN

[1361] Jorge J. Moré and Stefan M. Wild. Estimating derivatives of noisy simulations. *ACM Transactions on Mathematical Software*, 38(3):19:1–19:21, April 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Lawrence:2012:ACD

[1362] Piers W. Lawrence, Robert M. Corless, and David J. Jeffrey. Algorithm 917: Complex double-precision evaluation of the Wright ω function. *ACM Transactions on Mathematical Software*, 38(3):20:1–20:17, April 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sadkane:2012:ASM

[1363] Miloud Sadkane and Ahmed Touhami. Algorithm 918: `specdicho`: a MATLAB program for the spectral dichotomy of regular matrix pencils.

ACM Transactions on Mathematical Software, 38(3):21:1–21:13, April 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Niesen:2012:AKS

[1364] Jitse Niesen and Will M. Wright. Algorithm 919: a Krylov subspace algorithm for evaluating the φ-functions appearing in exponential integrators. *ACM Transactions on Mathematical Software*, 38(3):22:1–22:19, April 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Filippone:2012:OOT

[1365] Salvatore Filippone and Alfredo Buttari. Object-oriented techniques for sparse matrix computations in Fortran 2003. *ACM Transactions on Mathematical Software*, 38(4):23:1–23:20, August 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

George:2012:EAP

[1366] Thomas George, Anshul Gupta, and Vivek Sarin. An empirical analysis of the performance of preconditioners for SPD systems. *ACM Transactions on Mathematical Software*, 38(4):24:1–24:30, August 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Quintana-Orti:2012:RSP

[1367] Gregorio Quintana-Ortí, Francisco D. Igual, Mercedes Marqués, Enrique S. Quintana-Ortí, and Robert A. van de Geijn. A runtime system for programming out-of-core matrix algorithms-by-tiles on multithreaded architectures. *ACM Transactions on Mathematical Software*, 38(4):25:1–25:25, August 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Birkisson:2012:AFD

[1368] Asgeir Birkisson and Tobin A. Driscoll. Automatic Fréchet differentiation for the numerical solution of boundary-value problems. *ACM Transactions on Mathematical Software*, 38(4):26:1–26:29, August 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kim:2012:ASS

[1369] Sunyoung Kim, Masakazu Kojima, Hayato Waki, and Makato Yamashita. Algorithm 920: SFSDP: a sparse version of full semidefinite programming relaxation for sensor network localization problems. *ACM Transactions on Mathematical Software*, 38(4):27:1–27:19, August 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hauenstein:2012:AAC

[1370] Jonathan D. Hauenstein and Frank Sottile. Algorithm 921: alphaCertified: Certifying solutions to polynomial systems. *ACM Transactions on Mathematical Software*, 38(4):28:1–28:20, August 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ji:2012:AMF

[1371] Xia Ji, Jiguang Sun, and Tiara Turner. Algorithm 922: a mixed finite element method for Helmholtz transmission eigenvalues. *ACM Transactions on Mathematical Software*, 38(4):29:1–29:8, August 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Wimmer:2012:AEN

[1372] M. Wimmer. Algorithm 923: Efficient numerical computation of the Pfaffian for dense and banded skew-symmetric matrices. *ACM Transactions on Mathematical Software*, 38(4):30:1–30:17, August 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Notz:2012:GBS

[1373] Patrick K. Notz, Roger P. Pawlowski, and James C. Sutherland. Graph-based software design for managing complexity and enabling concurrency in multiphysics PDE software. *ACM Transactions on Mathematical Software*, 39(1):1:1–1:21, November 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

VanZee:2012:FAR

[1374] Field G. Van Zee, Robert A. van de Geijn, Gregorio Quintana-Ortí, and G. Joseph Elizondo. Families of algorithms for reducing a matrix to condensed form. *ACM Transactions on Mathematical Software*, 39(1): 2:1–2:32, November 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bell:2012:PSA

[1375] Nathan Bell and Anil N. Hirani. PyDEC: Software and algorithms for discretization of exterior calculus. *ACM Transactions on Mathematical Software*, 39(1):3:1–3:41, November 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Burton:2012:CCN

[1376] Benjamin A. Burton and Melih Ozlen. Computing the crosscap number of a knot using integer programming and normal surfaces. *ACM*

Transactions on Mathematical Software, 39(1):4:1–4:18, November 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Abad:2012:ATT

[1377] Alberto Abad, Roberto Barrio, Fernando Blesa, and Marcos Rodríguez. Algorithm 924: TIDES, a Taylor Series Integrator for Differential EquationS. *ACM Transactions on Mathematical Software*, 39(1):5:1–5:28, November 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Yamashita:2012:APS

[1378] Makoto Yamashita, Katsuki Fujisawa, Mituhiro Fukuda, Kazuhide Nakata, and Maho Nakata. Algorithm 925: Parallel solver for semidefinite programming problem having sparse Schur complement matrix. *ACM Transactions on Mathematical Software*, 39(1):6:1–6:22, November 2012. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Betcke:2013:NCN

[1379] Timo Betcke, Nicholas J. Higham, Volker Mehrmann, Christian Schröder, and Françoise Tisseur. NLEVP: a collection of nonlinear eigenvalue problems. *ACM Transactions on Mathematical Software*, 39(2): 7:1–7:28, February 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Baboulin:2013:ALS

[1380] Marc Baboulin, Jack Dongarra, Julien Herrmann, and Stanimire Tomov. Accelerating linear system solutions using randomization techniques. *ACM Transactions on Mathematical Software*, 39(2):8:1–8:13, February 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gustavson:2013:LCF

[1381] Fred G. Gustavson, Jerzy Waśniewski, Jack J. Dongarra, José R. Herrero, and Julien Langou. Level-3 Cholesky factorization routines improve performance of many Cholesky algorithms. *ACM Transactions on Mathematical Software*, 39(2):9:1–9:10, February 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Knepley:2013:FEI

[1382] Matthew G. Knepley and Andy R. Terrel. Finite element integration on GPUs. *ACM Transactions on Mathematical Software*, 39(2):10:1–10:13,

February 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Boisvert:2013:RKB

[1383] Jason J. Boisvert, Paul H. Muir, and Raymond J. Spiteri. A Runge–Kutta BVODE solver with global error and defect control. *ACM Transactions on Mathematical Software*, 39(2):11:1–11:22, February 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Saito:2013:VMT

[1384] Mutsuo Saito and Makoto Matsumoto. Variants of Mersenne Twister suitable for graphic processors. *ACM Transactions on Mathematical Software*, 39(2):12:1–12:20, February 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Poulson:2013:ENF

[1385] Jack Poulson, Bryan Marker, Robert A. van de Geijn, Jeff R. Hammond, and Nichols A. Romero. Elemental: a new framework for distributed memory dense matrix computations. *ACM Transactions on Mathematical Software*, 39(2):13:1–13:24, February 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Thompson:2013:AIG

[1386] Ian Thompson. Algorithm 926: Incomplete Gamma functions with negative arguments. *ACM Transactions on Mathematical Software*, 39(2): 14:1–14:9, February 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cash:2013:AMC

[1387] J. R. Cash, D. Hollevoet, F. Mazzia, and A. M. Nagy. Algorithm 927: The MATLAB code `bvptwp.m` for the numerical solution of two point boundary value problems. *ACM Transactions on Mathematical Software*, 39(2):15:1–15:12, February 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ltaief:2013:HPB

[1388] Hatem Ltaief, Piotr Luszczek, and Jack Dongarra. High-performance bidiagonal reduction using tile algorithms on homogeneous multicore architectures. *ACM Transactions on Mathematical Software*, 39(3):16:1–16:22, April 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Patterson:2013:EOM

[1389] Michael A. Patterson, Matthew Weinstein, and Anil V. Rao. An efficient overloaded method for computing derivatives of mathematical functions in MATLAB. *ACM Transactions on Mathematical Software*, 39(3):17:1–17:36, April 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hammarling:2013:ACS

[1390] Sven Hammarling, Christopher J. Munro, and Françoise Tisseur. An algorithm for the complete solution of quadratic eigenvalue problems. *ACM Transactions on Mathematical Software*, 39(3):18:1–18:19, April 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bosner:2013:EGH

[1391] Nela Bosner, Zvonimir Bujanović, and Zlatko Drmač. Efficient generalized Hessenberg form and applications. *ACM Transactions on Mathematical Software*, 39(3):19:1–19:19, April 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hascoet:2013:TAD

[1392] Laurent Hascoet and Valérie Pascual. The Tapenade automatic differentiation tool: Principles, model, and specification. *ACM Transactions on Mathematical Software*, 39(3):20:1–20:43, April 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Rios:2013:AGP

[1393] Joseph Rios. Algorithm 928: a general, parallel implementation of Dantzig–Wolfe decomposition. *ACM Transactions on Mathematical Software*, 39(3):21:1–21:10, April 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Castaldo:2013:SLP

[1394] Anthony M. Castaldo, R. Clint Whaley, and Siju Samuel. Scaling LAPACK panel operations using parallel cache assignment. *ACM Transactions on Mathematical Software*, 39(4):22:1–22:30, July 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Khan:2013:EEC

[1395] Kamil A. Khan and Paul I. Barton. Evaluating an element of the Clarke generalized Jacobian of a composite piecewise differentiable function. *ACM Transactions on Mathematical Software*, 39(4):23:1–23:28,

July 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dingle:2013:RIT

[1396] Nicholas J. Dingle and Nicholas J. Higham. Reducing the influence of tiny normwise relative errors on performance profiles. *ACM Transactions on Mathematical Software*, 39(4):24:1–24:11, July 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

deDinechin:2013:ZRT

[1397] Florent de Dinechin, Christoph Lauter, Jean-Michel Muller, and Serge Torres. On Ziv's rounding test. *ACM Transactions on Mathematical Software*, 39(4):25:1–25:19, July 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Russell:2013:OCG

[1398] Francis P. Russell and Paul H. J. Kelly. Optimized code generation for finite element local assembly using symbolic manipulation. *ACM Transactions on Mathematical Software*, 39(4):26:1–26:29, July 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Mehra:2013:ASW

[1399] Mani Mehra and Kavita Goyal. Algorithm 929: a suite on wavelet differentiation algorithms. *ACM Transactions on Mathematical Software*, 39 (4):27:1–27:28, July 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Davis:2013:AFO

[1400] Timothy A. Davis. Algorithm 930: FACTORIZE: an object-oriented linear system solver for MATLAB. *ACM Transactions on Mathematical Software*, 39(4):28:1–28:18, July 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gebremedhin:2013:CSG

[1401] Assefaw H. Gebremedhin, Duc Nguyen, Md. Mostofa Ali Patwary, and Alex Pothen. ColPack: Software for graph coloring and related problems in scientific computing. *ACM Transactions on Mathematical Software*, 40(1):1:1–1:31, September 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Poppe:2013:CMO

[1402] Koen Poppe and Ronald Cools. CHEBINT: a MATLAB/Octave toolbox for fast multivariate integration and interpolation based on Chebyshev

approximations over hypercubes. *ACM Transactions on Mathematical Software*, 40(1):2:1–2:13, September 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gao:2013:GGA

[1403] Mingcen Gao, Thanh-Tung Cao, Ashwin Nanjappa, Tiow-Seng Tan, and Zhiyong Huang. gHull: a GPU algorithm for 3D convex hull. *ACM Transactions on Mathematical Software*, 40(1):3:1–3:19, September 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hogg:2013:PST

[1404] Jonathan D. Hogg and Jennifer A. Scott. Pivoting strategies for tough sparse indefinite systems. *ACM Transactions on Mathematical Software*, 40(1):4:1–4:19, September 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hao:2013:AAS

[1405] Wenrui Hao, Andrew J. Sommese, and Zhonggang Zeng. Algorithm 931: an algorithm and software for computing multiplicity structures at zeros of nonlinear systems. *ACM Transactions on Mathematical Software*, 40(1):5:1–5:16, September 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gander:2013:APS

[1406] Martin J. Gander and Caroline Japhet. Algorithm 932: PANG: Software for nonmatching grid projections in 2D and 3D with linear complexity. *ACM Transactions on Mathematical Software*, 40(1):6:1–6:25, September 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Foster:2013:ARC

[1407] Leslie V. Foster and Timothy A. Davis. Algorithm 933: Reliable calculation of numerical rank, null space bases, pseudoinverse solutions, and basic solutions using suitesparseQR. *ACM Transactions on Mathematical Software*, 40(1):7:1–7:23, September 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Erricolo:2013:AFS

[1408] Danilo Erricolo and Giuseppe Carluccio. Algorithm 934: Fortran 90 subroutines to compute Mathieu functions for complex values of the parameter. *ACM Transactions on Mathematical Software*, 40(1):8:1–8:19, September 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Alnaes:2014:UFL

[1409] Martin S. Alnæs, Anders Logg, Kristian B. Ølgaard, Marie E. Rognes, and Garth N. Wells. Unified Form Language: a domain-specific language for weak formulations of partial differential equations. *ACM Transactions on Mathematical Software*, 40(2):9:1–9:37, February 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gower:2014:CSP

[1410] Robert Mansel Gower and Margarida Pinheiro Mello. Computing the sparsity pattern of Hessians using automatic differentiation. *ACM Transactions on Mathematical Software*, 40(2):10:1–10:15, February 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Goualard:2014:HDY

[1411] Frédéric Goualard. How do you compute the midpoint of an interval? *ACM Transactions on Mathematical Software*, 40(2):11:1–11:25, February 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Karlsson:2014:OPC

[1412] Lars Karlsson, Daniel Kressner, and Bruno Lang. Optimally packed chains of bulges in multishift QR algorithms. *ACM Transactions on Mathematical Software*, 40(2):12:1–12:15, February 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Romero:2014:PID

[1413] Eloy Romero and Jose E. Roman. A parallel implementation of Davidson methods for large-scale eigenvalue problems in SLEPc. *ACM Transactions on Mathematical Software*, 40(2):13:1–13:29, February 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ratnanather:2014:ATI

[1414] J. Tilak Ratnanather, Jung H. Kim, Sirong Zhang, Anthony M. J. Davis, and Stephen K. Lucas. Algorithm 935: `IIPBF`, a `MATLAB` toolbox for infinite integral of products of two Bessel functions. *ACM Transactions on Mathematical Software*, 40(2):14:1–14:12, February 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Krogh:2014:AFM

[1415] Fred T. Krogh. Algorithm 936: a Fortran message processor. *ACM Transactions on Mathematical Software*, 40(2):15:1–15:4, February 2014.

CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See remark [1534].

Choi:2014:AMQ

[1416] Sou-Cheng T. Choi and Michael A. Saunders. Algorithm 937: MINRES-QLP for symmetric and Hermitian linear equations and least-squares problems. *ACM Transactions on Mathematical Software*, 40(2):16:1–16:12, February 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gunther:2014:ACC

[1417] John C. Gunther. Algorithm 938: Compressing circular buffers. *ACM Transactions on Mathematical Software*, 40(2):17:1–17:12, February 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Zee:2014:RTB

[1418] Field G. Van Zee, Robert A. van de Geijn, and Gregorio Quintana-Ortí. Restructuring the tridiagonal and bidiagonal QR algorithms for performance. *ACM Transactions on Mathematical Software*, 40(3):18:1–18:34, April 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Awile:2014:PWF

[1419] Omar Awile and Ivo F. Sbalzarini. A Pthreads wrapper for Fortran 2003. *ACM Transactions on Mathematical Software*, 40(3):19:1–19:15, April 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gil:2014:ACM

[1420] Amparo Gil, Javier Segura, and Nico M. Temme. Algorithm 939: Computation of the Marcum Q-function. *ACM Transactions on Mathematical Software*, 40(3):20:1–20:21, April 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Nelson:2014:AOA

[1421] Blake Nelson, Robert M. Kirby, and Steven Parker. Algorithm 940: Optimal accumulator-based expression evaluation through the use of expression templates. *ACM Transactions on Mathematical Software*, 40 (3):21:1–21:21, April 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kressner:2014:AHM

[1422] Daniel Kressner and Christine Tobler. Algorithm 941: `htucker` — a Matlab toolbox for tensors in hierarchical Tucker format. *ACM Transactions on Mathematical Software*, 40(3):22:1–22:22, April 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

delaCruz:2014:ASS

[1423] Raúl de la Cruz and Mauricio Araya-Polo. Algorithm 942: Semi-stencil. *ACM Transactions on Mathematical Software*, 40(3):23:1–23:39, April 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Scott:2014:HER

[1424] Jennifer Scott and Miroslav Tuma. HSL_MI28: an efficient and robust limited-memory incomplete Cholesky factorization code. *ACM Transactions on Mathematical Software*, 40(4):24:1–24:19, June 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kirby:2014:HPE

[1425] Robert C. Kirby. High-performance evaluation of finite element variational forms via commuting diagrams and duality. *ACM Transactions on Mathematical Software*, 40(4):25:1–25:24, June 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hogan:2014:FRM

[1426] Robin J. Hogan. Fast reverse-mode automatic differentiation using expression templates in C++. *ACM Transactions on Mathematical Software*, 40(4):26:1–26:16, June 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fabregat-Traver:2014:CPT

[1427] Diego Fabregat-Traver and Paolo Bientinesi. Computing petaflops over terabytes of data: The case of genome-wide association studies. *ACM Transactions on Mathematical Software*, 40(4):27:1–27:22, June 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Erway:2014:AMM

[1428] Jennifer B. Erway and Roummel F. Marcia. Algorithm 943: MSS: MATLAB software for L-BFGS trust-region subproblems for large-scale optimization. *ACM Transactions on Mathematical Software*, 40(4):28:1–28:12, June 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Antonelli:2014:ATS

[1429] Laura Antonelli, Stefania Corsaro, Zelda Marino, and Mariarosaria Rizzardi. Algorithm 944: Talbot suite: Parallel implementations of Talbot's method for the numerical inversion of Laplace transforms. *ACM Transactions on Mathematical Software*, 40(4):29:1–29:18, June 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Belson:2014:AMP

[1430] Brandt A. Belson, Jonathan H. Tu, and Clarence W. Rowley. Algorithm 945: `modred` — a parallelized model reduction library. *ACM Transactions on Mathematical Software*, 40(4):30:1–30:23, June 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

DAmore:2014:ARC

[1431] Luisa D'Amore, Rosanna Campagna, Valeria Mele, and Almerico Murli. Algorithm 946: ReLIADiff —a C++ software package for real Laplace transform inversion based on algorithmic differentiation. *ACM Transactions on Mathematical Software*, 40(4):31:1–31:20, June 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Patterson:2014:GIM

[1432] Michael A. Patterson and Anil V. Rao. GPOPS-II: a MATLAB software for solving multiple-phase optimal control problems using *hp*-adaptive Gaussian quadrature collocation methods and sparse nonlinear programming. *ACM Transactions on Mathematical Software*, 41(1):1:1–1:37, October 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Mitchell:2014:CAS

[1433] William F. Mitchell and Marjorie A. McClain. A comparison of *hp*-adaptive strategies for elliptic partial differential equations. *ACM Transactions on Mathematical Software*, 41(1):2:1–2:39, October 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kim:2014:PSD

[1434] Kyungjoo Kim and Victor Eijkhout. A parallel sparse direct solver via hierarchical DAG scheduling. *ACM Transactions on Mathematical Software*, 41(1):3:1–3:27, October 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Seibold:2014:SSO

[1435] Benjamin Seibold and Martin Frank. StaRMAP — a second order staggered Grid method for spherical harmonics moment equations of radiative transfer. *ACM Transactions on Mathematical Software*, 41(1): 4:1–4:28, October 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Langr:2014:APP

[1436] Daniel Langr, Pavel Tvrdík, Tomás Dytrych, and Jerry P. Draayer. Algorithm 947: Paraperm — parallel generation of random permutations with MPI. *ACM Transactions on Mathematical Software*, 41(1):5:1–5:26, October 2014. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Smigaj:2015:SBI

[1437] Wojciech Śmigaj, Timo Betcke, Simon Arridge, Joel Phillips, and Martin Schweiger. Solving boundary integral problems with BEM++. *ACM Transactions on Mathematical Software*, 41(2):6:1–6:40, January 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Muller:2015:ECC

[1438] Jean-Michel Muller. On the error of computing $ab + cd$ using Cornea, Harrison and Tang's method. *ACM Transactions on Mathematical Software*, 41(2):7:1–7:8, January 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Lorenz:2015:SBP

[1439] Dirk A. Lorenz, Marc E. Pfetsch, and Andreas M. Tillmann. Solving basis pursuit: Heuristic optimality check and solver comparison. *ACM Transactions on Mathematical Software*, 41(2):8:1–8:29, January 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Pryce:2015:DMT

[1440] John D. Pryce, Nedialko S. Nedialkov, and Guangning Tan. DAESA — a Matlab tool for structural analysis of differential-algebraic equations: Theory. *ACM Transactions on Mathematical Software*, 41(2):9:1–9:20, January 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Janna:2015:FSP

[1441] Carlo Janna, Massimiliano Ferronato, Flavio Sartoretto, and Giuseppe Gambolati. FSAIPACK: a software package for high-performance fac-

tored sparse approximate inverse preconditioning. *ACM Transactions on Mathematical Software*, 41(2):10:1–10:26, January 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Si:2015:TDB

[1442] Hang Si. TetGen, a Delaunay-based quality tetrahedral mesh generator. *ACM Transactions on Mathematical Software*, 41(2):11:1–11:36, January 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Nedialkov:2015:ADM

[1443] Nedialko S. Nedialkov, John D. Pryce, and Guangning Tan. Algorithm 948: DAESA — a Matlab tool for structural analysis of differential-algebraic equations: Software. *ACM Transactions on Mathematical Software*, 41(2):12:1–12:14, January 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Heroux:2015:EAT

[1444] Michael A. Heroux. Editorial: ACM TOMS Replicated Computational Results Initiative. *ACM Transactions on Mathematical Software*, 41(3): 13:1–13:5, June 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

VanZee:2015:RCR

[1445] Field G. Van Zee and Robert A. van de Geijn. Replicated computational results certified BLIS: a framework for rapidly instantiating BLAS functionality. *ACM Transactions on Mathematical Software*, 41(3):14:1–14:33, June 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See result replication [1446].

Willenbring:2015:RCR

[1446] James M. Willenbring. Replicated computational results (RCR) report for "BLIS: a Framework for Rapidly Instantiating BLAS Functionality". *ACM Transactions on Mathematical Software*, 41(3):15:1–15:4, June 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [1445].

Pandis:2015:NID

[1447] Vassilis Pandis. Numerical integration of discontinuous functions in many dimensions. *ACM Transactions on Mathematical Software*, 41(3):16:1–16:7, June 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kroshko:2015:OPN

[1448] Andrew Kroshko and Raymond J. Spiteri. odeToJava: a PSE for the numerical solution of IVPs. *ACM Transactions on Mathematical Software*, 41(3):17:1–17:33, June 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Nelson:2015:RGH

[1449] Thomas Nelson, Geoffrey Belter, Jeremy G. Siek, Elizabeth Jessup, and Boyana Norris. Reliable generation of high-performance matrix algebra. *ACM Transactions on Mathematical Software*, 41(3):18:1–18:27, June 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kowalczyk:2015:CRF

[1450] Piotr Kowalczyk. Complex root finding algorithm based on Delaunay triangulation. *ACM Transactions on Mathematical Software*, 41(3):19:1–19:13, June 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fu:2015:AMT

[1451] Zhixing Fu, Luis F. Gatica, and Francisco javier Sayas. Algorithm 949: MATLAB tools for HDG in three dimensions. *ACM Transactions on Mathematical Software*, 41(3):20:1–20:21, June 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Wittek:2015:ANS

[1452] Peter Wittek. Algorithm 950: Ncpol2sdpa — sparse semidefinite programming relaxations for polynomial optimization problems of noncommuting variables. *ACM Transactions on Mathematical Software*, 41(3): 21:1–21:12, June 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sosonkina:2015:RAV

[1453] Masha Sosonkina, Layne T. Watson, and Jian He. Remark on algorithm 897: VTDIRECT95: Serial and parallel codes for the global optimization algorithm DIRECT. *ACM Transactions on Mathematical Software*, 41 (3):22:1–22:2, June 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [1290].

Jamin:2015:CGF

[1454] Clément Jamin, Pierre Alliez, Mariette Yvinec, and Jean-Daniel Boissonnat. CGALmesh: a generic framework for Delaunay mesh genera-

tion. *ACM Transactions on Mathematical Software*, 41(4):23:1–23:24, October 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Graillat:2015:ECF

[1455] Stef Graillat, Christoph Lauter, Ping Tak Peter Tang, Naoya Yamanaka, and Shin'ichi Oishi. Efficient calculations of faithfully rounded l_2-norms of n-vectors. *ACM Transactions on Mathematical Software*, 41(4):24:1–24:20, October 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dalton:2015:OSM

[1456] Steven Dalton, Luke Olson, and Nathan Bell. Optimizing sparse matrix–matrix multiplication for the GPU. *ACM Transactions on Mathematical Software*, 41(4):25:1–25:20, October 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Naumann:2015:ADN

[1457] Uwe Naumann, Johannes Lotz, Klaus Leppkes, and Markus Towara. Algorithmic differentiation of numerical methods: Tangent and adjoint solvers for parameterized systems of nonlinear equations. *ACM Transactions on Mathematical Software*, 41(4):26:1–26:21, October 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Wang:2015:ACA

[1458] Menghan Wang and Meera Sitharam. Algorithm 951: Cayley analysis of mechanism configuration spaces using CayMos: Software functionalities and architecture. *ACM Transactions on Mathematical Software*, 41(4): 27:1–27:8, October 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Dong:2015:APL

[1459] Bohan Dong and Rida T. Farouki. Algorithm 952: PHquintic: a library of basic functions for the construction and analysis of planar quintic Pythagorean-hodograph curves. *ACM Transactions on Mathematical Software*, 41(4):28:1–28:20, October 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Granat:2015:APL

[1460] Robert Granat, Bo Kågström, Daniel Kressner, and Meiyue Shao. Algorithm 953: Parallel library software for the multishift QR algorithm with aggressive early deflation. *ACM Transactions on Mathematical Software*,

41(4):29:1–29:23, October 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Flocke:2015:AAE

[1461] N. Flocke. Algorithm 954: an accurate and efficient cubic and quartic equation solver for physical applications. *ACM Transactions on Mathematical Software*, 41(4):30:1–30:24, October 2015. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hogg:2016:SSI

[1462] Jonathan D. Hogg, Evgueni Ovtchinnikov, and Jennifer A. Scott. A sparse symmetric indefinite direct solver for GPU architectures. *ACM Transactions on Mathematical Software*, 42(1):1:1–1:25, February 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bavier:2016:RCR

[1463] Eric T. Bavier. Replicated Computational Results (RCR) report for a sparse symmetric indefinite direct solver for GPU architectures. *ACM Transactions on Mathematical Software*, 42(1):2:1–2:10, February 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Karney:2016:SEN

[1464] Charles F. F. Karney. Sampling exactly from the normal distribution. *ACM Transactions on Mathematical Software*, 42(1):3:1–3:14, February 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See improvement in [1865].

Deadman:2016:TMF

[1465] Edvin Deadman and Nicholas J. Higham. Testing matrix function algorithms using identities. *ACM Transactions on Mathematical Software*, 42 (1):4:1–4:15, February 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kutyniok:2016:SFD

[1466] Gitta Kutyniok, Wang-Q Lim, and Rafael Reisenhofer. ShearLab 3D: Faithful digital shearlet transforms based on compactly supported shearlets. *ACM Transactions on Mathematical Software*, 42(1):5:1–5:42, February 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Burton:2016:PCD

[1467] Benjamin A. Burton, Thomas Lewiner, João Paixão, and Jonathan Spreer. Parameterized complexity of discrete Morse theory. *ACM Trans-*

actions on Mathematical Software, 42(1):6:1–6:24, February 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Giles:2016:AAI

[1468] Michael B. Giles. Algorithm 955: Approximation of the inverse Poisson cumulative distribution function. *ACM Transactions on Mathematical Software*, 42(1):7:1–7:22, February 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Aruliah:2016:APP

[1469] D. A. Aruliah, Lennaert Van Veen, and Alex Dubitski. Algorithm 956: PAMPAC, a parallel adaptive method for pseudo-arclength continuation. *ACM Transactions on Mathematical Software*, 42(1):8:1–8:18, February 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gautschi:2016:AER

[1470] Walter Gautschi. Algorithm 957: Evaluation of the repeated integral of the coerror function by half-range Gauss–Hermite quadrature. *ACM Transactions on Mathematical Software*, 42(1):9:1–9:10, February 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Novoselsky:2016:RAD

[1471] Alexander Novoselsky and Eugene Kagan. Remark on "Algorithm 673: Dynamic Huffman Coding". *ACM Transactions on Mathematical Software*, 42(1):10:1, February 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [643].

Weinstein:2016:STO

[1472] Matthew J. Weinstein and Anil V. Rao. A source transformation via operator overloading method for the automatic differentiation of mathematical functions in MATLAB. *ACM Transactions on Mathematical Software*, 42(2):11:1–11:42, June 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

VanZee:2016:BFE

[1473] Field G. Van Zee, Tyler M. Smith, Bryan Marker, Tze Meng Low, Robert A. Van De Geijn, Francisco D. Igual, Mikhail Smelyanskiy, Xianyi Zhang, Michael Kistler, Vernon Austel, John A. Gunnels, and Lee Killough. The BLIS framework: Experiments in portability. *ACM Transactions on Mathematical Software*, 42(2):12:1–12:19, June 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Mei:2016:CDC

[1474] Yi Mei, Mohammad Nabi Omidvar, Xiaodong Li, and Xin Yao. A competitive divide-and-conquer algorithm for unconstrained large-scale black-box optimization. *ACM Transactions on Mathematical Software*, 42(2):13:1–13:24, June 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Sayed:2016:WCR

[1475] Wafaa S. Sayed and Hossam A. H. Fahmy. What are the correct results for the special values of the operands of the power operation? *ACM Transactions on Mathematical Software*, 42(2):14:1–14:17, June 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Lecuyer:2016:ALB

[1476] Pierre L'Ecuyer and David Munger. Algorithm 958: Lattice Builder: a general software tool for constructing rank-1 lattice rules. *ACM Transactions on Mathematical Software*, 42(2):15:1–15:30, June 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Alvarez-Cubero:2016:AVL

[1477] José Antonio Álvarez-Cubero and Pedro J. Zufiria. Algorithm 959: VBF: a library of C++ classes for vector Boolean functions in cryptography. *ACM Transactions on Mathematical Software*, 42(2):16:1–16:22, May 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Ibanez:2016:PPU

[1478] Daniel A. Ibanez, E. Seegyoung Seol, Cameron W. Smith, and Mark S. Shephard. PUMI: Parallel unstructured mesh infrastructure. *ACM Transactions on Mathematical Software*, 42(3):17:1–17:28, May 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Abdelfattah:2016:KOL

[1479] Ahmad Abdelfattah, David Keyes, and Hatem Ltaief. KBLAS: an optimized library for dense matrix-vector multiplication on GPU accelerators. *ACM Transactions on Mathematical Software*, 42(3):18:1–18:31, May 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Jeannerod:2016:RIE

[1480] Claude-Pierre Jeannerod. A radix-independent error analysis of the Cornea–Harrison–Tang method. *ACM Transactions on Mathematical*

Software, 42(3):19:1–19:20, May 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Boyer:2016:MMW

[1481] Brice Boyer and Jean-Guillaume Dumas. Matrix multiplication over word-size modular rings using approximate formulas. *ACM Transactions on Mathematical Software*, 42(3):20:1–20:12, June 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=2829947`.

Wang:2016:PGM

[1482] Shen Wang, Xiaoye S. Li, François-Henry Rouet, Jianlin Xia, and Maarten V. De Hoop. A parallel geometric multifrontal solver using hierarchically semiseparable structure. *ACM Transactions on Mathematical Software*, 42(3):21:1–21:21, May 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Davis:2016:EHA

[1483] Timothy A. Davis, William W. Hager, and James T. Hungerford. An efficient hybrid algorithm for the separable convex quadratic knapsack problem. *ACM Transactions on Mathematical Software*, 42(3):22:1–22:25, May 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Delgado:2016:APO

[1484] Jorge Delgado and Juan Manuel Peña. Algorithm 960: POLYNOMIAL: an object-oriented Matlab library of fast and efficient algorithms for polynomials. *ACM Transactions on Mathematical Software*, 42(3):23:1–23:19, May 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Benner:2016:AFS

[1485] Peter Benner, Vasile Sima, and Matthias Voigt. Algorithm 961: Fortran 77 subroutines for the solution of skew-Hamiltonian/Hamiltonian eigenproblems. *ACM Transactions on Mathematical Software*, 42(3): 24:1–24:26, May 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Pew:2016:ABB

[1486] Jack Pew, Zhi Li, and Paul Muir. Algorithm 962: BACOLI: B-spline adaptive collocation software for PDEs with interpolation-based spatial

error control. *ACM Transactions on Mathematical Software*, 42(3):25:1–25:17, May 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Zaghloul:2016:RAC

[1487] Mofreh R. Zaghloul. Remark on "Algorithm 916: Computing the Faddeyeva and Voigt Functions": Efficiency improvements and Fortran translation. *ACM Transactions on Mathematical Software*, 42(3):26:1–26:9, May 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [1357].

Rouet:2016:DMP

[1488] François-Henry Rouet, Xiaoye S. Li, Pieter Ghysels, and Artem Napov. A distributed-memory package for dense hierarchically semi-separable matrix computations using randomization. *ACM Transactions on Mathematical Software*, 42(4):27:1–27:35, July 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2930660`.

Meiser:2016:RCR

[1489] Dominic Meiser. Replicated Computational Results (RCR) report for "A Distributed-Memory Package for Dense Hierarchically Semi-Separable Matrix Computations Using Randomization". *ACM Transactions on Mathematical Software*, 42(4):28:1–28:5, July 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2929907`.

Ledoux:2016:MMT

[1490] Veerle Ledoux and Marnix Van Daele. Matslise 2.0: A Matlab toolbox for Sturm–Liouville computations. *ACM Transactions on Mathematical Software*, 42(4):29:1–29:18, July 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2839299`.

Vigna:2016:EEM

[1491] Sebastiano Vigna. An experimental exploration of Marsaglia's `xorshift` generators, scrambled. *ACM Transactions on Mathematical Software*, 42(4):30:1–30:23, July 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2845077`.

Laszlo:2016:MAB

[1492] Endre László, Mike Giles, and Jeremy Appleyard. Manycore algorithms for batch scalar and block tridiagonal solvers. *ACM Transactions on*

Mathematical Software, 42(4):31:1–31:36, July 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2830568`.

Prusa:2016:DWT

[1493] Zdeněk Průsa, Peter L. Søndergaard, and Pavel Rajmic. Discrete wavelet transforms in the large time-frequency analysis toolbox for MATLAB/GNU Octave. *ACM Transactions on Mathematical Software*, 42(4):32:1–32:23, July 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2839298`.

Escobar:2016:AES

[1494] Marcos Escobar, Benedikt Rudolph, and Rudi Zagst. Algorithm 963: Estimation of stochastic covariance models using a continuum of moment conditions. *ACM Transactions on Mathematical Software*, 42(4):33:1–33:26, July 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2834115`.

Lozano-Duran:2016:AEA

[1495] Adrián Lozano-Durán and Guillem Borrell. Algorithm 964: An efficient algorithm to compute the genus of discrete surfaces and applications to turbulent flows. *ACM Transactions on Mathematical Software*, 42(4):34:1–34:19, July 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2845076`.

delaCruz:2016:GTU

[1496] Luis M. de la Cruz and Eduardo Ramos. General template units for the finite volume method in box-shaped domains. *ACM Transactions on Mathematical Software*, 43(1):1:1–1:32, August 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2835175`.

Turcksin:2016:WDP

[1497] Bruno Turcksin, Martin Kronbichler, and Wolfgang Bangerth. WorkStream – a design pattern for multicore-enabled finite element computations. *ACM Transactions on Mathematical Software*, 43(1):2:1–2:29, August 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2851488`.

Kohler:2016:BLI

[1498] Martin Köhler and Jens Saak. On BLAS level-3 implementations of common solvers for (quasi-) triangular generalized Lyapunov equations.

ACM Transactions on Mathematical Software, 43(1):3:1–3:23, August 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2850415`.

Garrett:2016:NAB

[1499] C. Kristopher Garrett, Zhaojun Bai, and Ren-Cang Li. A nonlinear QR algorithm for banded nonlinear eigenvalue problems. *ACM Transactions on Mathematical Software*, 43(1):4:1–4:19, August 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2870628`.

vanderHoeven:2016:MSA

[1500] Joris van der Hoeven, Grégoire Lecerf, and Guillaume Quintin. Modular SIMD arithmetic in Mathemagix. *ACM Transactions on Mathematical Software*, 43(1):5:1–5:37, August 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2876503`.

Sukkari:2016:HPQ

[1501] Dalal Sukkari, Hatem Ltaief, and David Keyes. A high performance QDWH-SVD solver using hardware accelerators. *ACM Transactions on Mathematical Software*, 43(1):6:1–6:25, August 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2894747`.

Filip:2016:RSI

[1502] Silviu-Ioan Filip. A robust and scalable implementation of the Parks–McClellan algorithm for designing FIR filters. *ACM Transactions on Mathematical Software*, 43(1):7:1–7:24, August 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2904902`.

Ong:2016:ARM

[1503] Benjamin W. Ong, Ronald D. Haynes, and Kyle Ladd. Algorithm 965: RIDC methods: A family of parallel time integrators. *ACM Transactions on Mathematical Software*, 43(1):8:1–8:13, August 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2964377`.

Sluanschi:2016:AAD

[1504] Emil I. Sluşanschi and Vlad Dumitrel. ADiJaC — automatic differentiation of Java classfiles. *ACM Transactions on Mathematical Software*, 43(2):9:1–9:33, September 2016. CODEN ACMSCU. ISSN 0098-3500

(print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2904901`.

Yamazaki:2016:SPV

[1505] Ichitaro Yamazaki, Stanimire Tomov, and Jack Dongarra. Stability and performance of various singular value QR implementations on multicore CPU with a GPU. *ACM Transactions on Mathematical Software*, 43 (2):10:1–10:18, September 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2898347`.

Rupp:2016:PIS

[1506] Karl Rupp, Josef Weinbub, Ansgar Jüngel, and Tibor Grasser. Pipelined iterative solvers with kernel fusion for graphics processing units. *ACM Transactions on Mathematical Software*, 43(2):11:1–11:27, September 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2907944`.

Low:2016:AME

[1507] Tze Meng Low, Francisco D. Igual, Tyler M. Smith, and Enrique S. Quintana-Orti. Analytical modeling is enough for high-performance BLIS. *ACM Transactions on Mathematical Software*, 43(2):12:1–12:18, September 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2925987`.

Agullo:2016:IMS

[1508] Emmanuel Agullo, Alfredo Buttari, Abdou Guermouche, and Florent Lopez. Implementing multifrontal sparse solvers for multicore architectures with sequential task flow runtime systems. *ACM Transactions on Mathematical Software*, 43(2):13:1–13:22, September 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2898348`.

Lee:2016:TOI

[1509] Mokwon Lee, Kokichi Sugihara, and Deok-Soo Kim. Topology-oriented incremental algorithm for the robust construction of the Voronoi diagrams of disks. *ACM Transactions on Mathematical Software*, 43 (2):14:1–14:23, September 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2939366`.

Gould:2016:NPP

[1510] Nicholas Gould and Jennifer Scott. A note on performance profiles for benchmarking software. *ACM Transactions on Mathematical Software*,

43(2):15:1–15:5, September 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2950048`.

Tozoni:2016:API

[1511] Davi C. Tozoni, Pedro J. De Rezende, and Cid C. De Souza. Algorithm 966: A practical iterative algorithm for the art gallery problem using integer linear programming. *ACM Transactions on Mathematical Software*, 43(2):16:1–16:27, September 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2890491`.

Malhotra:2016:ADM

[1512] Dhairya Malhotra and George Biros. Algorithm 967: A distributed-memory fast multipole method for volume potentials. *ACM Transactions on Mathematical Software*, 43(2):17:1–17:27, September 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2898349`.

Vallivaara:2016:SAS

[1513] Ilari Vallivaara, Katja Poikselkä, Pauli Rikula, and Juha Röning. Systematic alias sampling: An efficient and low-variance way to sample from a discrete distribution. *ACM Transactions on Mathematical Software*, 43(3):18:1–18:17, November 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2935745`.

Meister:2016:PME

[1514] Oliver Meister, Kaveh Rahnema, and Michael Bader. Parallel memory-efficient adaptive mesh refinement on structured triangular meshes with billions of grid cells. *ACM Transactions on Mathematical Software*, 43 (3):19:1–19:27, September 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2947668`.

Rump:2017:IPK

[1515] Siegfried M. Rump. IEEE754 precision-k base-β arithmetic inherited by precision-m base-β arithmetic for $k < m$. *ACM Transactions on Mathematical Software*, 43(3):20:1–20:15, January 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=2785965`.

Jacquelin:2017:PDM

[1516] Mathias Jacquelin, Lin Lin, and Chao Yang. PSelInv — a distributed memory parallel algorithm for selected inversion: The symmetric case. *ACM Transactions on Mathematical Software*, 43(3):21:1–21:28, January 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=2786977`.

Fortin:2017:GAG

[1517] Pierre Fortin, Mourad Gouicem, and Stef Graillat. GPU-accelerated generation of correctly rounded elementary functions. *ACM Transactions on Mathematical Software*, 43(3):22:1–22:26, January 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=2935746`.

Marin:2017:ERF

[1518] Manuel Marin, David Defour, and Federico Milano. An efficient representation format for fuzzy intervals based on symmetric membership functions. *ACM Transactions on Mathematical Software*, 43(3):23:1–23:22, January 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=2939364`.

Rathgeber:2017:FAF

[1519] Florian Rathgeber, David A. Ham, Lawrence Mitchell, Michael Lange, Fabio Luporini, Andrew T. T. Mcrae, Gheorghe-Teodor Bercea, Graham R. Markall, and Paul H. J. Kelly. Firedrake: Automating the finite element method by composing abstractions. *ACM Transactions on Mathematical Software*, 43(3):24:1–24:27, January 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=2998441`.

Calvo:2017:ADM

[1520] Manuel Calvo, Juan I. Montijano, and Luis Rández. Algorithm 968: DISODE45: A Matlab Runge–Kutta solver for piecewise smooth IVPs of Filippov type. *ACM Transactions on Mathematical Software*, 43(3): 25:1–25:14, January 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=2907054`.

Gil:2016:ACI

[1521] Amparo Gil, Diego Ruiz-Antolín, Javier Segura, and Nico M. Temme. Algorithm 969: Computation of the incomplete gamma function for negative values of the argument. *ACM Transactions on Mathematical*

Software, 43(3):26:1–26:9, November 2016. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=2972951`.

Sys:2017:AON

[1522] Marek Sýs, Zdenek Říha, and Vashek Matyáš. Algorithm 970: Optimizing the NIST Statistical Test Suite and the Berlekamp–Massey algorithm. *ACM Transactions on Mathematical Software*, 43(3):27:1–27:11, January 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Li:2017:AIR

[1523] Huamin Li, George C. Linderman, Arthur Szlam, Kelly P. Stanton, Yuval Kluger, and Mark Tygert. Algorithm 971: an implementation of a randomized algorithm for principal component analysis. *ACM Transactions on Mathematical Software*, 43(3):28:1–28:14, January 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Perez:2017:AJI

[1524] Juan F. Pérez, Daniel F. Silva, Julio C. Góez, Andrés Sarmiento, Andrés Sarmiento-Romero, Raha Akhavan-Tabatabaei, and Germán Riaño. Algorithm 972: jMarkov: an integrated framework for Markov chain modeling. *ACM Transactions on Mathematical Software*, 43(3):29:1–29:22, January 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Filippone:2017:SMV

[1525] Salvatore Filippone, Valeria Cardellini, Davide Barbieri, and Alessandro Fanfarillo. Sparse matrix-vector multiplication on GPGPUs. *ACM Transactions on Mathematical Software*, 43(4):30:1–30:49, March 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Torun:2017:PMN

[1526] F. Sukru Torun, Murat Manguoglu, and Cevdet Aykanat. Parallel minimum norm solution of sparse block diagonal column overlapped underdetermined systems. *ACM Transactions on Mathematical Software*, 43(4): 31:1–31:21, March 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Krislock:2017:BSB

[1527] Nathan Krislock, Jérôme Malick, and Frédéric Roupin. BiqCrunch: a semidefinite branch-and-bound method for solving binary quadratic

problems. *ACM Transactions on Mathematical Software*, 43(4):32:1–32:23, March 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Aurentz:2017:CCS

[1528] Jared L. Aurentz and Lloyd N. Trefethen. Chopping a Chebyshev series. *ACM Transactions on Mathematical Software*, 43(4):33:1–33:21, March 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Magron:2017:CRE

[1529] Victor Magron, George Constantinides, and Alastair Donaldson. Certified roundoff error bounds using semidefinite programming. *ACM Transactions on Mathematical Software*, 43(4):34:1–34:31, March 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Huckelheim:2017:ADC

[1530] Jan Christian Hückelheim, Laurent Hascoët, and Jens-Dominik Müller. Algorithmic differentiation of code with multiple context-specific activities. *ACM Transactions on Mathematical Software*, 43(4):35:1–35:21, March 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gould:2017:SAP

[1531] Nicholas Gould and Jennifer Scott. The state-of-the-art of preconditioners for sparse linear least-squares problems. *ACM Transactions on Mathematical Software*, 43(4):36:1–36:35, March 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Deckers:2017:AER

[1532] Karl Deckers, Ahlem Mougaida, and Hédi Belhadjsalah. Algorithm 973: Extended rational Fejér quadrature rules based on Chebyshev orthogonal rational functions. *ACM Transactions on Mathematical Software*, 43(4):37:1–37:29, March 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Novoselsky:2017:AOM

[1533] Alexander Novoselsky and Eugene Kagan. Algorithm 974: The OutlierLib — a MATLAB library for outliers' detection. *ACM Transactions on Mathematical Software*, 43(4):38:1–38:3, March 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Krogh:2017:RAF

[1534] Fred T. Krogh, Richard J. Hanson, and Philip W. Sharp. Remark on Algorithm 936: a Fortran Message Processor. *ACM Transactions on Mathematical Software*, 43(4):39:1, March 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [1415].

Greif:2017:SII

[1535] Chen Greif, Shiwen He, and Paul Liu. SYM-ILDL: Incomplete LDL^T factorization of symmetric indefinite and skew-symmetric matrices. *ACM Transactions on Mathematical Software*, 44(1):1:1–1:21, July 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Reps:2017:CAG

[1536] Bram Reps and Tobias Weinzierl. Complex additive geometric multilevel solvers for Helmholtz equations on spacetrees. *ACM Transactions on Mathematical Software*, 44(1):2:1–2:36, July 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Luporini:2017:AOF

[1537] Fabio Luporini, David A. Ham, and Paul H. J. Kelly. An algorithm for the optimization of finite element integration loops. *ACM Transactions on Mathematical Software*, 44(1):3:1–3:26, July 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Boldo:2017:RFA

[1538] Sylvie Boldo, Stef Graillat, and Jean-Michel Muller. On the robustness of the 2Sum and Fast2Sum algorithms. *ACM Transactions on Mathematical Software*, 44(1):4:1–4:14, July 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Agelek:2017:OEU

[1539] Rainer Agelek, Michael Anderson, Wolfgang Bangerth, and William L. Barth. On orienting edges of unstructured two- and three-dimensional meshes. *ACM Transactions on Mathematical Software*, 44(1):5:1–5:22, July 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3061708`.

Porcelli:2017:BTD

[1540] Margherita Porcelli and Philippe L. Toint. BFO, a trainable derivative-free brute force optimizer for nonlinear bound-constrained optimization and equilibrium computations with continuous and discrete variables.

ACM Transactions on Mathematical Software, 44(1):6:1–6:25, July 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

VanZee:2017:IHP

[1541] Field G. Van Zee and Tyler M. Smith. Implementing high-performance complex matrix multiplication via the 3m and 4m methods. *ACM Transactions on Mathematical Software*, 44(1):7:1–7:36, July 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3086466`.

Szo:2017:PET

[1542] Máté Szőke, Tamás István Józsa, Ádám Koleszár, Irene Moulitsas, and László Könözsy. Performance evaluation of a two-dimensional lattice Boltzmann solver using CUDA and PGAS UPC based parallelisation. *ACM Transactions on Mathematical Software*, 44(1):8:1–8:22, July 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3085590`.

Ganesh:2017:ATM

[1543] M. Ganesh and S. C. Hawkins. Algorithm 975: TMATROM – a T-matrix reduced order model software. *ACM Transactions on Mathematical Software*, 44(1):9:1–9:18, July 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Brake:2017:ABN

[1544] Daniel A. Brake, Daniel J. Bates, Wenrui Hao, Jonathan D. Hauenstein, Andrew J. Sommese, and Charles W. Wampler. Algorithm 976: Bertini_real: Numerical decomposition of real algebraic curves and surfaces. *ACM Transactions on Mathematical Software*, 44(1):10:1–10:30, July 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Drmac:2017:AQP

[1545] Zlatko Drmač. Algorithm 977: a QR-preconditioned QR SVD method for computing the SVD with high accuracy. *ACM Transactions on Mathematical Software*, 44(1):11:1–11:30, July 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Anderson:2017:ASS

[1546] Edward Anderson. Algorithm 978: Safe scaling in the Level 1 BLAS. *ACM Transactions on Mathematical Software*, 44(1):12:1–12:28, July 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=3061665`.

Hogg:2017:NAO

[1547] Jonathan Hogg, Jennifer Scott, and Sue Thorne. Numerically aware orderings for sparse symmetric indefinite linear systems. *ACM Transactions on Mathematical Software*, 44(2):13:1–13:22, September 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=3104991`.

Engwer:2017:GRI

[1548] Christian Engwer and Andreas Nüßing. Geometric reconstruction of implicitly defined surfaces and domains with topological guarantees. *ACM Transactions on Mathematical Software*, 44(2):14:1–14:20, September 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=3104989`.

Springer:2017:THP

[1549] Paul Springer, Jeff R. Hammond, and Paolo Bientinesi. TTC: A high-performance compiler for tensor transpositions. *ACM Transactions on Mathematical Software*, 44(2):15:1–15:21, September 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=3104988`.

Joldes:2017:TRE

[1550] Mioara Joldes, Jean-Michel Muller, and Valentina Popescu. Tight and rigorous error bounds for basic building blocks of double-word arithmetic. *ACM Transactions on Mathematical Software*, 44(2):15res:1–15res:27, October 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3121432`.

Peise:2017:ARA

[1551] Elmar Peise and Paolo Bientinesi. Algorithm 979: Recursive algorithms for dense linear algebra — the ReLAPACK collection. *ACM Transactions on Mathematical Software*, 44(2):16:1–16:19, September 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=3061664`.

Yeralan:2017:ASQ

[1552] Sencer Nuri Yeralan, Timothy A. Davis, Wissam M. Sid-Lakhdar, and Sanjay Ranka. Algorithm 980: Sparse QR factorization on the GPU. *ACM Transactions on Mathematical Software*, 44(2):17:1–17:29, September 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=3065870`.

Rizzardi:2017:ATS

[1553] Mariarosaria Rizzardi. Algorithm 981: Talbot Suite DE: Application of modified Talbot's method to solve differential problems. *ACM Transactions on Mathematical Software*, 44(2):18:1–18:23, September 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=3089248`.

Snyder:2017:AES

[1554] W. Van Snyder. Algorithm 982: Explicit solutions of triangular systems of first-order linear initial-value ordinary differential equations with constant coefficients. *ACM Transactions on Mathematical Software*, 44(2): 19:1–19:4, September 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=3092892`.

Fahmy:2017:AFC

[1555] Thierry Fahmy and Arnaud Bellétoile. Algorithm 983: Fast computation of the non-asymptotic Cochran's Q statistic for heterogeneity detection. *ACM Transactions on Mathematical Software*, 44(2):20:1–20:12, September 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=3095076`.

Weinstein:2017:AAT

[1556] Matthew J. Weinstein and Anil V. Rao. Algorithm 984: ADiGator, a toolbox for the algorithmic differentiation of mathematical functions in MATLAB using source transformation via operator overloading. *ACM Transactions on Mathematical Software*, 44(2):21:1–21:25, September 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=3104990`.

Zaghloul:2017:ASE

[1557] Mofreh R. Zaghloul. Algorithm 985: Simple, efficient, and relatively accurate approximation for the evaluation of the Faddeyeva function. *ACM Transactions on Mathematical Software*, 44(2):22:1–22:9, September 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `http://dl.acm.org/citation.cfm?id=3119904`.

Mehra:2017:ASC

[1558] Mani Mehra and Kuldip Singh Patel. Algorithm 986: A suite of compact finite difference schemes. *ACM Transactions on Mathematical Software*, 44(2):23:1–23:31, October 2017. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3119905`.

Hanson:2018:RAM

[1559] Richard J. Hanson and Tim Hopkins. Remark on Algorithm 539: A Modern Fortran Reference Implementation for Carefully Computing the Euclidean Norm. *ACM Transactions on Mathematical Software*, 44(3): 24:1–24:23, April 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3134441`. See [238].

Neirynck:2018:NBA

[1560] Niels Neirynck, Willy Govaerts, Yuri A. Kuznetsov, and Hil G. E. Meijer. Numerical bifurcation analysis of homoclinic orbits embedded in one-dimensional manifolds of maps. *ACM Transactions on Mathematical Software*, 44(3):25:1–25:19, April 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3134443`.

Elafrou:2018:SLH

[1561] Athena Elafrou, Vasileios Karakasis, Theodoros Gkountouvas, Kornilios Kourtis, Georgios Goumas, and Nectarios Koziris. SparseX: A library for high-performance sparse matrix–vector multiplication on multicore platforms. *ACM Transactions on Mathematical Software*, 44(3):26:1–26:32, April 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3134442`.

Doliskani:2018:SCR

[1562] Javad Doliskani, Pascal Giorgi, Romain Lebreton, and Eric Schost. Simultaneous conversions with the residue number system using linear algebra. *ACM Transactions on Mathematical Software*, 44(3):27:1–27:21, April 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3145573`.

Springer:2018:DHP

[1563] Paul Springer and Paolo Bientinesi. Design of a high-performance GEMM-like tensor–tensor multiplication. *ACM Transactions on Mathematical Software*, 44(3):28:1–28:29, April 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3157733`.

Sanders:2018:EPR

[1564] Peter Sanders, Sebastian Lamm, Lorenz Hübschle-Schneider, Emanuel Schrade, and Carsten Dachsbacher. Efficient parallel random sampling-vectorized, cache-efficient, and online. *ACM Transactions on Mathematical Software*, 44(3):29:1–29:14, April 2018. CODEN ACMSCU. ISSN

0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3157734`.

Harase:2018:IBM

[1565] Shin Harase and Takamitsu Kimoto. Implementing 64-bit maximally equidistributed F_2-linear generators with Mersenne prime period. *ACM Transactions on Mathematical Software*, 44(3):30:1–30:11, April 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3159444`.

Birkisson:2018:ARO

[1566] Ásgeir Birkisson. Automatic reformulation of ODEs to systems of first-order equations. *ACM Transactions on Mathematical Software*, 44(3): 31:1–31:18, April 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3159443`.

Weinzierl:2018:QMF

[1567] Marion Weinzierl and Tobias Weinzierl. Quasi-matrix-free hybrid multigrid on dynamically adaptive Cartesian grids. *ACM Transactions on Mathematical Software*, 44(3):32:1–32:44, April 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3165280`.

Babuska:2018:REG

[1568] Ivo Babuska and Gustaf Söderlind. On roundoff error growth in elliptic problems. *ACM Transactions on Mathematical Software*, 44(3):33:1–33:22, April 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3134444`.

Karol:2018:DSL

[1569] Sven Karol, Tobias Nett, Jeronimo Castrillon, and Ivo F. Sbalzarini. A domain-specific language and editor for parallel particle methods. *ACM Transactions on Mathematical Software*, 44(3):34:1–34:32, April 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3175659`.

Zottou:2018:AMC

[1570] Dimitra-Nefeli A. Zottou, Dimitris J. Kavvadias, Frosso S. Makri, and Michael N. Vrahatis. Algorithm 987: MANBIS — a C++ mathematical software package for locating and computing efficiently many roots of a function: Theoretical issues. *ACM Transactions on Mathematical Software*, 44(3):35:1–35:7, April 2018. CODEN ACMSCU. ISSN 0098-3500

(print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3155744`.

Johnson:2018:AAE

[1571] Robert W. Johnson. Algorithm 988: AMGKQ: An efficient implementation of adaptive multivariate Gauss–Kronrod quadrature for simultaneous integrands in Octave/MATLAB. *ACM Transactions on Mathematical Software*, 44(3):36:1–36:19, April 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3157735`.

Hwang:2018:CAC

[1572] John T. Hwang and Joaquim R. R. A. Martins. A computational architecture for coupling heterogeneous numerical models and computing coupled derivatives. *ACM Transactions on Mathematical Software*, 44(4): 37:1–37:39, August 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3182393`.

Emiris:2018:PPV

[1573] Ioannis Z. Emiris and Vissarion Fisikopoulos. Practical polytope volume approximation. *ACM Transactions on Mathematical Software*, 44(4): 38:1–38:21, August 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3194656`.

Dambra:2018:BSP

[1574] Pasqua D'ambra, Salvatore Filippone, and Panayot S. Vassilevski. BootCMatch: A software package for bootstrap AMG based on graph weighted matching. *ACM Transactions on Mathematical Software*, 44(4): 39:1–39:25, August 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3190647`.

Escobedo:2018:SDL

[1575] Adolfo R. Escobedo, Erick Moreno-Centeno, and Christopher Lourenco. Solution of dense linear systems via roundoff-error-free factorization algorithms: Theoretical connections and computational comparisons. *ACM Transactions on Mathematical Software*, 44(4):40:1–40:24, August 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3199571`.

Magron:2018:IEU

[1576] Victor Magron. Interval enclosures of upper bounds of roundoff errors using semidefinite programming. *ACM Transactions on Mathematical Software*, 44(4):41:1–41:18, August 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3206430`.

Frison:2018:BBL

[1577] Gianluca Frison, Dimitris Kouzoupis, Tommaso Sartor, Andrea Zanelli, and Moritz Diehl. BLASFEO: Basic linear algebra subroutines for embedded optimization. *ACM Transactions on Mathematical Software*, 44(4):42:1–42:30, August 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3210754`.

Huang:2018:ROO

[1578] Wen Huang, P.-A. Absil, Kyle A. Gallivan, and Paul Hand. ROPTLIB: An object-oriented C++ library for optimization on Riemannian manifolds. *ACM Transactions on Mathematical Software*, 44(4):43:1–43:21, August 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3218822`.

Brehard:2018:VNE

[1579] Florent Bréhard, Nicolas Brisebarre, and Mioara Joldes. Validated and numerically efficient Chebyshev spectral methods for linear ordinary differential equations. *ACM Transactions on Mathematical Software*, 44(4):44:1–44:42, August 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3208103`.

Deng:2018:SFE

[1580] Lih-Yuan Deng, Jyh-Jen Horng Shiau, Henry Horng-Shing Lu, and Dale Bowman. Secure and Fast Encryption (SAFE) with classical random number generators. *ACM Transactions on Mathematical Software*, 44(4):45:1–45:17, August 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3212673`.

Tan:2018:DIA

[1581] Guangming Tan, Junhong Liu, and Jiajia Li. Design and implementation of adaptive SpMV library for multicore and many-core architecture. *ACM Transactions on Mathematical Software*, 44(4):46:1–46:25, August

2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3218823`.

Irurozki:2018:APM

[1582] Ekhine Irurozki, Josu Ceberio, Josean Santamaria, Roberto Santana, and Alexander Mendiburu. Algorithm 989: `perm_mateda`: a Matlab toolbox of estimation of distribution algorithms for permutation-based combinatorial optimization problems. *ACM Transactions on Mathematical Software*, 44(4):47:1–47:13, August 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3206429`.

Ozkan:2018:AEA

[1583] Aysegul Ozkan, Rahul Prabhu, Troy Baker, James Pence, Jörg Peters, and Meera Sitharam. Algorithm 990: Efficient atlasing and search of configuration spaces of point-sets constrained by distance intervals. *ACM Transactions on Mathematical Software*, 44(4):48:1–48:30, August 2018. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3204472`.

Aktas:2019:CBM

[1584] Mehmet E. Aktas and Esra Akbas. Computing the braid monodromy of completely reducible n-gonal curves. *ACM Transactions on Mathematical Software*, 45(1):1:1–1:11, March 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3291040`.

Amestoy:2019:PSB

[1585] Patrick R. Amestoy, Alfredo Buttari, Jean-Yves L'Excellent, and Theo Mary. Performance and scalability of the block low-rank multifrontal factorization on multicore architectures. *ACM Transactions on Mathematical Software*, 45(1):2:1–2:26, March 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3242094`.

Boukaram:2019:HMO

[1586] Wajih Boukaram, George Turkiyyah, and David Keyes. Hierarchical matrix operations on GPUs: Matrix–vector multiplication and compression. *ACM Transactions on Mathematical Software*, 45(1):3:1–3:28, March 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3232850`.

Martinsson:2019:RBR

[1587] P. G. Martinsson, G. Quintana-Ortí, and N. Heavner. randUTV: A blocked randomized algorithm for computing a rank-revealing UTV factorization. *ACM Transactions on Mathematical Software*, 45(1):4:1–4:26, March 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3242670`.

Kulisch:2019:MSI

[1588] Ulrich Kulisch. Mathematics and speed for interval arithmetic: A complement to IEEE 1788. *ACM Transactions on Mathematical Software*, 45 (1):5:1–5:22, March 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3264448`.

Wang:2019:PAA

[1589] Shouxiang Wang, Kai Wang, Lei Wu, and Chengshan Wang. Polar affine arithmetic: Optimal affine approximation and operation development for computation in polar form under uncertainty. *ACM Transactions on Mathematical Software*, 45(1):6:1–6:29, March 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3274659`.

DaSilva:2019:ULS

[1590] Curt Da Silva and Felix Herrmann. A unified 2D/3D large-scale software environment for nonlinear inverse problems. *ACM Transactions on Mathematical Software*, 45(1):7:1–7:35, March 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3291042`.

Green:2019:EBS

[1591] Kevin R. Green and Raymond J. Spiteri. Extended BACOLI: Solving one-dimensional multiscale parabolic PDE systems with error control. *ACM Transactions on Mathematical Software*, 45(1):8:1–8:19, March 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3301320`.

Walther:2019:VNR

[1592] Christoph Walther. Verified Newton–Raphson iteration for multiplicative inverses modulo powers of any base. *ACM Transactions on Mathematical Software*, 45(1):9:1–9:7, March 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3301317`. See [1863].

Springer:2019:SSH

[1593] Paul Springer, Devin Matthews, and Paolo Bientinesi. Spin summations: A high-performance perspective. *ACM Transactions on Mathematical Software*, 45(1):10:1–10:22, March 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3301319`.

Shterenlikht:2019:QIF

[1594] A. Shterenlikht. On quality of implementation of Fortran 2008 complex intrinsic functions on branch cuts. *ACM Transactions on Mathematical Software*, 45(1):11:1–11:9, March 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3301318`.

Richardson:2019:ATS

[1595] Lee F. Richardson and William F. Eddy. Algorithm 991: The 2D tree sliding window Discrete Fourier Transform. *ACM Transactions on Mathematical Software*, 45(1):12:1–12:12, March 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3264426`.

Roth:2019:AOC

[1596] Ágoston Róth. Algorithm 992: An OpenGL- and C++-based function library for curve and surface modeling in a large class of extended Chebyshev spaces. *ACM Transactions on Mathematical Software*, 45(1):13:1–13:32, March 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3284979`. See remark [1704].

Weinzierl:2019:PSP

[1597] Tobias Weinzierl. The Peano software — parallel, automaton-based, dynamically adaptive grid traversals. *ACM Transactions on Mathematical Software*, 45(2):14:1–14:41, April 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3319797`.

Charara:2019:BTD

[1598] Ali Charara, David Keyes, and Hatem Ltaief. Batched triangular dense linear algebra kernels for very small matrix sizes on GPUs. *ACM Transactions on Mathematical Software*, 45(2):15:1–15:28, April 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3267101`.

Dongarra:2019:PPL

[1599] Jack Dongarra, Mark Gates, Azzam Haidar, Jakub Kurzak, Piotr Luszczek, Panruo Wu, Ichitaro Yamazaki, Asim Yarkhan, Maksims Abalenkovs, Negin Bagherpour, Sven Hammarling, Jakub Šístek, David Stevens, Mawussi Zounon, and Samuel D. Relton. PLASMA: Parallel linear algebra software for multicore using OpenMP. *ACM Transactions on Mathematical Software*, 45(2):16:1–16:35, April 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3264491`.

Luporini:2019:ATU

[1600] Fabio Luporini, Michael Lange, Christian T. Jacobs, Gerard J. Gorman, J. Ramanujam, and Paul H. J. Kelly. Automated tiling of unstructured mesh computations with application to seismological modeling. *ACM Transactions on Mathematical Software*, 45(2):17:1–17:30, April 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3302256`.

Sukkari:2019:QBS

[1601] Dalal Sukkari, Hatem Ltaief, Aniello Esposito, and David Keyes. A QDWH-based SVD software framework on distributed-memory many-core systems. *ACM Transactions on Mathematical Software*, 45(2): 18:1–18:21, April 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3309548`. See [1862].

Maniezzo:2019:CSC

[1602] Vittorio Maniezzo, Marco A. Boschetti, Antonella Carbonaro, Moreno Marzolla, and Francesco Strappaveccia. Client-side computational optimization. *ACM Transactions on Mathematical Software*, 45(2):19:1–19:16, April 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3309549`.

Porcelli:2019:NUP

[1603] Margherita Porcelli and Philippe L. Toint. A note on using performance and data profiles for training algorithms. *ACM Transactions on Mathematical Software*, 45(2):20:1–20:10, April 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3310362`.

Winkelmann:2019:CCA

[1604] Jan Winkelmann, Paul Springer, and Edoardo Di Napoli. ChASE: Chebyshev accelerated subspace iteration eigensolver for sequences of

Hermitian eigenvalue problems. *ACM Transactions on Mathematical Software*, 45(2):21:1–21:34, April 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3313828`.

Fackler:2019:AEC

[1605] Paul L. Fackler. Algorithm 993: Efficient computation with Kronecker products. *ACM Transactions on Mathematical Software*, 45(2):22:1–22:9, April 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3291041`.

Zaghloul:2019:RO

[1606] Mofreh R. Zaghloul. Remark on 'Algorithm 680: Evaluation of the Complex Error Function': Cause and Remedy for the Loss of Accuracy Near the Real Axis. *ACM Transactions on Mathematical Software*, 45(2):24:1–24:3, April 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3309681`.

Faz-Hernandez:2019:HPI

[1607] Armando Faz-Hernández, Julio López, and Ricardo Dahab. High-performance implementation of elliptic curve cryptography using vector instructions. *ACM Transactions on Mathematical Software*, 45(3):25:1–25:35, July 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3309759`.

Naumann:2019:ACD

[1608] Uwe Naumann. Adjoint code design patterns. *ACM Transactions on Mathematical Software*, 45(3):26:1–26:32, July 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3326162`.

Hashemi:2019:ECE

[1609] Behnam Hashemi. Enclosing Chebyshev expansions in linear time. *ACM Transactions on Mathematical Software*, 45(3):27:1–27:33, July 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3319395`.

Lee:2019:ICA

[1610] Christopher T. Lee, John B. Moody, Rommie E. Amaro, J. Andrew Mccammon, and Michael J. Holst. The implementation of the colored abstract simplicial complex and its application to mesh generation. *ACM Transactions on Mathematical Software*, 45(3):28:1–28:20, August 2019.

CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3321515`.

Kronbichler:2019:FMF

[1611] Martin Kronbichler and Katharina Kormann. Fast matrix-free evaluation of discontinuous Galerkin finite element operators. *ACM Transactions on Mathematical Software*, 45(3):29:1–29:40, August 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3325864`.

Johansson:2019:CHF

[1612] Fredrik Johansson. Computing hypergeometric functions rigorously. *ACM Transactions on Mathematical Software*, 45(3):30:1–30:26, August 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3328732`.

Dieguez:2019:TPR

[1613] Adrián P. Diéguez, Margarita Amor, and Ramón Doallo. Tree partitioning reduction: A new parallel partition method for solving tridiagonal systems. *ACM Transactions on Mathematical Software*, 45(3):31:1–31:26, August 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3328731`.

Cartis:2019:IFR

[1614] Coralia Cartis, Jan Fiala, Benjamin Marteau, and Lindon Roberts. Improving the flexibility and robustness of model-based derivative-free optimization solvers. *ACM Transactions on Mathematical Software*, 45(3): 32:1–32:41, August 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3338517`.

Pardue:2019:AEP

[1615] Juliette Pardue and Andrey Chernikov. Algorithm 995: An efficient parallel anisotropic Delaunay mesh generator for two-dimensional finite element analysis. *ACM Transactions on Mathematical Software*, 45(3): 33:1–33:30, July 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3301321`.

Ito:2019:ABS

[1616] Naoki Ito, Sunyoung Kim, Masakazu Kojima, Akiko Takeda, and Kim-Chuan Toh. Algorithm 996: BBCPOP: A sparse doubly nonnegative relaxation of polynomial optimization problems with binary, box, and

complementarity constraints. *ACM Transactions on Mathematical Software*, 45(3):34:1–34:16, July 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3309988`.

Speck:2019:APP

[1617] Robert Speck. Algorithm 997: pySDC-prototyping spectral deferred corrections. *ACM Transactions on Mathematical Software*, 45(3):35:1–35:23, August 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3310410`.

Agulhari:2019:ARL

[1618] Cristiano M. Agulhari, Alexandre Felipe, Ricardo C. L. F. Oliveira, and Pedro L. D. Peres. Algorithm 998: The robust LMI parser — a toolbox to construct LMI conditions for uncertain systems. *ACM Transactions on Mathematical Software*, 45(3):36:1–36:25, August 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3323925`.

LucambioPerez:2019:WLS

[1619] L. R. Lucambio Pérez and L. F. Prudente. A Wolfe line search algorithm for vector optimization. *ACM Transactions on Mathematical Software*, 45(4):37:1–37:23, December 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3342104`.

Sagebaum:2019:HPD

[1620] Max Sagebaum, Tim Albring, and Nicolas R. Gauger. High-performance derivative computations using CoDiPack. *ACM Transactions on Mathematical Software*, 45(4):38:1–38:27, December 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3356900`.

Hisil:2019:KLF

[1621] Huseyin Hisil and Joost Renes. On Kummer lines with full rational 2-torsion and their usage in cryptography. *ACM Transactions on Mathematical Software*, 45(4):39:1–39:17, December 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3361680`.

Flegar:2019:FCL

[1622] Goran Flegar, Florian Scheidegger, Vedran Novaković, Giovani Mariani, Andrés E. Tomás, A. Cristiano I. Malossi, and Enrique S. Quintana-Ortí. FloatX: A C++ library for customized floating-point arithmetic.

ACM Transactions on Mathematical Software, 45(4):40:1–40:23, December 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3368086`.

Kirby:2019:CGG

[1623] Robert C. Kirby and Lawrence Mitchell. Code generation for generally mapped finite elements. *ACM Transactions on Mathematical Software*, 45(4):41:1–41:23, December 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3361745`. See also replication report [1624].

Lindquist:2019:RCR

[1624] Neil Lindquist. Replicated computational results (RCR) report for "*Code Generation for Generally Mapped Finite Elements*". *ACM Transactions on Mathematical Software*, 45(4):42:1–42:7, December 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3360984`. See [1623].

Speleers:2019:ACM

[1625] Hendrik Speleers. Algorithm 999: Computation of multi-degree B-splines. *ACM Transactions on Mathematical Software*, 45(4):43:1–43:15, December 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3321514`.

Davis:2019:ASG

[1626] Timothy A. Davis. Algorithm 1000: SuiteSparse:GraphBLAS: Graph algorithms in the language of sparse linear algebra. *ACM Transactions on Mathematical Software*, 45(4):44:1–44:25, December 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3322125`.

Burgel:2019:AIM

[1627] Florian Bürgel, Kamil S. Kazimierski, and Armin Lechleiter. Algorithm 1001: IPscatt — a MATLAB toolbox for the inverse medium problem in scattering. *ACM Transactions on Mathematical Software*, 45(4):45:1–45:20, December 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3328525`.

Kara:2019:AGC

[1628] Gökçehan Kara and Can Özturan. Algorithm 1002: Graph coloring based parallel push-relabel algorithm for the maximum flow problem.

ACM Transactions on Mathematical Software, 45(4):46:1–46:28, December 2019. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/citation.cfm?id=3330481`.

Huang:2020:SAR

[1629] Jianyu Huang, Chenhan D. Yu, and Robert A. van de Geijn. Strassen's algorithm reloaded on GPUs. *ACM Transactions on Mathematical Software*, 46(1):1:1–1:22, March 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3372419`.

Arevalo:2020:SPA

[1630] Carmen Arévalo, Erik Jonsson-Glans, Josefine Olander, Monica Selva Soto, and Gustaf Söderlind. A software platform for adaptive high order multistep methods. *ACM Transactions on Mathematical Software*, 46 (1):2:1–2:17, March 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3372159`.

Cui:2020:HON

[1631] Tao Cui, Wei Leng, Huaqing Liu, Linbo Zhang, and Weiying Zheng. High-order numerical quadratures in a tetrahedron with an implicitly defined curved interface. *ACM Transactions on Mathematical Software*, 46(1):3:1–3:18, March 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3372144`.

Betcke:2020:PAG

[1632] Timo Betcke, Matthew W. Scroggs, and Wojciech 'Smigaj. Product algebras for Galerkin discretisations of boundary integral operators and their applications. *ACM Transactions on Mathematical Software*, 46 (1):4:1–4:22, March 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3368618`.

Abhyankar:2020:PDL

[1633] Shrirang Abhyankar, Getnet Betrie, Daniel Adrian Maldonado, Lois C. Mcinnes, Barry Smith, and Hong Zhang. PETSc DMNetwork: a library for scalable network PDE-based multiphysics simulations. *ACM Transactions on Mathematical Software*, 46(1):5:1–5:24, April 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3344587`.

Luporini:2020:APD

[1634] Fabio Luporini, Mathias Louboutin, Michael Lange, Navjot Kukreja, Philipp Witte, Jan Hückelheim, Charles Yount, Paul H. J. Kelly, Felix J. Herrmann, and Gerard J. Gorman. Architecture and performance of Devito, a system for automated stencil computation. *ACM Transactions on Mathematical Software*, 46(1):6:1–6:28, April 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3374916`.

Davis:2020:AMG

[1635] Timothy A. Davis, William W. Hager, Scott P. Kolodziej, and S. Nuri Yeralan. Algorithm 1003: Mongoose, a graph coarsening and partitioning library. *ACM Transactions on Mathematical Software*, 46(1):7:1–7:18, March 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3337792`.

Reizenstein:2020:AIL

[1636] Jeremy F. Reizenstein and Benjamin Graham. Algorithm 1004: The Iisignature library: Efficient calculation of iterated-integral signatures and log signatures. *ACM Transactions on Mathematical Software*, 46 (1):8:1–8:21, March 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3371237`.

Jonasson:2020:AFS

[1637] Kristjan Jonasson, Sven Sigurdsson, Hordur Freyr Yngvason, Petur Orri Ragnarsson, and Pall Melsted. Algorithm 1005: Fortran subroutines for reverse mode algorithmic differentiation of BLAS matrix operations. *ACM Transactions on Mathematical Software*, 46(1):9:1–9:20, March 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3382191`.

Abergel:2020:AFA

[1638] Rémy Abergel and Lionel Moisan. Algorithm 1006: Fast and accurate evaluation of a generalized incomplete gamma function. *ACM Transactions on Mathematical Software*, 46(1):10:1–10:24, March 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3365983`.

Brisebarre:2020:EAS

[1639] Nicolas Brisebarre, Mioara Joldes, Jean-Michel Muller, Ana-Maria Nanes, and Joris Picot. Error analysis of some operations involved in

the Cooley–Tukey Fast Fourier Transform. *ACM Transactions on Mathematical Software*, 46(2):11:1–11:27, June 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3368619`.

Herrmann:2020:HRF

[1640] Julien Herrmann and Guillaume Pallez (Aupy). H-Revolve: a framework for adjoint computation on synchronous hierarchical platforms. *ACM Transactions on Mathematical Software*, 46(2):12:1–12:25, June 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3378672`.

Ballard:2020:TPC

[1641] Grey Ballard, Alicia Klinvex, and Tamara G. Kolda. TuckerMPI: a parallel C++/MPI software package for large-scale data compression via the Tucker tensor decomposition. *ACM Transactions on Mathematical Software*, 46(2):13:1–13:31, June 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3378445`.

Marques:2020:BSC

[1642] Osni Marques, James Demmel, and Paulo B. Vasconcelos. Bidiagonal SVD computation via an associated tridiagonal eigenproblem. *ACM Transactions on Mathematical Software*, 46(2):14:1–14:25, June 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3361746`.

Frison:2020:BAB

[1643] Gianluca Frison, Tommaso Sartor, Andrea Zanelli, and Moritz Diehl. The BLAS API of BLASFEO: Optimizing performance for small matrices. *ACM Transactions on Mathematical Software*, 46(2):15:1–15:36, June 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3378671`.

Michail:2020:JJL

[1644] Dimitrios Michail, Joris Kinable, Barak Naveh, and John V. Sichi. JGraphT — a Java library for graph data structures and algorithms. *ACM Transactions on Mathematical Software*, 46(2):16:1–16:29, June 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3381449`.

Amos:2020:AQQ

[1645] Brandon D. Amos, David R. Easterling, Layne T. Watson, William I. Thacker, Brent S. Castle, and Michael W. Trosset. Algorithm 1007: QNSTOP — quasi-Newton algorithm for stochastic optimization. *ACM Transactions on Mathematical Software*, 46(2):17:1–17:20, June 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3374219`.

Casado:2020:AMN

[1646] Jose Maria Varas Casado and Rob Hewson. Algorithm 1008: Multicomplex number class for Matlab, with a focus on the accurate calculation of small imaginary terms for multicomplex step sensitivity calculations. *ACM Transactions on Mathematical Software*, 46(2):18:1–18:26, June 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3378542`.

Hawkins:2020:AMO

[1647] Stuart C. Hawkins. Algorithm 1009: MieSolver — an object-oriented Mie series software for wave scattering by cylinders. *ACM Transactions on Mathematical Software*, 46(2):19:1–19:28, June 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3381537`.

Orellana:2020:ABE

[1648] Alberto Giacomo Orellana and Cristiano De Michele. Algorithm 1010: Boosting efficiency in solving quartic equations with no compromise in accuracy. *ACM Transactions on Mathematical Software*, 46(2):20:1–20:28, June 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/abs/10.1145/3386241`. See improvement [1751].

Lange:2020:FRF

[1649] Marko Lange and Siegfried M. Rump. Faithfully rounded floating-point computations. *ACM Transactions on Mathematical Software*, 46 (3):21:1–21:20, September 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3290955`.

Ahrens:2020:AER

[1650] Peter Ahrens, James Demmel, and Hong Diep Nguyen. Algorithms for efficient reproducible floating point summation. *ACM Transactions on Mathematical Software*, 46(3):22:1–22:49, September 2020. CODEN

ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3389360.

Aguirre-Mesa:2020:MLC

[1651] Andres M. Aguirre-Mesa, Manuel J. Garcia, and Harry Millwater. MultiZ: a library for computation of high-order derivatives using multicomplex or multidual numbers. *ACM Transactions on Mathematical Software*, 46(3):23:1–23:30, September 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3378538.

Avramidis:2020:SOS

[1652] Eleftherios Avramidis, Marta Lalik, and Ozgur E. Akman. SODECL: an open-source library for calculating multiple orbits of a system of stochastic differential equations in parallel. *ACM Transactions on Mathematical Software*, 46(3):24:1–24:21, September 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3385076.

Agamawi:2020:CCS

[1653] Yunus M. Agamawi and Anil V. Rao. CGPOPS: a C++ software for solving multiple-phase optimal control problems using adaptive Gaussian quadrature collocation and sparse nonlinear programming. *ACM Transactions on Mathematical Software*, 46(3):25:1–25:38, September 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3390463.

Davis:2020:APE

[1654] Brisa N. Davis and Randall J. LeVeque. Analysis and performance evaluation of adjoint-guided adaptive mesh refinement for linear hyperbolic PDEs using Clawpack. *ACM Transactions on Mathematical Software*, 46(3):26:1–26:28, September 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3392775.

Bleyer:2020:AFR

[1655] Jeremy Bleyer. Automating the formulation and resolution of convex variational problems: Applications from image processing to computational mechanics. *ACM Transactions on Mathematical Software*, 46 (3):27:1–27:33, September 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3393881.

Ewart:2020:PES

[1656] Timothée Ewart, Francesco Cremonesi, Felix Schürmann, and Fabien Delalondre. Polynomial evaluation on superscalar architecture, applied to the elementary function e^x. *ACM Transactions on Mathematical Software*, 46(3):28:1–28:22, September 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3408893`.

Mejstrik:2020:AII

[1657] Thomas Mejstrik. Algorithm 1011: Improved invariant polytope algorithm and applications. *ACM Transactions on Mathematical Software*, 46(3):29:1–29:26, September 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3408891`.

Drmac:2020:NNA

[1658] Zlatko Drmač and Ivana Šain Glibić. New numerical algorithm for deflation of infinite and zero eigenvalues and full solution of quadratic eigenvalue problems. *ACM Transactions on Mathematical Software*, 46 (4):30:1–30:32, November 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3401831`.

Thies:2020:PPH

[1659] Jonas Thies, Melven Röhrig-Zöllner, Nigel Overmars, Achim Basermann, Dominik Ernst, Georg Hager, and Gerhard Wellein. PHIST: a pipelined, hybrid-parallel iterative solver toolkit. *ACM Transactions on Mathematical Software*, 46(4):31:1–31:26, November 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3402227`.

Burstedde:2020:PTA

[1660] Carsten Burstedde. Parallel tree algorithms for AMR and non-standard data access. *ACM Transactions on Mathematical Software*, 46(4): 32:1–32:31, November 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3401990`.

Pinto:2020:VSS

[1661] Severiano González Pinto, Domingo Hernández Abreu, and Juan Ignacio Montijano. Variable step-size control based on two-steps for Radau IIA methods. *ACM Transactions on Mathematical Software*,

46(4):33:1–33:24, November 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3408892`.

Uphoff:2020:YAT

[1662] Carsten Uphoff and Michael Bader. Yet another tensor toolbox for discontinuous Galerkin methods and other applications. *ACM Transactions on Mathematical Software*, 46(4):34:1–34:40, November 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3406835`.

Williams-Young:2020:SSS

[1663] David B. Williams-Young, Paul G. Beckman, and Chao Yang. A shift selection strategy for parallel shift-invert spectrum slicing in symmetric self-consistent eigenvalue computation. *ACM Transactions on Mathematical Software*, 46(4):35:1–35:31, November 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3409571`.

Spring:2020:FCS

[1664] Braegan S. Spring, Eric Polizzi, and Ahmed H. Sameh. A feature-complete SPIKE dense banded solver. *ACM Transactions on Mathematical Software*, 46(4):36:1–36:35, November 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3410153`.

Barabasz:2020:EAI

[1665] Barbara Barabasz, Andrew Anderson, Kirk M. Soodhalter, and David Gregg. Error analysis and improving the accuracy of Winograd convolution for deep neural networks. *ACM Transactions on Mathematical Software*, 46(4):37:1–37:33, November 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3412380`.

Chang:2020:ADI

[1666] Tyler H. Chang, Layne T. Watson, Thomas C. H. Lux, Ali R. Butt, Kirk W. Cameron, and Yili Hong. Algorithm 1012: DELAUNAYSPARSE: Interpolation via a sparse subset of the Delaunay triangulation in medium to high dimensions. *ACM Transactions on Mathematical Software*, 46(4):38:1–38:20, November 2020. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3422818`. See remark [1805].

Scott:2021:SLS

[1667] Jennifer Scott and Miroslav Tuma. Strengths and limitations of stretching for least-squares problems with some dense rows. *ACM Transactions on Mathematical Software*, 47(1):1:1–1:25, January 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3412559`.

Lebrun-Grandie:2021:APP

[1668] D. Lebrun-Grandié, A. Prokopenko, B. Turcksin, and S. R. Slattery. ArborX: a performance portable geometric search library. *ACM Transactions on Mathematical Software*, 47(1):2:1–2:15, January 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3412558`.

Huang:2021:HHP

[1669] Hua Huang, Xin Xing, and Edmond Chow. H2Pack: High-performance H^2 matrix package for kernel matrices using the proxy point method. *ACM Transactions on Mathematical Software*, 47(1):3:1–3:29, January 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3412850`.

Renard:2021:GAF

[1670] Yves Renard and Konstantinos Poulios. GetFEM: Automated FE modeling of multiphysics problems based on a generic weak form language. *ACM Transactions on Mathematical Software*, 47(1):4:1–4:31, January 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3412849`.

Oliveira:2021:EBM

[1671] I. F. D. Oliveira and R. H. C. Takahashi. An enhancement of the bisection method average performance preserving minmax optimality. *ACM Transactions on Mathematical Software*, 47(1):5:1–5:24, January 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3423597`.

Kempf:2021:ACG

[1672] Dominic Kempf, René Heß, Steffen Müthing, and Peter Bastian. Automatic code generation for high-performance discontinuous Galerkin methods on modern architectures. *ACM Transactions on Mathematical Software*, 47(1):6:1–6:31, January 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3424144`.

Clevenger:2021:FPA

[1673] Thomas C. Clevenger, Timo Heister, Guido Kanschat, and Martin Kronbichler. A flexible, parallel, adaptive geometric multigrid method for FEM. *ACM Transactions on Mathematical Software*, 47(1):7:1–7:27, January 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3425193`.

Arroyo:2021:ARI

[1674] Daisy Arroyo and Xavier Emery. Algorithm 1013: an R implementation of a continuous spectral algorithm for simulating vector Gaussian random fields in Euclidean spaces. *ACM Transactions on Mathematical Software*, 47(1):8:1–8:25, January 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3421316`.

Borges:2021:AIA

[1675] Carlos F. Borges. Algorithm 1014: an improved algorithm for `hypot(x,y)`. *ACM Transactions on Mathematical Software*, 47(1):9:1–9:12, January 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3428446`.

Sohier:2021:CIS

[1676] Devan Sohier, Pablo De Oliveira Castro, François Févotte, Bruno Lathuilière, Eric Petit, and Olivier Jamond. Confidence intervals for stochastic arithmetic. *ACM Transactions on Mathematical Software*, 47(2):10:1–10:33, April 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3432184`.

Soylu:2021:IAC

[1677] Gültekin Soylu. Improved arithmetic of complex fans. *ACM Transactions on Mathematical Software*, 47(2):11:1–11:10, April 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3434400`.

VanZee:2021:SMD

[1678] Field G. Van Zee, Devangi N. Parikh, and Robert A. Van De Geijn. Supporting mixed-domain mixed-precision matrix multiplication within the BLIS framework. *ACM Transactions on Mathematical Software*, 47(2):12:1–12:26, April 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3402225`.

Daas:2021:RKS

[1679] Hussam Al Daas, Laura Grigori, Pascal Hénon, and Philippe Ricoux. Recycling Krylov subspaces and truncating deflation subspaces for solving sequence of linear systems. *ACM Transactions on Mathematical Software*, 47(2):13:1–13:30, April 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3439746`.

Flegar:2021:APB

[1680] Goran Flegar, Hartwig Anzt, Terry Cojean, and Enrique S. Quintana-Ortí. Adaptive precision block-Jacobi for high performance preconditioning in the Ginkgo linear algebra software. *ACM Transactions on Mathematical Software*, 47(2):14:1–14:28, April 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3441850`.

Osborn:2021:RCR

[1681] Sarah Osborn. Replicated computational results (RCR) report for "Adaptive Precision Block-Jacobi for High Performance Preconditioning in the Ginkgo Linear Algebra Software". *ACM Transactions on Mathematical Software*, 47(2):15:1–15:4, April 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3446000`.

Villa:2021:HES

[1682] Umberto Villa, Noemi Petra, and Omar Ghattas. hIPPYlib: an extensible software framework for large-scale inverse problems governed by PDEs: Part I: Deterministic inversion and linearized Bayesian inference. *ACM Transactions on Mathematical Software*, 47(2):16:1–16:34, April 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3428447`.

Theisen:2021:FTM

[1683] Lambert Theisen and Manuel Torrilhon. fenicsR13: a tensorial mixed finite element solver for the linear R13 equations using the FEniCS computing platform. *ACM Transactions on Mathematical Software*, 47(2):17:1–17:29, April 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3442378`.

Guthe:2021:AFS

[1684] Stefan Guthe and Daniel Thuerck. Algorithm 1015: a fast scalable solver for the dense linear (sum) assignment problem. *ACM Transactions on*

Mathematical Software, 47(2):18:1–18:27, April 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3442348`.

Hahne:2021:APP

[1685] Jens Hahne, Stephanie Friedhoff, and Matthias Bolten. Algorithm 1016: PyMGRIT: a Python package for the parallel-in-time method MGRIT. *ACM Transactions on Mathematical Software*, 47(2):19:1–19:22, April 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3446979`.

Eswar:2021:PPL

[1686] Srinivas Eswar, Koby Hayashi, Grey Ballard, Ramakrishnan Kannan, Michael A. Matheson, and Haesun Park. PLANC: Parallel low-rank approximation with nonnegativity constraints. *ACM Transactions on Mathematical Software*, 47(3):20:1–20:37, June 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3432185`.

Abdelfattah:2021:SBB

[1687] Ahmad Abdelfattah, Timothy Costa, Jack Dongarra, Mark Gates, Azzam Haidar, Sven Hammarling, Nicholas J. Higham, Jakub Kurzak, Piotr Luszczek, Stanimire Tomov, and Mawussi Zounon. A set of batched basic linear algebra subprograms and LAPACK routines. *ACM Transactions on Mathematical Software*, 47(3):21:1–21:23, June 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3431921`.

Barthels:2021:LAG

[1688] Henrik Barthels, Christos Psarras, and Paolo Bientinesi. Linnea: Automatic generation of efficient linear algebra programs. *ACM Transactions on Mathematical Software*, 47(3):22:1–22:26, June 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3446632`.

Campos:2021:NMP

[1689] Carmen Campos and Jose E. Roman. NEP: a module for the parallel solution of nonlinear eigenvalue problems in SLEPc. *ACM Transactions on Mathematical Software*, 47(3):23:1–23:29, June 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3447544`.

Pruua:2021:FMP

[1690] Zdenek Pruua, Nicki Holighaus, and Peter Balazs. Fast matching pursuit with multi-Gabor dictionaries. *ACM Transactions on Mathematical Software*, 47(3):24:1–24:20, June 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3447958`.

Farrell:2021:PST

[1691] Patrick E. Farrell, Matthew G. Knepley, Lawrence Mitchell, and Florian Wechsung. PCPATCH: Software for the topological construction of multigrid relaxation methods. *ACM Transactions on Mathematical Software*, 47(3):25:1–25:22, June 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3445791`.

Lyu:2021:FFA

[1692] Xing long Lyu, Tiexiang Li, Tsung ming Huang, Jia wei Lin, Wen wei Lin, and Sheng Wang. FAME: Fast algorithms for Maxwell's equations for three-dimensional photonic crystals. *ACM Transactions on Mathematical Software*, 47(3):26:1–26:24, June 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3446329`.

Lakhmiri:2021:HHO

[1693] Dounia Lakhmiri, Sébastien Le Digabel, and Christophe Tribes. HyperNOMAD: Hyperparameter optimization of deep neural networks using mesh adaptive direct search. *ACM Transactions on Mathematical Software*, 47(3):27:1–27:27, June 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3450975`.

Slak:2021:MCL

[1694] Jure Slak and Gregor Kosec. Medusa: a C++ library for solving PDEs using strong form mesh-free methods. *ACM Transactions on Mathematical Software*, 47(3):28:1–28:25, June 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3450966`.

Skrabanek:2021:AFR

[1695] Pavel Skrabánek and Natália Martínková. Algorithm 1017: `fuzzyreg`: an R package for fitting fuzzy regression models. *ACM Transactions on Mathematical Software*, 47(3):29:1–29:18, June 2021. CODEN ACMSCU.

ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3451389.

Farrell:2021:IAR

[1696] Patrick E. Farrell, Robert C. Kirby, and Jorge Marchena-Menéndez. Irksome: Automating Runge–Kutta time-stepping for finite element methods. *ACM Transactions on Mathematical Software*, 47(4):30:1–30:26, December 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3466168.

Daversin-Catty:2021:AAA

[1697] Cécile Daversin-Catty, Chris N. Richardson, Ada J. Ellingsrud, and Marie E. Rognes. Abstractions and automated algorithms for mixed domain finite element methods. *ACM Transactions on Mathematical Software*, 47(4):31:1–31:36, December 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3471138.

Heltai:2021:PGI

[1698] Luca Heltai, Wolfgang Bangerth, Martin Kronbichler, and Andrea Mola. Propagating geometry information to finite element computations. *ACM Transactions on Mathematical Software*, 47(4):32:1–32:30, December 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3468428.

Munch:2021:HDE

[1699] Peter Munch, Katharina Kormann, and Martin Kronbichler. hyper.deal: an efficient, matrix-free finite-element library for high-dimensional partial differential equations. *ACM Transactions on Mathematical Software*, 47(4):33:1–33:34, December 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3469720.

Ramachandran:2021:PPB

[1700] Prabhu Ramachandran, Aditya Bhosale, Kunal Puri, Pawan Negi, Abhinav Muta, A. Dinesh, Dileep Menon, Rahul Govind, Suraj Sanka, Amal S. Sebastian, Ananyo Sen, Rohan Kaushik, Anshuman Kumar, Vikas Kurapati, Mrinalgouda Patil, Deep Tavker, Pankaj Pandey, Chandrashekhar Kaushik, Arkopal Dutt, and Arpit Agarwal. PySPH: a Python-based framework for smoothed particle hydrodynamics. *ACM Transactions on Mathematical Software*, 47(4):34:1–34:38, December 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3460773.

Peres:2021:ECT

[1701] Noah Peres, Andrew Ray Lee, and Uri Keich. Exactly computing the tail of the Poisson-binomial distribution. *ACM Transactions on Mathematical Software*, 47(4):35:1–35:19, December 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3460774`.

Blackman:2021:SLP

[1702] David Blackman and Sebastiano Vigna. Scrambled linear pseudorandom number generators. *ACM Transactions on Mathematical Software*, 47(4):36:1–36:32, December 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3460772`.

Snyder:2021:CRA

[1703] W. Van Snyder. Corrigendum: Remark on Algorithm 723: Fresnel Integrals. *ACM Transactions on Mathematical Software*, 47(4):37:1, December 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3452336`. See [800].

Roth:2021:RAO

[1704] Ágoston Róth. Remark on Algorithm 992: an OpenGL- and C++-based function library for curve and surface modeling in a large class of extended Chebyshev spaces. *ACM Transactions on Mathematical Software*, 47(4):38:1–38:2, December 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3461643`. See [1596].

Gia:2021:AFF

[1705] Quoc T. Le Gia, Ming Li, and Yu Guang Wang. Algorithm 1018: `FaVeST` — fast vector spherical harmonic transforms. *ACM Transactions on Mathematical Software*, 47(4):39:1–39:24, December 2021. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3458470`.

Yang:2022:GHP

[1706] Carl Yang, Aydin Buluç, and John D. Owens. `GraphBLAST`: a high-performance linear algebra-based graph framework on the GPU. *ACM Transactions on Mathematical Software*, 48(1):1:1–1:51, March 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3466795`.

Anzt:2022:GML

[1707] Hartwig Anzt, Terry Cojean, Goran Flegar, Fritz Göbel, Thomas Grützmacher, Pratik Nayak, Tobias Ribizel, Yuhsiang Mike Tsai, and Enrique S. Quintana-Ortí. `Ginkgo`: a modern linear operator algebra framework for high performance computing. *ACM Transactions on Mathematical Software*, 48(1):2:1–2:33, March 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3480935`.

Balos:2022:RCR

[1708] Cody J. Balos. Reproduced computational results report for "`Ginkgo`: a Modern Linear Operator Algebra Framework for High Performance Computing". *ACM Transactions on Mathematical Software*, 48(1):3:1–3:7, March 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3480936`.

Drmac:2022:ACS

[1709] Zlatko Drmac and Ivana Sain Glibić. An algorithm for the complete solution of the quartic eigenvalue problem. *ACM Transactions on Mathematical Software*, 48(1):4:1–4:34, March 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3494528`.

Scott:2022:CSU

[1710] Jennifer Scott and Miroslav Tuma. A computational study of using black-box QR solvers for large-scale sparse-dense linear least squares problems. *ACM Transactions on Mathematical Software*, 48(1):5:1–5:24, March 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3494527`.

Porcelli:2022:EPS

[1711] Margherita Porcelli and Philippe L. Toint. Exploiting problem structure in derivative free optimization. *ACM Transactions on Mathematical Software*, 48(1):6:1–6:25, March 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3474054`.

Huckelheim:2022:SSA

[1712] Jan Hückelheim and Laurent Hascoët. Source-to-source automatic differentiation of OpenMP parallel loops. *ACM Transactions on Mathematical Software*, 48(1):7:1–7:32, March 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3472796`.

Crum:2022:BTS

[1713] Justin Crum, Cyrus Cheng, David A. Ham, Lawrence Mitchell, Robert C. Kirby, Joshua A. Levine, and Andrew Gillette. Bringing trimmed serendipity methods to computational practice in `Firedrake`. *ACM Transactions on Mathematical Software*, 48(1):8:1–8:19, March 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3490485`.

Muller:2022:FDW

[1714] Jean-Michel Muller and Laurence Rideau. Formalization of double-word arithmetic, and comments on "Tight and Rigorous Error Bounds for Basic Building Blocks of Double-Word Arithmetic". *ACM Transactions on Mathematical Software*, 48(1):9:1–9:24, March 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3484514`.

Snyder:2022:RAE

[1715] W. Van Snyder. Remark on Algorithm 982: Explicit Solutions of Triangular Systems of First-order Linear Initial-value Ordinary Differential Equations with Constant Coefficients. *ACM Transactions on Mathematical Software*, 48(1):10:1–10:4, March 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3479429`.

Myllykoski:2022:ATB

[1716] Mirko Myllykoski. Algorithm 1019: a task-based multi-shift QR /QZ algorithm with aggressive early deflation. *ACM Transactions on Mathematical Software*, 48(1):11:1–11:36, March 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3495005`.

Speleers:2022:ACM

[1717] Hendrik Speleers. Algorithm 1020: Computation of multi-degree Tchebycheffian B-splines. *ACM Transactions on Mathematical Software*, 48 (1):12:1–12:31, March 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3478686`.

Nath:2022:KVM

[1718] Kaushik Nath and Palash Sarkar. Kummer versus Montgomery face-off over prime order fields. *ACM Transactions on Mathematical Software*, 48(2):13:1–13:28, June 2022. CODEN ACMSCU. ISSN 0098-

3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3503536.

Eifler:2022:SCF

[1719] Leon Eifler, Ambros Gleixner, and Jonad Pulaj. A safe computational framework for integer programming applied to Chvátal's Conjecture. *ACM Transactions on Mathematical Software*, 48(2):14:1–14:12, June 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3485630.

Gusmeroli:2022:BPB

[1720] Nicolò Gusmeroli, Timotej Hrga, Borut Luzar, Janez Povh, Melanie Siebenhofer, and Angelika Wiegele. BiqBin: a parallel branch-and-bound solver for binary quadratic problems with linear constraints. *ACM Transactions on Mathematical Software*, 48(2):15:1–15:31, June 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3514039.

Charumathi:2022:FAP

[1721] V. Charumathi, M. Ramakrishna, and Vinita Vasudevan. Fast and accurate proper orthogonal decomposition using efficient sampling and iterative techniques for singular value decomposition. *ACM Transactions on Mathematical Software*, 48(2):16:1–16:24, June 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3506691.

Mccoid:2022:PRA

[1722] Conor Mccoid and Martin J. Gander. A provably robust algorithm for triangle–triangle intersections in floating-point arithmetic. *ACM Transactions on Mathematical Software*, 48(2):17:1–17:30, June 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3513264.

Scroggs:2022:CAO

[1723] Matthew W. Scroggs, Jørgen S. Dokken, Chris N. Richardson, and Garth N. Wells. Construction of arbitrary order finite element degree-of-freedom maps on polygonal and polyhedral cell meshes. *ACM Transactions on Mathematical Software*, 48(2):18:1–18:23, June 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3524456.

Trotter:2022:MTO

[1724] James D. Trotter, Xing Cai, and Simon W. Funke. On memory traffic and optimisations for low-order finite element assembly algorithms on multi-core CPUs. *ACM Transactions on Mathematical Software*, 48(2):19:1–19:31, June 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3503925`.

Lourenco:2022:ASL

[1725] Christopher Lourenco, Jinhao Chen, Erick Moreno-Centeno, and Timothy A. Davis. Algorithm 1021: SPEX left LU, exactly solving sparse linear systems via a sparse left-looking integer-preserving LU factorization. *ACM Transactions on Mathematical Software*, 48(2):20:1–20:23, June 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3519024`.

Heavner:2022:AEA

[1726] N. Heavner, F. D. Igual, G. Quintana-Ortí, and P. G. Martinsson. Algorithm 1022: Efficient algorithms for computing a rank-revealing UTV factorization on parallel computing architectures. *ACM Transactions on Mathematical Software*, 48(2):21:1–21:42, June 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3507466`.

Korablev:2022:ARF

[1727] Yuriy Korablev. Algorithm 1023: Restoration of function by integrals with cubic integral smoothing spline in R. *ACM Transactions on Mathematical Software*, 48(2):22:1–22:17, June 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3519384`.

Kalantari:2022:AST

[1728] Bahman Kalantari and Yikai Zhang. Algorithm 1024: Spherical triangle algorithm: a fast oracle for convex hull membership queries. *ACM Transactions on Mathematical Software*, 48(2):23:1–23:32, June 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3516520`.

Pokuri:2022:APS

[1729] Balaji Sesha Sarath Pokuri, Alec Lofquist, Chad Risko, and Baskar Ganapathysubramanian. Algorithm 1025: PARyOpt: a software for parallel asynchronous remote Bayesian optimization. *ACM Transactions on Mathematical Software*, 48(2):24:1–24:15, June 2022. CODEN ACMSCU.

ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3529517`.

Schwarz:2022:RLB

[1730] Angelika Schwarz. Robust level-3 BLAS inverse iteration from the Hessenberg matrix. *ACM Transactions on Mathematical Software*, 48 (3):25:1–25:??, September 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3544789`.

Psarras:2022:LAM

[1731] Christos Psarras, Henrik Barthels, and Paolo Bientinesi. The linear algebra mapping problem. Current state of linear algebra languages and libraries. *ACM Transactions on Mathematical Software*, 48(3):26:1–26:??, September 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3549935`.

Apriansyah:2022:PQF

[1732] M. Ridwan Apriansyah and Rio Yokota. Parallel QR factorization of block low-rank matrices. *ACM Transactions on Mathematical Software*, 48(3):27:1–27:??, September 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3538647`.

Lange:2022:TAF

[1733] Marko Lange. Toward accurate and fast summation. *ACM Transactions on Mathematical Software*, 48(3):28:1–28:??, September 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3544488`.

Hubschle-Schneider:2022:PWR

[1734] Lorenz Hübschle-Schneider and Peter Sanders. Parallel weighted random sampling. *ACM Transactions on Mathematical Software*, 48(3): 29:1–29:??, September 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3549934`.

Klinkovsky:2022:COS

[1735] Jakub Klinkovský, Tomás Oberhuber, Radek Fucík, and Vítezslav Zabka. Configurable open-source data structure for distributed conforming unstructured homogeneous meshes with GPU support. *ACM Transactions on Mathematical Software*, 48(3):30:1–30:??, September 2022. CODEN

ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3536164`.

Gardner:2022:ENF

[1736] David J. Gardner, Daniel R. Reynolds, Carol S. Woodward, and Cody J. Balos. Enabling new flexibility in the SUNDIALS suite of nonlinear and differential/algebraic equation solvers. *ACM Transactions on Mathematical Software*, 48(3):31:1–31:??, September 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3539801`.

Chen:2022:HHI

[1737] Qiao Chen and Xiangmin Jiao. HIFIR: Hybrid incomplete factorization with iterative refinement for preconditioning ill-conditioned and singular systems. *ACM Transactions on Mathematical Software*, 48(3):32:1–32:??, September 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3536165`.

Liang:2022:QTP

[1738] Ling Liang, Xudong Li, Defeng Sun, and Kim-Chuan Toh. QPPAL: a two-phase proximal augmented Lagrangian method for high-dimensional convex quadratic programming problems. *ACM Transactions on Mathematical Software*, 48(3):33:1–33:??, September 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3476571`.

Psarras:2022:ACA

[1739] Christos Psarras, Lars Karlsson, Rasmus Bro, and Paolo Bientinesi. Algorithm 1026: Concurrent alternating least squares for multiple simultaneous canonical polyadic decompositions. *ACM Transactions on Mathematical Software*, 48(3):34:1–34:??, September 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3519383`.

Audet:2022:ANV

[1740] Charles Audet, Sébastien Le Digabel, Viviane Rochon Montplaisir, and Christophe Tribes. Algorithm 1027: `NOMAD` version 4: Nonlinear optimization with the MADS algorithm. *ACM Transactions on Mathematical Software*, 48(3):35:1–35:??, September 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3544489`.

Chang:2022:AVS

[1741] Tyler H. Chang, Layne T. Watson, Jeffrey Larson, Nicole Neveu, William I. Thacker, Shubhangi Deshpande, and Thomas C. H. Lux. Algorithm 1028: VTMOP: Solver for blackbox multiobjective optimization problems. *ACM Transactions on Mathematical Software*, 48(3): 36:1–36:??, September 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3529258`.

Alves:2022:COH

[1742] João Nuno Ferreira Alves, Luís Manuel Silveira Russo, and Alexandre Francisco. Cache-oblivious Hilbert curve-based blocking scheme for matrix transposition. *ACM Transactions on Mathematical Software*, 48 (4):37:1–37:??, December 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3555353`.

Telen:2022:NFA

[1743] Simon Telen and Nick Vannieuwenhoven. A normal form algorithm for tensor rank decomposition. *ACM Transactions on Mathematical Software*, 48(4):38:1–38:??, December 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3555369`.

Jarlebring:2022:CGM

[1744] Elias Jarlebring, Massimiliano Fasi, and Emil Ringh. Computational graphs for matrix functions. *ACM Transactions on Mathematical Software*, 48(4):39:1–39:??, December 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3568991`.

Mai:2022:ECT

[1745] Ngoc Hoang Anh Mai, J. B. Lasserre, Victor Magron, and Jie Wang. Exploiting constant trace property in large-scale polynomial optimization. *ACM Transactions on Mathematical Software*, 48(4):40:1–40:??, December 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3555309`.

Stripinis:2022:DND

[1746] Linas Stripinis and Remigijus Paulavicius. DIRECTGO: a new DIRECT-type MATLAB toolbox for derivative-free global optimization. *ACM Transactions on Mathematical Software*, 48(4):41:1–41:??, December

2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3559755`.

Wang:2022:CTC

[1747] Jie Wang, Victor Magron, J. B. Lasserre, and Ngoc Hoang Anh Mai. CS-TSSOS: Correlative and term sparsity for large-scale polynomial optimization. *ACM Transactions on Mathematical Software*, 48(4): 42:1–42:??, December 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3569709`.

Phipps:2022:ADC

[1748] Eric Phipps, Roger Pawlowski, and Christian Trott. Automatic differentiation of C++ codes on emerging manycore architectures with Sacado. *ACM Transactions on Mathematical Software*, 48(4):43:1–43:??, December 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3560262`.

Sobczyk:2022:PPA

[1749] Aleksandros Sobczyk and Efstratios Gallopoulos. `pylspack`: Parallel algorithms and data structures for sketching, column subset selection, regression, and leverage scores. *ACM Transactions on Mathematical Software*, 48(4):44:1–44:??, December 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3555370`.

Meisrimel:2022:WRA

[1750] Peter Meisrimel and Philipp Birken. Waveform relaxation with asynchronous time-integration. *ACM Transactions on Mathematical Software*, 48(4):45:1–45:??, December 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3569578`.

DeMichele:2022:RAB

[1751] Cristiano De Michele. Remark on Algorithm 1010: Boosting efficiency in solving quartic equations with no compromise in accuracy. *ACM Transactions on Mathematical Software*, 48(4):46:1–46:??, December 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3564270`. See [1648].

Demeure:2022:AEE

[1752] Nestor Demeure, Cédric Chevalier, Christophe Denis, and Pierre Dossantos-Uzarralde. Algorithm 1029: Encapsulated error, a direct ap-

proach to evaluate floating-point accuracy. *ACM Transactions on Mathematical Software*, 48(4):47:1–47:??, December 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3549205`.

Brust:2022:ASS

[1753] Johannes Brust, Oleg Burdakov, Jennifer Erway, and Roummel Marcia. Algorithm 1030: SC-SR1: MATLAB software for limited-memory SR1 trust-region methods. *ACM Transactions on Mathematical Software*, 48(4):48:1–48:??, December 2022. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3550269`.

Lefevre:2023:ACE

[1754] Vincent Lefèvre, Nicolas Louvet, Jean-Michel Muller, Joris Picot, and Laurence Rideau. Accurate calculation of Euclidean norms using double-word arithmetic. *ACM Transactions on Mathematical Software*, 49(1): 1:1–1:??, March 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3568672`.

Reberol:2023:RTC

[1755] Maxence Reberol, Kilian Verhetsel, François Henrotte, David Bommes, and Jean-François Remacle. Robust topological construction of all-hexahedral boundary layer meshes. *ACM Transactions on Mathematical Software*, 49(1):2:1–2:??, March 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3577196`.

Bluhdorn:2023:EBA

[1756] Johannes Blühdorn, Max Sagebaum, and Nicolas Gauger. Event-based automatic differentiation of OpenMP with OpDiLib. *ACM Transactions on Mathematical Software*, 49(1):3:1–3:??, March 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3570159`.

Amestoy:2023:CSA

[1757] Patrick Amestoy, Alfredo Buttari, Nicholas J. Higham, Jean-Yves L'Excellent, Theo Mary, and Bastien Vieublé. Combining sparse approximate factorizations with mixed-precision iterative refinement. *ACM Transactions on Mathematical Software*, 49(1):4:1–4:??, March 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3582493`.

Anselmann:2023:GMM

[1758] Mathias Anselmann and Markus Bause. A geometric multigrid method for space-time finite element discretizations of the Navier–Stokes equations and its application to 3D flow simulation. *ACM Transactions on Mathematical Software*, 49(1):5:1–5:??, March 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3582492`.

Lux:2023:AMM

[1759] Thomas Lux, Layne T. Watson, Tyler Chang, and William Thacker. Algorithm 1031: MQSI-monotone quintic spline interpolation. *ACM Transactions on Mathematical Software*, 49(1):6:1–6:??, March 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3570157`.

Peters:2023:ABC

[1760] Jörg Peters, Kyle Lo, and Kestutis Karciauskas. Algorithm 1032: Bicubic splines for polyhedral control nets. *ACM Transactions on Mathematical Software*, 49(1):7:1–7:??, March 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3570158`.

Quintana-Orti:2023:API

[1761] Gregorio Quintana-Ortí, Fernando Hernando, and Francisco D. Igual. Algorithm 1033: Parallel implementations for computing the minimum distance of a random linear code on distributed-memory architectures. *ACM Transactions on Mathematical Software*, 49(1):8:1–8:??, March 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3573383`.

Fahmy:2023:AAA

[1762] Thierry Fahmy. Algorithm 1034: an accelerated algorithm to compute the Q_n robust statistic, with corrections to constants. *ACM Transactions on Mathematical Software*, 49(1):9:1–9:??, March 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3576920`.

Li:2023:NRC

[1763] Xiaoye S. Li, Paul Lin, Yang Liu, and Piyush Sao. Newly released capabilities in the distributed-memory SuperLU sparse direct solver. *ACM Transactions on Mathematical Software*, 49(1):10:1–10:??, March 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3577197`.

Breiding:2023:CZP

[1764] Paul Breiding, Kemal Rose, and Sascha Timme. Certifying zeros of polynomial systems using interval arithmetic. *ACM Transactions on Mathematical Software*, 49(1):11:1–11:??, March 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3580277`.

Horacsek:2023:FAG

[1765] Joshua Horacsek and Usman Alim. FastSpline: Automatic generation of interpolants for lattice samplings. *ACM Transactions on Mathematical Software*, 49(2):12:1–12:??, June 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3577194`.

Ketcheson:2023:CBS

[1766] David I. Ketcheson and Hendrik Ranocha. Computing with B-series. *ACM Transactions on Mathematical Software*, 49(2):13:1–13:??, June 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3573384`.

Borm:2023:DHM

[1767] Steffen Börm. Distributed $\mathcal{H}_{\in}$-matrices for boundary element methods. *ACM Transactions on Mathematical Software*, 49(2):14:1–14:??, June 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3582494`.

Agullo:2023:TBP

[1768] Emmanuel Agullo, Alfredo Buttari, Abdou Guermouche, Julien Herrmann, and Antoine Jego. Task-based parallel programming for scalable matrix product algorithms. *ACM Transactions on Mathematical Software*, 49(2):15:1–15:??, June 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3583560`.

Chalkis:2023:TLC

[1769] Apostolos Chalkis, Vissarion Fisikopoulos, Marios Papachristou, and Elias Tsigaridas. Truncated log-concave sampling for convex bodies with reflective Hamiltonian Monte Carlo. *ACM Transactions on Mathematical Software*, 49(2):16:1–16:??, June 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3589505`.

Kim:2023:HMB

[1770] Ki-Tae Kim, Umberto Villa, Matthew Parno, Youssef Marzouk, Omar Ghattas, and Noemi Petra. hIPPYlib-MUQ: a Bayesian inference software framework for integration of data with complex predictive models under uncertainty. *ACM Transactions on Mathematical Software*, 49(2):17:1–17:??, June 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3580278`.

Fasi:2023:CCL

[1771] Massimiliano Fasi and Mantas Mikaitis. CPFloat: a C library for simulating low-precision arithmetic. *ACM Transactions on Mathematical Software*, 49(2):18:1–18:??, June 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3585515`.

Reynolds:2023:AFI

[1772] Daniel R. Reynolds, David J. Gardner, Carol S. Woodward, and Rujeko Chinomona. ARKODE: a flexible IVP solver infrastructure for one-step methods. *ACM Transactions on Mathematical Software*, 49(2):19:1–19:??, June 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3594632`.

Hager:2023:AGB

[1773] William W. Hager and Hongchao Zhang. Algorithm 1035: a gradient-based implementation of the polyhedral active set algorithm. *ACM Transactions on Mathematical Software*, 49(2):20:1–20:??, June 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3583559`.

Baert:2023:AAA

[1774] Wouter Baert and Nick Vannieuwenhoven. Algorithm 1036: ATC, an advanced Tucker compression library for multidimensional data. *ACM Transactions on Mathematical Software*, 49(2):21:1–21:??, June 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3585514`.

Bestuzheva:2023:ERT

[1775] Ksenia Bestuzheva, Mathieu Besançon, Wei-Kun Chen, Antonia Chmiela, Tim Donkiewicz, Jasper van Doornmalen, Leon Eifler, Oliver Gaul, Gerald Gamrath, Ambros Gleixner, Leona Gottwald, Christoph Graczyk, Katrin Halbig, Alexander Hoen, Christopher Hojny, Rolf

van der Hulst, Thorsten Koch, Marco Lübbecke, Stephen J. Maher, Frederic Matter, Erik Mühmer, Benjamin Müller, Marc E. Pfetsch, Daniel Rehfeldt, Steffan Schlein, Franziska Schlösser, Felipe Serrano, Yuji Shinano, Boro Sofranac, Mark Turner, Stefan Vigerske, Fabian Wegscheider, Philipp Wellner, Dieter Weninger, and Jakob Witzig. Enabling research through the SCIP Optimization Suite 8.0. *ACM Transactions on Mathematical Software*, 49(2):22:1–22:??, June 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3585516`.

Deshmukh:2023:COP

[1776] Sameer Deshmukh, Rio Yokota, and George Bosilca. Cache optimization and performance modeling of batched, small, and rectangular matrix multiplication on Intel, AMD, and Fujitsu processors. *ACM Transactions on Mathematical Software*, 49(3):23:1–23:??, September 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3595178`.

Claus:2023:SAM

[1777] Lisa Claus, Pieter Ghysels, Yang Liu, Thái Anh Nhan, Ramakrishnan Thirumalaisamy, Amneet Pal Singh Bhalla, and Sherry Li. Sparse approximate multifrontal factorization with composite compression methods. *ACM Transactions on Mathematical Software*, 49(3):24:1–24:??, September 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3611662`.

Fehling:2023:APG

[1778] Marc Fehling and Wolfgang Bangerth. Algorithms for parallel generic *hp*-adaptive finite element software. *ACM Transactions on Mathematical Software*, 49(3):25:1–25:??, September 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3603372`.

Giles:2023:AIC

[1779] Michael Giles and Oliver Sheridan-Methven. Approximating inverse cumulative distribution functions to produce approximate random variables. *ACM Transactions on Mathematical Software*, 49(3):26:1–26:??, September 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3604935`.

Fioravanti:2023:AAM

[1780] Massimo Fioravanti, Daniele Cattaneo, Federico Terraneo, Silvano Seva, Stefano Cherubin, Giovanni Agosta, Francesco Casella, and Alberto

Leva. Array-aware matching: Taming the complexity of large-scale simulation models. *ACM Transactions on Mathematical Software*, 49 (3):27:1–27:??, September 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3611661`.

Davis:2023:ASG

[1781] Timothy A. Davis. Algorithm 1037: SuiteSparse:GraphBLAS: Parallel graph algorithms in the language of sparse linear algebra. *ACM Transactions on Mathematical Software*, 49(3):28:1–28:??, September 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3577195`.

Roman:2023:ISR

[1782] Jose E. Roman, Fernando Alvarruiz, Carmen Campos, Lisandro Dalcin, Pierre Jolivet, and Alejandro Lamas Daviña. Improvements to `SLEPc` in releases 3.14–3.18. *ACM Transactions on Mathematical Software*, 49(3):29:1–29:??, September 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3603373`.

Papanikos:2023:ICL

[1783] Georgios Papanikos, Catherine E. Powell, and David J. Silvester. `IFISS3D`: a computational laboratory for investigating finite element approximation in three dimensions. *ACM Transactions on Mathematical Software*, 49(3):30:1–30:??, September 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3604934`.

Himpe:2023:EEG

[1784] Christian Himpe. `emgr` — EMpirical GRamian framework version 5.99. *ACM Transactions on Mathematical Software*, 49(3):31:1–31:??, September 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3609860`.

Rump:2023:IPP

[1785] Siegfried M. Rump. IEEE-754 precision-p base-β arithmetic implemented in binary. *ACM Transactions on Mathematical Software*, 49(4):32:1–32:??, December 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3596218`; `https://www.tuhh.de/ti3/paper/rump/Ru23b.pdf`.

Axen:2023:MJE

[1786] Seth D. Axen, Mateusz Baran, Ronny Bergmann, and Krzysztof Rzecki. `Manifolds.jl`: an extensible Julia framework for data analysis on manifolds. *ACM Transactions on Mathematical Software*, 49(4):33:1–33:??, December 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3618296`.

LeBrigant:2023:PIG

[1787] Alice Le Brigant, Jules Deschamps, Antoine Collas, and Nina Miolane. Parametric information geometry with the package `Geomstats`. *ACM Transactions on Mathematical Software*, 49(4):34:1–34:??, December 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3627538`.

Villar-Sepulveda:2023:CTB

[1788] Edgardo Villar-Sepúlveda and Alan Champneys. Computation of Turing bifurcation normal form for n-component reaction–diffusion systems. *ACM Transactions on Mathematical Software*, 49(4):35:1–35:??, December 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3625560`.

Budisa:2023:HSC

[1789] Ana Budisa, Xiaozhe Hu, Miroslav Kuchta, Kent-André Mardal, and Ludmil T. Zikatanov. HAZniCS — software components for multiphysics problems. *ACM Transactions on Mathematical Software*, 49 (4):36:1–36:??, December 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3625561`.

Ranocha:2023:EIM

[1790] Hendrik Ranocha, Michael Schlottke-Lakemper, Jesse Chan, Andrés M. Rueda-Ramírez, Andrew R. Winters, Florian Hindenlang, and Gregor J. Gassner. Efficient implementation of modern entropy stable and kinetic energy preserving discontinuous Galerkin methods for conservation laws. *ACM Transactions on Mathematical Software*, 49(4):37:1–37:??, December 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3625559`.

Kusch:2023:KRE

[1791] Jonas Kusch, Steffen Schotthöfer, Pia Stammer, Jannick Wolters, and Tianbai Xiao. `KiT-RT`: an extendable framework for radiative transfer and therapy. *ACM Transactions on Mathematical Software*, 49

(4):38:1–38:??, December 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3630001`.

Kimiaei:2023:NSM

[1792] Morteza Kimiaei, Arnold Neumaier, and Parvaneh Faramarzi. New subspace method for unconstrained derivative-free optimization. *ACM Transactions on Mathematical Software*, 49(4):39:1–39:??, December 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3618297`.

Lin:2023:AKM

[1793] Hao Lin, Hongfu Liu, Junjie Wu, Hong Li, and Stephan Günnemann. Algorithm 1038: KCC: a MATLAB package for k-means-based consensus clustering. *ACM Transactions on Mathematical Software*, 49 (4):40:1–40:??, December 2023. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3616011`.

Drmac:2024:LID

[1794] Zlatko Drmac. A LAPACK implementation of the dynamic mode decomposition. *ACM Transactions on Mathematical Software*, 50(1):1:1–1:??, March 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3640012`.

Drmac:2024:HDM

[1795] Zlatko Drmac. Hermitian dynamic mode decomposition — numerical analysis and software solution. *ACM Transactions on Mathematical Software*, 50(1):2:1–2:??, March 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3641884`.

Hascoet:2024:DFR

[1796] Laurent Hascoët. Data-flow reversal and garbage collection. *ACM Transactions on Mathematical Software*, 50(1):3:1–3:??, March 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3627537`.

Brehard:2024:EVN

[1797] Florent Bréhard, Nicolas Brisebarre, Mioara Joldes, and Warwick Tucker. Efficient and validated numerical evaluation of Abelian integrals. *ACM Transactions on Mathematical Software*, 50(1):4:1–4:??, March 2024.

CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3637550.

Alkamper:2024:IPM

[1798] Maria Alkämper, Jim Magiera, and Christian Rohde. An interface-preserving moving mesh in multiple space dimensions. *ACM Transactions on Mathematical Software*, 50(1):5:1–5:??, March 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3630000.

Alaejos:2024:AAG

[1799] Guillermo Alaejos, Adrián Castelló, Pedro Alonso-Jordá, Francisco D. Igual, Héctor Martínez, and Enrique S. Quintana-Ortí. Algorithm 1039: Automatic generators for a family of matrix multiplication routines with Apache TVM. *ACM Transactions on Mathematical Software*, 50(1):6:1–6:??, March 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3638532.

Piazzola:2024:ASG

[1800] Chiara Piazzola and Lorenzo Tamellini. Algorithm 1040: The Sparse Grids Matlab Kit — a Matlab implementation of sparse grids for high-dimensional function approximation and uncertainty quantification. *ACM Transactions on Mathematical Software*, 50(1):7:1–7:22, March 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3630023.

Ouermi:2024:AHH

[1801] Timbwoga A. J. Ouermi, Robert M. Kirby, and Martin Berzins. Algorithm 1041: HiPPIS — a high-order positivity-preserving mapping software for structured meshes. *ACM Transactions on Mathematical Software*, 50(1):8:1–8:??, March 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3632291.

Scott:2024:ABI

[1802] Jennifer Scott and Miroslav Tuma. Avoiding breakdown in incomplete factorizations in low precision arithmetic. *ACM Transactions on Mathematical Software*, 50(2):9:1–9:25, June 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL https://dl.acm.org/doi/10.1145/3651155.

Beaumont:2024:ORM

[1803] Olivier Beaumont, Lionel Eyraud-Dubois, Julien Herrmann, Alexis Joly, and Alena Shilova. Optimal re-materialization strategies for heterogeneous chains: How to train deep neural networks with limited memory. *ACM Transactions on Mathematical Software*, 50(2):10:1–10:??, June 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3648633`.

Chowdhary:2024:PES

[1804] Abhijit Chowdhary, Shady E. Ahmed, and Ahmed Attia. PyOED: an extensible suite for data assimilation and model-constrained optimal design of experiments. *ACM Transactions on Mathematical Software*, 50(2):11:1–11:??, June 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3653071`.

Chang:2024:RAC

[1805] Tyler H. Chang, Layne T. Watson, Sven Leyffer, Thomas C. H. Lux, and Hussain M. J. Almohri. Remark on Algorithm 1012: Computing projections with large datasets. *ACM Transactions on Mathematical Software*, 50(2):12:1–12:??, June 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3656581`. See [1666].

Eftekhari:2024:ASP

[1806] Aryan Eftekhari, Lisa Gaedke-Merzhäuser, Dimosthenis Pasadakis, Matthias Bollhöfer, Simon Scheidegger, and Olaf Schenk. Algorithm 1042: Sparse precision matrix estimation with SQUIC. *ACM Transactions on Mathematical Software*, 50(2):13:1–13:??, June 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3650108`.

Feng:2024:AFR

[1807] Xu Feng, Wenjian Yu, Yuyang Xie, and Jie Tang. Algorithm 1043: Faster randomized SVD with dynamic shifts. *ACM Transactions on Mathematical Software*, 50(2):14:1–14:??, June 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3660629`.

Arnaudon:2024:APM

[1808] Alexis Arnaudon, Dominik J. Schindler, Robert L. Peach, Adam Gosztolai, Maxwell Hodges, Michael T. Schaub, and Mauricio Barahona. Algorithm 1044: PyGenStability, a multiscale community detection with

generalized Markov stability. *ACM Transactions on Mathematical Software*, 50(2):15:1–15:??, June 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3651225`.

Helwig:2024:ACD

[1809] Jacob Helwig, Sutanoy Dasgupta, Peng Zhao, Bani K. Mallick, and Debdeep Pati. Algorithm 1045: a covariate-dependent approach to Gaussian graphical modeling in R. *ACM Transactions on Mathematical Software*, 50(2):16:1–16:??, June 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3659206`.

Rozanski:2024:EGA

[1810] Piotr T. Rózański. `empi`: GPU-accelerated matching pursuit with continuous dictionaries. *ACM Transactions on Mathematical Software*, 50(3):17:1–17:??, September 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3674832`.

Marzorati:2024:EML

[1811] Denise Marzorati, Joaquín Fernández, and Ernesto Kofman. Efficient matching in large DAE models. *ACM Transactions on Mathematical Software*, 50(3):18:1–18:??, September 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3674831`.

Hou:2024:SSN

[1812] Di Hou, Ling Liang, and Kim-Chuan Toh. A sparse smoothing Newton method for solving discrete optimal transport problems. *ACM Transactions on Mathematical Software*, 50(3):19:1–19:??, September 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3688800`.

Thompson:2024:AIR

[1813] Ian Thompson. Algorithm 1046: an improved recurrence method for the scaled complex error function. *ACM Transactions on Mathematical Software*, 50(3):20:1–20:??, September 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3688799`.

Michele:2024:RAB

[1814] Cristiano De Michele. Remark on Algorithm 1010: Boosting efficiency in solving quartic equations with no compromise in accuracy. *ACM Trans-*

actions on Mathematical Software, 50(3):21:1–21:??, September 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3674833`.

Khalighi:2024:AFJ

[1815] Moein Khalighi, Giulio Benedetti, and Leo Lahti. Algorithm 1047: FdeSolver, a Julia package for solving fractional differential equations. *ACM Transactions on Mathematical Software*, 50(3):22:1–22:??, September 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3680280`.

Fuda:2024:ACC

[1816] Chiara Fuda and Kai Hormann. Algorithm 1048: a C++ class for robust linear barycentric rational interpolation. *ACM Transactions on Mathematical Software*, 50(3):23:1–23:??, September 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3681781`.

Gillette:2024:ADD

[1817] Andrew Gillette and Eugene Kur. Algorithm 1049: The Delaunay density diagnostic. *ACM Transactions on Mathematical Software*, 50(4):24:1–24:??, December 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3700134`.

Mejia-Domenzain:2024:ASC

[1818] Lorena Mejia-Domenzain, Jinhao Chen, Christopher Lourenco, Erick Moreno-Centeno, and Timothy A. Davis. Algorithm 1050: SPEX Cholesky, LDL, and Backslash for exactly solving sparse linear systems. *ACM Transactions on Mathematical Software*, 50(4):25:1–25:??, December 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3700592`.

Lindquist:2024:GRB

[1819] Neil Lindquist, Piotr Luszczek, and Jack Dongarra. Generalizing random butterfly transforms to arbitrary matrix sizes. *ACM Transactions on Mathematical Software*, 50(4):26:1–26:??, December 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3699714`.

Toledo:2024:AUF

[1820] Sivan Toledo. Algorithm 1051: UltimateKalman, flexible Kalman filtering and smoothing using orthogonal transformations. *ACM Transactions*

on Mathematical Software, 50(4):27:1–27:??, December 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3699958`.

Bouillaguet:2024:AEB

[1821] Charles Bouillaguet. Algorithm 1052: Evaluating a Boolean polynomial on all possible inputs. *ACM Transactions on Mathematical Software*, 50(4):28:1–28:??, December 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3699957`.

Ge:2024:ASD

[1822] Dongdong Ge, Jinsong Liu, Tianhao Liu, Jiyuan Tan, and Yinyu Ye. Algorithm 1053: SOLNP+: a derivative-free solver for constrained nonlinear optimization. *ACM Transactions on Mathematical Software*, 50 (4):29:1–29:??, December 2024. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). URL `https://dl.acm.org/doi/10.1145/3699956`.

Suzuki:2025:IAB

[1823] Kengo Suzuki, Takeshi Fukaya, and Takeshi Iwashita. An integer arithmetic-based AMG preconditioned FGMRES solver. *ACM Transactions on Mathematical Software*, 51(1):1:1–1:??, March 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Walczyk:2025:OAX

[1824] Cezary J. Walczyk, Leonid V. Moroz, Volodymyr Samotyy, and Jan L. Cieśliński. Optimal approximation of the $1/x$ function using Chebyshev polynomials and magic constants. *ACM Transactions on Mathematical Software*, 51(1):2:1–2:??, March 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Antonietti:2025:LDP

[1825] Paola F. Antonietti, Stefano Bonetti, Michele Botti, Mattia Corti, Ivan Fumagalli, and Ilario Mazzieri. `lymph`: Discontinuous polytopal methods for multi-physics differential problems. *ACM Transactions on Mathematical Software*, 51(1):3:1–3:??, March 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Hu:2025:SSL

[1826] Tianchen Hu and Mark C. Messner. A simple, scalable large deformation solid mechanics implementation in the MOOSE framework. *ACM Trans-*

actions on Mathematical Software, 51(1):4:1–4:??, March 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gao:2025:MPJ

[1827] Weiguo Gao, Yuxin Ma, and Meiyue Shao. A mixed precision Jacobi SVD algorithm. *ACM Transactions on Mathematical Software*, 51(1):5:1–5:??, March 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Trim:2025:AEF

[1828] Sean J. Trim and Raymond J. Spiteri. Algorithm 1054: `ellipFor`, a Fortran software library for Legendre elliptic integrals and Jacobi elliptic functions with generalized input arguments. *ACM Transactions on Mathematical Software*, 51(1):6:1–6:??, March 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Aehle:2025:FMA

[1829] Max Aehle, Johannes Blühdorn, Max Sagebaum, and Nicolas R. Gauger. Forward-mode automatic differentiation of compiled programs. *ACM Transactions on Mathematical Software*, 51(2):7:1–7:??, June 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

McCoid:2025:IT

[1830] Conor McCoid and Martin J. Gander. Intersection of tetrahedra. *ACM Transactions on Mathematical Software*, 51(2):8:1–8:??, June 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Fowkes:2025:ALS

[1831] Jaroslav M. Fowkes, Nicholas I. M. Gould, and Jennifer A. Scott. Approximating large-scale Hessian matrices using secant equations. *ACM Transactions on Mathematical Software*, 51(2):9:1–9:??, June 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Molu:2025:LGA

[1832] Lekan Molu. LevelSetPy: a GPU-accelerated package for hyperbolic Hamilton–Jacobi partial differential equations. *ACM Transactions on Mathematical Software*, 51(2):10:1–10:??, June 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Velasco:2025:SUF

[1833] Manel Velasco, Isiah Zaplana, Arnau Dòria-Cerezo, and Pau Martí. Symbolic and user-friendly geometric algebra routines (SUGAR) for computations in Matlab. *ACM Transactions on Mathematical Software*, 51(2):

11:1–11:??, June 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Gao:2025:AHS

[1834] Wenzhi Gao, Dongdong Ge, and Yinyu Ye. Algorithm 1055: HDSDP: Software for semidefinite programming. *ACM Transactions on Mathematical Software*, 51(2):12:1–12:??, June 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Koprowski:2025:AQM

[1835] Przemysław Koprowski. Algorithm 1056: qPoly — a Magma package for working with quaternionic polynomials. *ACM Transactions on Mathematical Software*, 51(2):13:1–13:??, June 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

McAdam:2025:AFM

[1836] Shawn S. C. McAdam and Raymond J. Spiteri. Algorithm 1057: FunC: a minimally invasive C++ library for the generation and analysis of univariate lookup tables. *ACM Transactions on Mathematical Software*, 51 (2):14:1–14:??, June 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Mayani:2025:MPP

[1837] Sonali Mayani, Veronica Montanaro, Antoine Cerfon, Matthias Frey, Sriramkrishnan Muralikrishnan, and Andreas Adelmann. A massively parallel performance portable free-space spectral Poisson solver. *ACM Transactions on Mathematical Software*, 51(3):15:1–15:23, September 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Smith:2025:TSI

[1838] Barry Smith, Marsha Berger, Junchao Zhang, and Hui Zhou. Towards seamless interoperability of MPI–OpenMP applications. *ACM Transactions on Mathematical Software*, 51(3):16:1–16:13, September 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kirby:2025:EII

[1839] Robert C. Kirby and Scott P. MacLachlan. Extending Irksome: Improvements in automated Runge–Kutta time stepping for finite element methods. *ACM Transactions on Mathematical Software*, 51(3):17:1–17:27, September 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cyr:2025:THP

[1840] Eric C. Cyr, Jens Hahne, Nicholas S. Moore, Jacob B. Schroder, Ben S. Southworth, and David A. Vargas. TorchBraid: High-performance layer-parallel training of deep neural networks with MPI and GPU acceleration. *ACM Transactions on Mathematical Software*, 51(3):18:1–18:30, September 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Cui:2025:MIP

[1841] Cu Cui and Guido Kanschat. Multilevel interior penalty methods on GPUs. *ACM Transactions on Mathematical Software*, 51(3):19:1–19:27, September 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Koprowski:2025:ACG

[1842] Przemysław Koprowski. Algorithm 1058: Computing the group of local dyadic square-classes the easy way. *ACM Transactions on Mathematical Software*, 51(3):20:1–20:14, September 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Brubeck:2025:FIP

[1843] Pablo D. Brubeck, Robert C. Kirby, Fabian Laakmann, and Lawrence Mitchell. FIAT: Improving performance and accuracy for high-order finite elements. *ACM Transactions on Mathematical Software*, 51(3):21:1–21:17, September 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kinnewig:2025:CDI

[1844] Sebastian Kinnewig, Alexander Heinlein, and Thomas Wick. Coupling deal.II and FROSch: a sustainable and accessible (O)RAS preconditioner. *ACM Transactions on Mathematical Software*, 51(4):22:1–22:29, December 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Kinnewig:2025:ARS

[1845] Sebastian Kinnewig, Thomas Wick, and Sven Beuchler. Algorithmic realization of the solution to the sign conflict problem for hanging nodes on hp-hexahedral Nédélec elements. *ACM Transactions on Mathematical Software*, 51(4):23:1–23:20, December 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

McCoid:2025:PSI

[1846] Conor McCoid. Parsimonious simplicial intersection algorithm. *ACM Transactions on Mathematical Software*, 51(4):24:1–24:25, December 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Arzelier:2025:EAO

[1847] Denis Arzelier, Florent Brehard, Tom Hubrecht, and Mioara Joldes. An exchange algorithm for optimizing both approximation and finite-precision evaluation errors in polynomial approximations. *ACM Transactions on Mathematical Software*, 51(4):25:1–25:32, December 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

San-Jose:2025:ACG

[1848] Rodrigo San-José. An algorithm for computing generalized Hamming weights and the Sage package GHWs. *ACM Transactions on Mathematical Software*, 51(4):26:1–26:20, December 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Pashinska-Gadzheva:2025:ALL

[1849] Maria Pashinska-Gadzheva and Iliya Bouyukliev. Algorithm 1059: LinCodeWeightInv-Library for computing the weight distribution of linear codes over finite fields. *ACM Transactions on Mathematical Software*, 51(4):27:1–27:22, December 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Bucelli:2025:LLV

[1850] Michele Bucelli. The `lifex` library version 2.0. *ACM Transactions on Mathematical Software*, 51(4):28:1–28:10, December 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Besancon:2025:IAN

[1851] Mathieu Besançon, Sébastien Designolle, Jannis Halbey, Deborah Hendrych, Dominik Kuzinowicz, Sebastian Pokutta, Hannah Troppens, Daniel Viladrich Herrmannsdoerfer, and Elias Wirth. Improved algorithms and novel applications of the FrankWolfe.jl library. *ACM Transactions on Mathematical Software*, 51(4):29:1–29:33, December 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Prokopenko:2025:ALV

[1852] Andrey Prokopenko, Daniel Arndt, Damien Lebrun-Grandié, and Bruno Turcksin. The ArborX Library: Version 2.0. *ACM Transactions on Math-*

ematical Software, 51(4):30:1–30:10, December 2025. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Pal:2026:NJH

[1853] Avik Pal, Flemming Holtorf, Axel Larsson, Torkel Loman, Utkarsh, Frank Schäfer, Qingyu Qu, Edelman Alan, and Chris Rackauckas. NonlinearSolve.jl: High-performance and robust solvers for systems of nonlinear equations in Julia. *ACM Transactions on Mathematical Software*, 52(1):1:1–1:26, March 2026. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Heldens:2026:KFU

[1854] Stijn Heldens and Ben van Werkhoven. Kernel float: Unlocking mixed-precision GPU programming. *ACM Transactions on Mathematical Software*, 52(1):2:1–2:36, March 2026. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Pereira:2026:LLC

[1855] Luís F. Pereira, Alice Le Brigant, Adele Myers, Emmanuel Hartman, Amil Khan, Malik Tuerkoen, Trey Dold, Mengyang Gu, Pablo Suárez-Serrato, and Nina Miolane. Learning from landmarks, curves, surfaces, and shapes in geomstats. *ACM Transactions on Mathematical Software*, 52(1):3:1–3:31, March 2026. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Peng:2026:AEP

[1856] Mai Peng, Delaram Yazdani, Danial Yazdani, Zeneng She, Wenjian Luo, Changhe Li, Juergen Branke, Trung Thanh Nguyen, Amir H. Gandomi, Shengxiang Yang, Yaochu Jin, and Xin Yao. Algorithm 1060: EDOLAB, a platform for research and education in evolutionary dynamic optimization. *ACM Transactions on Mathematical Software*, 52(1):4:1–4:30, March 2026. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

Learmonth:1973:NPS

[1857] G. P. Learmonth and P. A. W. Lewis. Naval Postgraduate School random number generator package LLRANDOM. Report NP555LW73061A, Naval Postgraduate School, Monterey, CA, USA, 1973. The shuffling algorithm proposed in this report does *not* lengthen the period, and only marginally reduces the lattice structure of linear congruential generators, despite the apparently tiny difference with the [73] algorithm: see [1859] for a comparison, both mathematical, and graphical.

Hanson:1981:APE

[1858] David R. Hanson. Algorithm 568: PDS—a portable directory system. *ACM Transactions on Programming Languages and Systems*, 3(2):162–167, April 1981. CODEN ATPSDT. ISSN 0164-0925 (print), 1558-4593 (electronic).

Bays:1990:CIR

[1859] Carter Bays. C364. Improving a random number generator: a comparison between two shuffling methods. *Journal of Statistical Computation and Simulation*, 36(1):57–59, May 1990. CODEN JSCSAJ. ISSN 0094-9655 (print), 1026-7778 (electronic), 1563-5163. URL `http://www.tandfonline.com/doi/abs/10.1080/00949659008811264`. See [1857, 73] for the two nearly-identical shuffling algorithms. This paper explains why the first does not lengthen the generator period, or much reduce the lattice structure of linear congruential generators, but the second improves both dramatically.

ACM:2002:CSE

[1860] ACM. CALGO special edition CD. CD-ROM organized as a Web site., 2002. ISBN 1-58113-333-2. US$99.95 (member), US$159.95 (nonmember), US$199.95 (library). ACM order number 201001.

Brent:2008:SCC

[1861] Richard P. Brent. Some comments on C. S. Wallace's random number generators. *The Computer Journal*, 51(5):579–584, February 2008. CODEN CMPJA6. ISSN 0010-4620 (print), 1460-2067 (electronic). See [886].

Nakatsukasa:2013:SES

[1862] Yuji Nakatsukasa and Nicholas J. Higham. Stable and efficient spectral divide and conquer algorithms for the symmetric eigenvalue decomposition and the SVD. *SIAM Journal on Scientific Computing*, 35(3): A1325–A1349, ???? 2013. CODEN SJOCE3. ISSN 1064-8275 (print), 1095-7197 (electronic). See [1601].

Dumas:2014:NRI

[1863] Jean-Guillaume Dumas. On Newton–Raphson iteration for multiplicative inverses modulo prime powers. *IEEE Transactions on Computers*, 63(8): 2106–2109, August 2014. CODEN ITCOB4. ISSN 0018-9340 (print), 1557-9956 (electronic). See corrections [1592].

Jeannerod:2017:REC

[1864] Claude-Pierre Jeannerod and Jean-Michel Muller. On the relative error of computing complex square roots in floating-point arithmetic. In Michael B. Matthews, editor, *2017 51st Asilomar Conference on Signals, Systems, and Computers. October 29–November 1, 2017. Pacific Grove, California*, pages 737–740. IEEE Computer Society Press, 1109 Spring Street, Suite 300, Silver Spring, MD 20910, USA, 2017. ISBN 1-5386-1823-0.

Du:2021:IES

[1865] Yusong Du, Baoying Fan, and Baodian Wei. An improved exact sampling algorithm for the standard normal distribution. *Computational Statistics*, 37(??):721–737, July 2021. CODEN CSTAEB. ISSN 0943-4062 (print), 1613-9658 (electronic). See [1464].