

# A Complete Bibliography of Publications of Claude Elwood Shannon

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## Abstract

This bibliography records publications of Claude Elwood Shannon (1916–2001).

## Title word cross-reference

**\$27** [Sil18]. **\$4.00** [Mur57].  $7 \times 10$  [Mur57].  $H'$  [Siq98].  $n$  [Sha55d, Sha93-45].  
 $P/N \rightarrow \infty$  [Sha48j].  $s$  [Sha55d, Sha93-45].

**1939** [Sha93v]. **1950** [Ano53]. **1955** [MMS06]. **1982** [TWA<sup>+</sup>87].

**2001** [Bau01, Gal03, Jam09, Pin01]. **2D** [ZBM11].

**3** [Cer17].

**6G** [SB21].

978 [Cer17]. 978-1-4767-6668-3 [Cer17].

= [Int03].

**Aberdeen** [FS43]. **ablation** [GKL<sup>+</sup>13]. **above** [TT12]. **absolute** [Ric03]. **Abstract** [Sha55c]. **abundance** [Gor06]. **abundances** [Ric03]. **Academics** [Pin01]. **According** [Sav64]. **account** [RAL<sup>+</sup>08]. **accuracy** [SGB02]. **activation** [GKL<sup>+</sup>13]. **Active** [LB08]. **actress** [Kah84]. **Actually** [Sha53f]. **Advanced** [Mar93]. **Affecting** [Nyq24]. **After** [Bot88, Sav11]. **After-Shannon** [Bot88]. **Age** [ACK<sup>+</sup>01, Cou01, Ger12, Nah13, SG17, Sha02, Wal01b, Sil18, Cer17]. **A'h** [New56]. **A'h-mose** [New56]. **Aid** [Bro11, Sha78, Sha93y, SM53]. **Alan** [Cop25]. **Albert** [New56]. **alcohol** [SBS<sup>+</sup>13]. **Algebra** [Roc99, Sha40c, Sha93a, Jan14]. **algorithm** [Cha72, HDC96, LM03]. **Algorithms** [Doo18a]. **alignments** [CFRC04]. **Allied** [Kah84]. **alpha** [BSWCM14]. **alpha-Shannon** [BSWCM14]. **Alphabets** [GV15]. **Alternate** [Sha44e]. **Ambiguity** [Loe59, PGM<sup>+</sup>12]. **America** [FB69]. **American** [Ger12, Sha78]. **among** [AALR09, Di 00]. **Amplitude** [Sha54a]. **Analogue** [Sha43a, Sha93b]. **analogues** [Gor06]. **analyses** [SBS<sup>+</sup>13]. **Analysis** [Sha37, Sha38, Sha93-51, Sha21, GB00, RAL<sup>+</sup>07, SGB02, TKL<sup>+</sup>12, dTS<sup>+</sup>03]. **analyze** [HGR<sup>+</sup>12]. **Analyzer** [MS53b, MS53c, MS93c, Sha93-27, Sha41d, FS43]. **Anecdotes** [TWA<sup>+</sup>87]. **angular** [CS09]. **Animal** [Sha49d, Sha93-41]. **Apparatus** [Sha51b]. **Apple** [Cas16]. **Applicability** [Tim02]. **Application** [AALR09, JAS89, Sha48h, TWA<sup>+</sup>87, WV10, FCW<sup>+</sup>00, POA<sup>+</sup>08, Rif85, SSAK06]. **Applications** [Fel66, Fel71, Fel09]. **Applied** [BLR<sup>+</sup>02, BLR<sup>+</sup>01, MBD<sup>+</sup>03, dTS<sup>+</sup>03]. **Applying** [ABS<sup>+</sup>13]. **Approach** [Sha48j, Sha55c, Sha93-38, BB88, LR05, Pri84, Pri85, RS06, Rog94, Wri67]. **approximation** [Koc05]. **April** [Gal03, Jam09]. **aqueous** [SGB02]. **Archimedes** [Pic08]. **architectural** [SBS<sup>+</sup>13]. **area** [JSMS12]. **aromaticity** [NS10]. **Articulation** [Lei07]. **artificial** [MMS06]. **Aspects** [Sha80, Sha93-44]. **assemblages** [Siq98]. **assess** [RFME<sup>+</sup>12]. **assessment** [BQhH08, JSMS12]. **Associative** [Bot88]. **asynchronisms** [RAL<sup>+</sup>07]. **atomic** [AALR09, GFD03, SK04]. **atoms** [Liu07, Sen05]. **Atrial** [LMC11, GKL<sup>+</sup>13]. **attack** [HN09]. **August** [MMS06]. **Austria** [Van89]. **authors** [Ano17a]. **Automata** [SM56, SM74, Sha93m, Sha93-60, SW93a, Sha53c, Sha58c, Mur57]. **Automaten** [SM74]. **Automatic** [Min95]. **Automation** [Min95, Sha63a, Sha93n]. **avoided** [GFD03]. **award** [Han10, Ano40b, Bar01, Kha16]. **Awards** [Pin01].

**B** [HGR<sup>+</sup>12, SW93h]. **backgrounds** [WMS<sup>+</sup>12]. **Backlash** [Sha41a, Sha93c]. **bacterial** [ABS<sup>+</sup>13]. **Ballistic** [FS43]. **Band** [Sha54a]. **Bandwagon** [Sha56a, Sha93d]. **Bandwidth** [Sha44d]. **basada** [Pla06]. **base** [JGH00].

**Based** [FM99, APMS<sup>+</sup>12, BQhH08, CFRC04, HSBJ02, Koc05, LM03, MBD<sup>+</sup>03, NS12, WGB09, WBB<sup>+</sup>12]. **Bayes** [APMS<sup>+</sup>12, AES17]. **Be** [Far03, Far02]. **Beautiful** [Far03, Far02]. **before** [Min02]. **Behavior** [DS46, DS93]. **behind** [Pic08]. **Beings** [Szi64]. **Bell** [Ger12, Min95]. **bellied** [dPV00]. **Berechnung** [Sha57b]. **Berkeley** [Sug13]. **Best** [Sha44a, Sha93e]. **beta** [MHBL12]. **Betting** [Sha56d]. **Between** [Min02, Kah84, Liu07, RS06, Sen21, Zha09]. **Beyond** [SB21, LP12]. **biases** [Zee02]. **Bihar** [JAS89]. **Binaire** [Loe59]. **Binary** [Bar01, Loe59, Sha54b, Sha93q, SGB02]. **Biodiversidad** [Pla06]. **Biodiversity** [Pla06]. **biographical** [Rog94]. **Biographies** [Cor87, Wei88]. **Biological** [HWO90, Ric03]. **biologist** [Sch06]. **biology** [Sch06]. **biomarkers** [APMS<sup>+</sup>12]. **Biopolitics** [Roc99]. **Bipolar** [GKL<sup>+</sup>13]. **bit** [Ale03, Ano01b]. **bold** [FFF09]. **bone** [RAL<sup>+</sup>08]. **Book** [Cer17, Mur57, Roc11, Tra10]. **Boole** [Nah13]. **Boolean** [Jan14]. **Bounds** [Mar08, Sha54a, Sha93w, Sha93x, SGB67a, SGB67b]. **box** [LM03]. **box-counting-based** [LM03]. **brave** [FFF09]. **breaking** [Eme01]. **Breed** [Bar01]. **Bridging** [RS06]. **brief** [Cro01]. **Building** [Hag79]. **Builds** [Bar01]. **Bush** [Sha93v, Sha39].

**C** [Mur57, Sug13, Wal01a, SW93i]. **Calcul** [Loe59]. **calculation** [Sha57b, Loe59]. **Calculations** [HWO90, SGB02]. **Calculator** [Sha93-42]. **calvarial** [RAL<sup>+</sup>08]. **cancer** [APMS<sup>+</sup>12]. **Candidates** [Pin01]. **Capacity** [BSWCM14, Bot88, GV15, Mar08, Sha56g, Sha56i, Sha57c, Sha93-47, Sha93-61, Sch06, Sha57b, SJ04, TT12]. **Capazität** [Sha57b]. **Case** [Hag79, Sha48a]. **cases** [Key05]. **Cathode** [PST48]. **Cathode-Ray** [PST48]. **caused** [SBS<sup>+</sup>13]. **Celebrating** [Zac16]. **cellular** [RFME<sup>+</sup>12]. **Century** [Sha93n, WL85, Sha63a]. **Certain** [Nyq24, Nyq28, Sha48f, Sha57a, Sha93f]. **chain** [Koc05]. **chain-based** [Koc05]. **chains** [ZBM11]. **Channel** [Sha48a, Sha56c, Sha56g, Sha56i, Sha57c, Sha93-36, Sha93-47, Sha93-61, Sch06, Sha57b, Sha59c]. **Channels** [Sha58a, Sha93f, Sha93g, Sha93w, Sha93x, Sha93-32, Sha93-57, POA<sup>+</sup>08, Sha57a, Sha58b, Sha61, SGB67a, SGB67b, TT12]. **Chaos** [Sch91]. **Characteristic** [Sen05]. **characterizing** [JGH00]. **checking** [FM99]. **chemical** [SSAK06]. **Chess** [Sha50b, Sha93h, Wha78, Lev88, Sha50g, Sha93-37]. **Chess-Playing** [Sha50b, Sha93h]. **China** [BQhH08]. **cipher** [AMS<sup>+</sup>10, HN09]. **Ciphers** [Doo18a]. **Circuit** [GBR07, HS46, MS53a, MS53b, MS53c, MS93c, MS93d, Sha53j, Sha93y, SM53]. **Circuits** [FM99, MS54, MS93a, MS93b, OS44, OS93, Sha37, Sha38, Sha41b, Sha44e, Sha49f, Sha55e, Sha93-51, Sha93-48, Sha93-53, Sha21, SW93d, Jan14, MS56a, MS56b]. **Classic** [Lew21]. **classical** [SS07]. **classification** [APMS<sup>+</sup>12]. **Claude** [Ano01c, Cer17, Sil18, TWA<sup>+</sup>87, Ano40a, Ano40b, Ano00, Ano01a, Ano01b, Ano02, Bar01, Bau01, Bro11, CS01, CLM<sup>+</sup>01, Cou01, Ell84, Eme01, Eph01,

Gag98, Gal01, Gal03, Gol01, GBC<sup>+</sup>02, Gui03, Han10, Hor90, Hor92, Hor11, Jam09, Joh01, Kha16, Lew01, Nah13, NWV94, O'R12, Pin01, Pri82, Pri84, Pri85, Roc10, Roc11, RHQ<sup>+</sup>16, Sch06, Sha82a, Sha02, Sha14, Sla97, SW93k, SW93l, SW93b, SG17, SF03, SK01, Str14, Van89, Wal01b, Zac16]. **Closing** [Gui04]. **Closure** [Sha44c]. **Clustering** [DGH<sup>+</sup>06]. **coasts** [YLR<sup>+</sup>10]. **Cobol** [Bar01]. **Code** [Loe59, OS46, Sha43b, Gui04, Wri67]. **Codes** [Doo18a, Sha93-36, Gui04, Sha59c]. **Coding** [Bot88, Gol49, Sha40a, Sha48a, Sha53d, Sha54b, Sha55c, Sha59a, Sha59b, Sha60, Sha93f, Sha93i, Sha93q, Sha93s, Sha93w, Sha93x, Sha93-38, TWA<sup>+</sup>87, Sha57a, SGB67a, SGB67b, WMS<sup>+</sup>12, Zee02]. **codon** [FMSS03, Zee02]. **coherence** [LMC11, YN11]. **coherent** [RM06, YN11]. **cold** [Sen21]. **collected** [SW93k]. **Collection** [Bro11]. **Colleges** [HS54, HS93]. **colon** [APMS<sup>+</sup>12]. **Color** [Sha40a]. **Coloring** [Sha93-54, Sha49g]. **Combining** [Gor06]. **Communication** [Hag79, OS46, Sha48b, Sha48c, Sha48h, Sha49a, Sha49b, SW49, Sha49d, Sha50f, Sha50i, Sha53a, Sha53b, SW63, SW71, SW76, SW83, Sha84a, Sha84b, Sha85, Sha93j, Sha93k, Sha93l, Sha93z, Sha93-32, Sha93-41, Sha93-40, Sha93-57, Sha97, Sha98b, Sha98a, SW98, Sha01, SW93c, Wea49, Wea53, Lyn77, Rog94, Sha58b, Sha61, SW64, SW69, SW72, SW75b, SW75a, SW78, SW81, Sla97, TT12, Yoc00, dPV00, Doo49]. **Communications** [Ano01c, Ano01b, Kah84, SB21]. **Comparison** [GWZC12]. **comparisons** [AALR09]. **compendium** [Lev88]. **complete** [CHC<sup>+</sup>04, CHC<sup>+</sup>05]. **complex** [RFME<sup>+</sup>12, SSAK06]. **complexity** [LR05, SBS<sup>+</sup>13]. **component** [TKL<sup>+</sup>12]. **Components** [Sha56f]. **Compound** [WVB10]. **compounds** [SGB02]. **Computability** [dLMSS54, dLMSS56, dLMSS93]. **Computable** [HSS23]. **Computation** [Bar01, Sha50j, Sha93-42, Ric03, Zee02]. **Computer** [Lap96, Lev88, Lew21, Wha78, Bro00a, Sha50g, Sha93-37, Smi05, WL85, Pin01, Sha50j]. **Computers** [Sha53c, Sha53h, Sha63a, Sha93m, Sha93n, Sha93-33, SW93d, Sug13]. **Computing** [Bul15, DM15, Sha85, Wal01a, LM03, Min02]. **comunicación** [SW81]. **comunicazioni** [SW71, SW83]. **Concavity** [Sha55b, SH56, Sha93o, Sha93p]. **concept** [GB00]. **Concepts** [Som09]. **conceptual** [Ell09, Tim03]. **Conceptualization** [Asp85]. **concerning** [Tho09]. **confidence** [MHBL12]. **confidentiality** [Gag98]. **configuration** [WBB<sup>+</sup>12]. **confined** [Sen05]. **Congress** [Bro11]. **Connected** [DS46, DS93, Sha07]. **Connection** [Pin01]. **Connections** [AES17]. **connectivity** [RFME<sup>+</sup>12]. **conservation** [BQhH08]. **Consistency** [Sha41b]. **Contacts** [Sha53i, Sha93-39]. **Content** [WVB10, Rif85]. **context** [CLM<sup>+</sup>01]. **continued** [Sha48c]. **Continuous** [Sha43a, Sha93b]. **contribution** [RHQ<sup>+</sup>16]. **Contributions** [Sha93-60, Wea53, Sha58c]. **Control** [BBS46, Min95, Sha49d, Sha51b, Sha93-41, Min02]. **Controversies** [Bar01]. **Convergence** [GV15]. **conversation** [Ell84, Pri84, Pri85]. **Corporation** [Pin01]. **correcting** [Wri67]. **correlation** [RD04]. **cost** [Kra21]. **Counters** [Sha44b]. **Counting** [Ell09, Kör96, Sha44b, Sha44e, Koc05, LM03]. **Created**

[Lew21, Nah13]. **Creative** [Sha52a]. **Criteria** [Sha41b]. **Criterion** [Sha59b, Sha93i, Sha60]. **critical** [ZBM11]. **Crossbar** [HS46]. **crossings** [GFD03]. **Crossword** [Efr08]. **Crummy** [MS54]. **Cryptanalysis** [Doo18a]. **Cryptography** [Doo18a, Roc99, Sha45a, SW93c, BB88]. **Cryptology** [Bau13, Bau21, Kah84, Roc99]. **crystalline** [SBS<sup>+</sup>13]. **CSIDC** [Pin01]. **Cubic** [BERS86]. **Cubics** [Sha82b]. **Cybernetics** [DL63, Sha49d, Sha68a, Min02, Sha93-41].

**Dartmouth** [MMS06]. **Data** [BSWCM14, BBS46, Cor87, Sha41c, WVVB10, Bla65, LCW<sup>+</sup>16, LHA<sup>+</sup>16]. **data-smoothing** [Bla65]. **database** [GB01]. **Datalog** [KNS17]. **Daubechies** [JZL98]. **Days** [Bul15]. **Decomposition** [GBR07, LB08, MHBL12]. **Decrease** [Szi64]. **deep** [HGR<sup>+</sup>12]. **Deflection** [Sha41f, Sha41e, Sha93-50, Sha93-46]. **degree** [ABS11, YN11]. **Delay** [Sha56c]. **Delilah** [Cop25]. **Delsarte** [AL07]. **demon** [Kra21]. **Demonstrates** [Sha14]. **demonstrating** [LHA<sup>+</sup>16]. **Demonstration** [Sha14]. **densities** [AALR09, Liu07]. **Dependent** [WVVB10]. **Derivation** [BS50, BS93]. **Derivatives** [Sha54a]. **Description** [Sha50j, Sha93-42]. **Descriptor** [WVVB10, GB00]. **descriptors** [GB01, GPM06, SGB02]. **Desflurane** [BLR<sup>+</sup>02, BLR<sup>+</sup>01]. **Design** [FM99, Sha42, Sha93y, Sha93-55, SM53]. **Detection** [Sha44a, Sha93e, HSBJ02, HTR<sup>+</sup>08, LMC11]. **detectors** [WBB<sup>+</sup>12]. **detects** [CFRC04]. **Determinate** [Sha45b]. **determined** [YLR<sup>+</sup>10]. **Deutung** [Sha57b]. **developed** [Kah84]. **Development** [Sha85, Sle74]. **Developments** [Sha50f, Sha50i, Sha93-40]. **Device** [PST48]. **diagnosis** [TKL<sup>+</sup>12]. **diagnostic** [Rif85]. **diatom** [Siq98]. **Dictionary** [Cor87]. **Dies** [Ano01a, Bar01, Joh01, Ano01c]. **difference** [Sen21]. **differences** [GB01]. **Differential** [GB01, Sha41g, Sha42, Sha93-27, Sha93-55, SGB02, Sha41d]. **Difficulty** [Efr08]. **diffusion** [LS10]. **Digital** [ACK<sup>+</sup>01, Ano01c, Bul15, CK19, Cou01, Gol49, LP12, Sha50c, Ano01b, Cer17, Eme01, HDC96, Cas16, Wal01b]. **dimension** [RAL<sup>+</sup>08, SBS<sup>+</sup>13]. **Dimensional** [Sha78, GWZC12, SJ04]. **dimensionality** [CS09, POA<sup>+</sup>08]. **Diorama** [Sha82a, SW93b]. **Director** [Zor89, Pin01]. **Director-Elect** [Pin01]. **discipline** [Mat94]. **Discrete** [Sha48g, Sha59a, Sha59b, Sha93i, Sha93w, Sha93x, Sha60, SGB67a, SGB67b]. **Discussion** [CMU<sup>+</sup>53, CMU<sup>+</sup>93]. **Disjunctive** [KNS17]. **distinctions** [Ell09]. **distinguish** [WMS<sup>+</sup>12]. **distinguisher** [AMS<sup>+</sup>10]. **distinguishing** [HN09]. **Distortion** [Sha59a]. **distribution** [Di 00, NS12]. **Distributions** [WVVB10, AALR09, GPM06]. **Divergence** [CCHL05, MPPP97]. **divergences** [AALR09]. **diversity** [BQhH08, BKU<sup>+</sup>94, De'12, Di 00, GB00, Gor06, ID00, Key05, MHBL12, Ric03, RS06, Siq98, SF03]. **Division** [Pin01]. **Djingis** [NWV94]. **DNA** [Bar01, Zha09]. **Do** [KNS17, dR55]. **Doppler** [HTR<sup>+</sup>08]. **Down** [Sha44b]. **Dr.** [Bre63]. **Dream** [Wal01a]. **Dretske** [Lom05]. **Driver** [Sha78]. **Drop** [Sha82a, SW93b]. **drug** [FCW<sup>+</sup>00]. **during** [Kah84, RAL<sup>+</sup>08].

**dynamical** [RAL<sup>+</sup>07]. **dynamics** [Let06, LM03].

**E100** [LS35]. **E58** [SSS34]. **Early** [Bul15, CK19, Sha14]. **earth** [Yoc00]. **eco** [RHQ<sup>+</sup>16]. **eco-evolutionary** [RHQ<sup>+</sup>16]. **Economic** [BQhH08]. **edited** [Mur57]. **Editorial** [Sha56a, Sha84b]. **Edmund** [Sug13]. **Education** [Hig63]. **educator** [Sug13]. **EEG** [BLR<sup>+</sup>02]. **effect** [HGR<sup>+</sup>12]. **effectiveness** [Jan14]. **Effects** [BLR<sup>+</sup>02, BLR<sup>+</sup>01]. **Efficient** [Sha48a, Sha54b, Sha93q]. **einem** [Szi29]. **Eingriffen** [Szi29]. **einiger** [Sha57b]. **Einstein** [Ano00, Kov20, New56, Per05, Sen21]. **Elect** [Pin01]. **electric** [GFD03]. **Electrical** [Ano40b, MS53a, WL85]. **electroencephalographic** [BLR<sup>+</sup>01]. **electrogram** [GKL<sup>+</sup>13]. **electron** [GWZC12, RD04]. **Electronic** [Sha46]. **element** [BKU<sup>+</sup>94]. **Elementary** [LS35, SSS34]. **eleven** [Sha07]. **Elwood** [Bau01, Bro11, Gal03, GBC<sup>+</sup>02, Jam09, SW93k, SW93l]. **EMC** [Pin01]. **Employing** [OS46]. **enabled** [WMS<sup>+</sup>12]. **Encounter** [Kov20]. **encryption** [Gag98]. **engineer** [Nah13]. **Engineering** [Cer88, Hag79, FFF09, Smi05, WL85]. **Engineers** [Ano40b, Kah84, Tra10, Jam10]. **England** [Sha78]. **English** [Sha51a, Sha93-34]. **Enigma** [Ano16, LHA<sup>+</sup>16]. **Ensembles** [Sha48e]. **entanglement** [POA<sup>+</sup>08, ZBM11]. **entropic** [NS12]. **entropies** [APMS<sup>+</sup>12, GWZC12, LR05, WMS<sup>+</sup>12, ZBM11]. **Entropieverminderung** [Szi29]. **Entropy** [BLR<sup>+</sup>02, GB01, GV15, HGR<sup>+</sup>12, JSMS12, LMC11, PGM<sup>+</sup>12, RFME<sup>+</sup>12, Sav64, Sha51a, Sha93-34, Szi64, WVB10, ABS11, BLR<sup>+</sup>01, CFRC04, FMSS03, FCW<sup>+</sup>00, GKL<sup>+</sup>13, GB00, GFD03, GPM06, HTR<sup>+</sup>08, Key05, Koc05, Let06, Liu07, LM03, MHL12, Mat94, NS12, NS10, PP06, RAL<sup>+</sup>07, RM06, Ric03, RS06, RAL<sup>+</sup>08, SSK<sup>+</sup>05, Sen05, SK04, SS07, SBS<sup>+</sup>13, SGB02, SD96, Szi29, Szi76, TKL<sup>+</sup>12, WGB09, YN11, Zha09, dPV00, dTS<sup>+</sup>03]. **entropy-based** [CFRC04, WGB09]. **Entropy-TOPSIS** [JSMS12]. **Entstehung** [Hag79]. **Environmental** [YLR<sup>+</sup>10, JSMS12]. **Equation** [Sha42, Sha93-55]. **Equations** [Far03, FS43, Ale03, Far02]. **erasure** [Kra21]. **Ergebnisse** [Sha57b]. **Ergodic** [Sha48e]. **Error** [Sha56c, Sha56i, Sha93w, Sha93x, Sha93-36, Sha93-61, Sha59c, SGB67a, SGB67b, Wri67]. **error-correcting** [Wri67]. **Errors** [Mar08]. **essential** [Gui03]. **Estimates** [Sav64]. **Estimating** [Let06]. **Estimation** [BSWCM14]. **Europe** [FB69]. **evenness** [YLR<sup>+</sup>10]. **event** [dTS<sup>+</sup>03]. **event-related** [dTS<sup>+</sup>03]. **evidence** [Tho09]. **evolution** [HGR<sup>+</sup>12]. **evolutionary** [RHQ<sup>+</sup>16]. **Exact** [Cro63]. **Exam** [NWV94]. **Exchange** [Sha50d, Sha93-28]. **expected** [ABS11]. **experiment** [YN11]. **Experimental** [LCW<sup>+</sup>16, Sha41e, Sha93-46]. **Experimentally** [LHA<sup>+</sup>16]. **Expert** [Bar01, NWV94]. **explains** [Sen21]. **Explicit** [Sha53f]. **Exploring** [CK19, RHQ<sup>+</sup>16]. **Exposition** [Sha53a, Sha53b, Sha93k]. **expression** [SGG04]. **extension** [BB88].

**Factors** [Nyq24]. **Factory** [Ger12]. **Fair** [Pin01]. **Fallstudie** [Hag79]. **Fast** [GV15]. **Father** [Ano98, Ano01a, Hor90, Sha02, Wal01b, Hor11]. **fear**

[NWV94]. **feature** [GPM06]. **features** [SSK<sup>+</sup>05, Sen05]. **February** [Gal03, Jam09, Sha93v]. **Feedback** [Sha44c, Min02]. **female** [Di 00]. **Fibrillation** [LMC11, GKL<sup>+</sup>13]. **Fidelity** [Sha59b, Sha93i, Sha60]. **fields** [GFD03, dR55]. **Fifty** [Ver98]. **filter** [CFRC04]. **Finders** [Sha41f, Sha93-50]. **Finding** [Bro11]. **Finds** [Bar01]. **Fine** [LB08]. **Fine-grained** [LB08]. **Finest** [Min95]. **fingerprint** [WGB09]. **Finite** [SK04, YCS12]. **Fire** [BBS46]. **Fire-Control** [BBS46]. **First** [Bre63, Hor11, Ric03]. **Fisher** [AALR09, AES17, HTR<sup>+</sup>08, Liu07, RD04, YCS12]. **Flaw** [Bar01]. **Flow** [EFS56, EFS93, CSJJ10]. **flowmetry** [HTR<sup>+</sup>08]. **fluctuations** [RM06]. **fMRI** [dTS<sup>+</sup>03]. **foray** [Cro01]. **Forecaster** [Sha56e]. **forest** [BQhH08]. **Formal** [Som09]. **Formula** [BSWCM14, Sha50h]. **formulate** [Sch06]. **Foundational** [Tim02]. **foundations** [Ano01b, Ell09]. **Founder** [Ano01c, Sch06]. **Four** [DS46, DS93]. **Four-Terminal** [DS46, DS93]. **Fourier** [JGH00]. **Fourth** [Sha78]. **Fourth-Dimensional** [Sha78]. **Fractal** [SBS<sup>+</sup>13, RAL<sup>+</sup>08]. **Fractals** [Sch91]. **fractional** [CS09]. **Framework** [All04]. **free** [SS07]. **French** [Loe59, SW75a]. **Frequencies** [PGM<sup>+</sup>12]. **Fresnel** [LP12]. **fridge** [Sen21]. **Frontiers** [SG18]. **Frontmatter** [SW93e]. **Function** [Sha55b, Sha93p, LMC11]. **Functional** [FM99]. **Functions** [Sha48e, Sha53i, Sha55d, SH56, Sha93o, Sha93-39, Sha93-45]. **Fundamentals** [Sha53a, Sha53b, Sha93k]. **Funding** [Pin01]. **Future** [Lew21].

**Game** [Sha55a, Sha93r]. **Games** [SW93d, Cha72]. **Ganga** [JAS89]. **gap** [RS06]. **Gating** [LB08]. **Gaussian** [Koc05, RM06, Sha59c, Sha93-36]. **Gaylord** [Ano34, Ano98, Ano00]. **geheime** [Roc10, Roc11]. **Gene** [DGH<sup>+</sup>06, MBD<sup>+</sup>03, SGG04]. **General** [Cro63, Sha53d, Sha93s, Som09, NS12]. **Generalization** [BB88]. **Generalizations** [Sha48i]. **generalized** [Key05]. **generation** [Lyn77]. **genes** [JGH00]. **genesis** [CLM<sup>+</sup>01, Tho09]. **Genetics** [Sha40c, Sha93a, SW93f, Cro01]. **Genghis** [NWV94]. **Genius** [Cou01, Int03, Ano01b, Cer17]. **genome** [Zha09]. **genomes** [ABS<sup>+</sup>13, CHC<sup>+</sup>04, CHC<sup>+</sup>05, CCHL05, JGH00, Zee02]. **Geometrical** [Sha56g, Sha57c, Sha93-47, Sha57b]. **Geometrische** [Sha57b]. **George** [Nah13]. **German** [Bau01, Hag79, Roc10, Roc11, Sha50f, Sha57b, SM74, SW76, Szi29]. **Geschichte** [Roc10, Roc11]. **Gini** [AES17]. **Give** [Sha53f]. **Go** [Bar01]. **goal** [SB21]. **goal-oriented** [SB21]. **Goals** [Pin01]. **Goodman** [Cer17, Sil18, Doo18b]. **grained** [LB08]. **Graph** [AL07, APMS<sup>+</sup>12, Cha72]. **graze** [dR55]. **Great** [Bel53, DM15, Far03, Ger12, Lap96, Far02, Pic08]. **grooming** [Di 00]. **ground** [Eme01]. **ground-breaking** [Eme01]. **Grundlagen** [SW76]. **guarantee** [Kah84]. **Gun** [Zor89]. **Gunfire** [BBS46].

**Hanoi** [Sha53i]. **Haplotype** [PGM<sup>+</sup>12]. **Harvard** [Sha50j, Sha93-42]. **Hawking** [Pic08]. **hazards** [AES17]. **healthy** [HTR<sup>+</sup>08]. **heat** [Kra21]. **Hedy** [Kah84]. **Height** [Sha41c]. **Helleh** [JSMS12]. **Hellman** [BB88].

**hepatitis** [HGR<sup>+</sup>12]. **heterogeneous** [ABS11]. **Hickman** [Sha40b, Sha93-59]. **High** [Pin01, CFRC04, HTR<sup>+</sup>08, Kra21, LS10, SGB02]. **high-quality** [CFRC04]. **high-values** [HTR<sup>+</sup>08]. **highly** [SBS<sup>+</sup>13]. **Historical** [Cor87, Jan14]. **History** [Bau13, Bau21, Doo18a, Roc10, Roc11, FFF09, Rog94]. **Hla** [PGM<sup>+</sup>12]. **Hoffman** [AL07]. **holography** [LP12]. **Hometown** [Cer88]. **homologues** [CFRC04]. **Honored** [Ano40b]. **Honors** [Ano98, Cer88]. **Host** [RFME<sup>+</sup>12]. **hot** [Sen21]. **Hour** [Min95]. **human** [APMS<sup>+</sup>12, Min02, Zee02]. **hyperentanglement** [CS09]. **Hypergraph** [LB08]. **hypotheses** [Di 00].

**Idea** [Ger12]. **Ideal** [Sha48j, Sha55c, Sha55e, Sha93-38, Sha93-48]. **Ideas** [Lew21]. **identification** [FCW<sup>+</sup>00]. **identifies** [SGB02]. **IEEE** [Pin01]. **II** [Kah84, MS56b, MS93b, SGB67b, Sha93x, Wri67]. **illumination** [YN11]. **imaging** [SJ04, YN11]. **Impact** [Gal01, Gal06]. **implanted** [SBS<sup>+</sup>13]. **implemented** [Cha72]. **implications** [GKL<sup>+</sup>13, Lyn77]. **inadequacy** [Tim03]. **including** [Rif85]. **incontinence** [TKL<sup>+</sup>12]. **Increases** [Pin01]. **Increasing** [CS09]. **independent** [Rif85]. **Index** [JAS89, BQhH08, BKU<sup>+</sup>94, Di 00, Gor06, ID00, Key05, Lei07, Pla06, RS06, Siq98, SF03, WC99, Zha09]. **India** [JAS89]. **indicator** [GFD03]. **indice** [Pla06]. **indices** [Gor06]. **individual** [dPV00]. **induced** [SBS<sup>+</sup>13]. **Industrial** [Hag79]. **Industrie** [Hag79]. **Industrie-** [Hag79]. **Industry** [Cer88, RFME<sup>+</sup>12]. **Inequalities** [KNS17]. **Inequality** [GV15]. **Inference** [Pla06, Wri67]. **Inferencia** [Pla06]. **inflammatory** [SBS<sup>+</sup>13]. **Inform** [San05]. **informacii** [DL63]. **Information** [ACK<sup>+</sup>01, All04, Ano53, Ano98, Ano01a, Asp85, Bro00b, Cro63, DGH<sup>+</sup>06, DL63, Gal06, HWO90, Hor90, HSS23, Lom05, Roc10, Roc11, Sav11, Sha49c, Sha50c, Sha52b, Sha53e, Sha56b, Sha58a, Sha59a, Sha63b, Sha68b, Sha93g, Sha93t, Sha93u, Sha93-49, Sil18, SW93c, Som09, Str14, SG18, Tim02, WVB10, Zee02, ABS<sup>+</sup>13, Ale03, Cer17, CHC<sup>+</sup>04, CHC<sup>+</sup>05, CCHL05, CLM<sup>+</sup>01, Ell09, Eme01, GWZC12, Gui03, Hor11, HSBJ02, HTR<sup>+</sup>08, JGH00, Lei07, Liu07, LHV16, LR05, LS10, Lyn77, MBD<sup>+</sup>03, Nah13, Rif85, RD04, SSAK06, Sch06, Sen05, SK04, Sle74, SG17, SJ04, SD96, Tho09, Tim03, YCS12, Col93, Roc10, Sha56d, Sha02, Som09, Roc11]. **Informationskonzepten** [Hag79]. **Informationstheorie** [SW76]. **Infrequent** [Sha54b, Sha93q]. **Innovation** [Ger12]. **Input** [Sha55b, Sha93p]. **Institute** [Ano40a]. **Instructor** [Ano40b]. **integral** [SJ04]. **integrated** [JSMS12]. **Integration** [FS43, Sha50h]. **intellectual** [FB69]. **intelligence** [MMS06]. **Intelligent** [Szi64, Szi29, Szi76]. **intelligenter** [Szi29]. **interference** [Szi29, Szi76]. **Internal** [Sha54c, Sha93-58, Sha56h]. **International** [Pin01]. **interpolation** [Mar91, Mar93]. **Interpretation** [Lom05]. **interval** [MHBL12]. **Intervention** [Szi64]. **Interview** [Pri82, TWA<sup>+</sup>87, Van89]. **Introduction** [Fel66, Mar91, TWA<sup>+</sup>87, Fel71, Fel09]. **Intuitive** [Roc99]. **invasive** [TKL<sup>+</sup>12]. **Invented** [Sil18, Ano01b, Cer17, SG17]. **Invests** [Pin01]. **Involvement** [Pin01]. **Ioan** [Tra10]. **Iran** [JSMS12]. **Irving** [TWA<sup>+</sup>87].



**ISBN** [Cer17]. **Italian** [SW71, SW83]. **Iterative** [WVB10].

**J** [Mur57]. **J.** [Wal01a]. **James** [Tra10]. **Jensen** [AALR09, MPPP97].  
**Jimmy** [Cer17, Doo18b, Sil18]. **John** [UKTS68, UKTS69]. **Juggler** [Hor90].  
**Juggling** [Sha80, Sha82a, Sha93-44, SW93b].

**Kanal** [Sha57b]. **Kelly** [Sha56d]. **Key** [Sle74]. **Khan** [NWV94].  
**kibernetike** [DL63]. **Kiss** [Sha93-43, Sha49e]. **Koehler** [YN11].  
**Kommunikation** [Sha50f]. **Korean** [YLR<sup>+</sup>10]. **Kriegsforschung** [Hag79].  
**kth** [Koc05]. **kth-order** [Koc05].

**Laboratory** [HS54, HS93, Sha50j, Sha93-42]. **Labs** [Ger12, Min95]. **laid**  
 [Ano01b, Eme01]. **Lakatos** [Sha40b, Sha93-59]. **Lamarr** [Kah84].  
**L'Ambiguit ** [Loe59]. **Language** [Sav64]. **Large** [DS46, DS93, Mar08].  
**Large-scale** [Mar08]. **laser** [HTR<sup>+</sup>08]. **Lattice** [HSS23, Sha53e, Sha93u].  
**Lattices** [Sha49e, Sha93-43]. **Laws** [Sch91, ID00, Pic08]. **leaders** [Kah84].  
**Leap** [Ano16]. **Learning** [Hig63, Sha14]. **Least** [BS50, BS93]. **Leben**  
 [Roc10, Roc11]. **lecture** [Han10, TWA<sup>+</sup>87]. **Lectures** [Hig63]. **Legal**  
 [RFME<sup>+</sup>12]. **Legal-Social** [RFME<sup>+</sup>12]. **Less**  
 [MS93a, MS93b, MS56a, MS56b]. **Letter** [Sha39, Sha93v, TWA<sup>+</sup>87]. **levels**  
 [SGG04]. **library** [New56, Bro11]. **Licklider** [Wal01a]. **Life**  
 [Gal01, Roc10, Roc11, Mat94, Yoc00]. **light** [RM06]. **Like** [Bot88]. **limit**  
 [TT12]. **Limited** [Sha54a]. **limits** [LP12]. **line** [HTR<sup>+</sup>08]. **Linear** [Bla65,  
 BS50, BS93, BERS86, DS46, DS93, Sha41g, Sha42, Sha93-55, HN09, TT12].  
**Lines** [Sha93-54, Zac16, Sha49g]. **linking** [De'12]. **Linz** [Van89]. **literature**  
 [Mat94, New56]. **LMC** [LR05]. **Locals** [Ano34]. **locking**  
 [LCW<sup>+</sup>16, LHA<sup>+</sup>16]. **Logarithmic** [ZBM11]. **logic**  
 [Sug13, Sha49e, Sha93-43]. **logician** [Nah13]. **London** [Ano53]. **Loop**  
 [Sha44c]. **Lost** [Cop25]. **Low** [GBR07]. **Low-Power** [GBR07]. **Lower**  
 [SGB67a, SGB67b, Sha93w, Sha93x]. **LTE** [BSWCM14].

**MAC** [Mar08]. **Machine**  
 [Ano16, Sha50b, Sha51c, SM53, Sha53g, Sha93h, Sha93y, Sha93-30, Sha93-35,  
 Sha93-58, Sha14, Wal01a, LHA<sup>+</sup>16, Min02, Sha56h, Sha49d, Sha54c, Sha93-41].  
**Machines** [Bre63, Sha42, Sha56f, Sha93r, Sha93-55, dLMSS54, dLMSS93,  
 Bro00a, Sha55a, dLMSS56]. **MADDIDA** [TWA<sup>+</sup>87]. **Made**  
 [Wal01a, Eme01]. **magnetic** [GFD03]. **making** [Gui03]. **Man**  
 [Bre63, Pri84, Pri85]. **Man-Machines** [Bre63]. **Mapping**  
 [DGH<sup>+</sup>06, MBD<sup>+</sup>03]. **Maps** [Pin01]. **Marker** [DGH<sup>+</sup>06]. **Markhoff**  
 [Sha48g]. **Markov** [RFME<sup>+</sup>12, Koc05, PP06]. **Markov-Shannon**  
 [RFME<sup>+</sup>12]. **Mars** [Smi05]. **Martin** [ID00]. **master** [Eme01]. **Mastermind**  
 [Str14]. **Masterpiece** [Hor11]. **matematica** [SW71, SW83, SW81]. **math**  
 [Luc12]. **Mathematical**  
 [Ano00, CLM<sup>+</sup>01, Doo49, Roc99, Sha41d, Sha45a, Sha48b, Sha48c, SW49,

SW63, SW71, SW75a, SW76, SW83, Sha93z, Sha93-27, Sha97, SW98, Sha01, Wea53, Lyn77, SW64, SW69, SW72, SW75b, SW78, SW81]. **Mathematician** [Joh01]. **Mathematics** [Wea49, Jan14, New56]. **mathématique** [SW75a]. **Mathematische** [SW76]. **Mathematization** [Roc99]. **Mathmanship** [Sha53f]. **matrix** [Gor06]. **Maximum** [EFS56, EFS93, Rif85]. **Maxwell** [Kra21]. **May** [Bre63]. **Maze** [Sha51c, Sha93-35]. **Maze-Solving** [Sha93-35]. **McCarthy** [Mur57]. **meaning** [Sha57b]. **Measure** [Bot88, Cro63, JAS89, PGM<sup>+</sup>12, Sha59a, GB01, ID00, Mat94, NS10, SSAK06]. **measured** [SSK<sup>+</sup>05]. **Measurement** [BLR<sup>+</sup>02, BLR<sup>+</sup>01]. **measures** [RS06]. **measuring** [dPV00]. **mechanical** [RAL<sup>+</sup>07]. **Mechanics** [Tim02, Tim03]. **Mechanism** [Sha41c, Sha41f, Sha41e, Sha93-50, Sha93-46]. **medical** [Rif85]. **medium** [Ano01b]. **Meet** [Ano17a]. **Meets** [Efr08, SG18, NWV94]. **Membership** [Pin01]. **Memory** [Bot88, Sha50d, Sha93-28]. **Memoryless** [Sha93w, Sha93x, SGB67a, SGB67b]. **message** [Ano01b, Gui03]. **metagenomes** [ABS<sup>+</sup>13]. **Method** [Cro63, Sha50c, Sha50e, Sha93-29, HSBJ02]. **Methodology** [WVB10, JSMS12]. **Methods** [Sha46]. **microspheres** [SBS<sup>+</sup>13]. **migration** [FB69]. **Military** [Hag79]. **Mind** [Ano17a, Doo18b, Sha53g, Sha93-30, Cer17, SG17, Sil18]. **Mind-Reading** [Sha53g, Sha93-30]. **Minds** [Bro00a, Pic08]. **Minimize** [Sha44d]. **miscellaneous** [SW93l]. **Mixed** [Sha45b]. **Model** [Efr08, De'12]. **models** [PP06, RFME<sup>+</sup>12]. **Modern** [Far03, Far02]. **Modest** [Sha78]. **Modification** [WC99]. **Modified** [BSWCM14, YLR<sup>+</sup>10]. **Modulation** [OS46, Sha43b]. **module** [Jan14]. **Molecular** [HWO90, GB00, GB01, LM03, RFME<sup>+</sup>12, SGB02]. **molecules** [Liu07]. **momentum** [AALR09, CS09, GWZC12]. **monotonicity** [SS07]. **mose** [New56]. **möter** [NWV94]. **mouse** [Zee02]. **Moving** [Sha50e, Sha93-29]. **MRI** [LS10]. **much** [Eme01]. **multidimensional** [HN09]. **multinomial** [De'12]. **multiple** [De'12, Rif85]. **multiverse** [Bro00a]. **Must** [Far03, Far02]. **mutations** [HGR<sup>+</sup>12]. **Mutual** [DGH<sup>+</sup>06, HSBJ02, Lei07, MBD<sup>+</sup>03].

**Nachrichtentechnik** [Hag79]. **Naive** [APMS<sup>+</sup>12]. **Named** [Pin01]. **natural** [HGR<sup>+</sup>12]. **Network** [EFS56, EFS93, Sha48d, Sha93-31, Sha93-54, Sha49g]. **Networks** [DS46, DS93, RS93, ABS11, RFME<sup>+</sup>12, RS42, SB21]. **Neuentwicklungen** [Sha50f]. **Neumann** [ABS11, Sha58c, Sha93-60, TWA<sup>+</sup>87, UKTS68, UKTS69]. **Neural** [RFME<sup>+</sup>12, YCS12]. **News** [Bar01, Kra21]. **No** [Sha82a, SW93b]. **No-Drop** [Sha82a, SW93b]. **Noble** [Ano40b]. **Noise** [Bot88, Sha93j, Sha49a, Sha84a, Sha98b, Sha84b]. **Noise-Like** [Bot88]. **Noisy** [Sha48a, Sha56d, Sha56c, Sha56i, Sha93f, Sha93-61, Sha57a]. **Non** [TKL<sup>+</sup>12, Rif85, WMS<sup>+</sup>12]. **non-coding** [WMS<sup>+</sup>12]. **non-independent** [Rif85]. **Non-invasive** [TKL<sup>+</sup>12]. **nonequilibrium** [NS12]. **noninvasive** [RAL<sup>+</sup>07]. **Nonlinear** [TT12]. **Nonoverlapping** [Sha44d]. **nonuniform** [GWZC12]. **Norbert** [Sha49d, Sha93-41]. **Normal** [Sha48e]. **normality**

[Siq98]. **Notation** [Sha50a, Sha93-52]. **Note** [EFS56, EFS93, Sha48f, Sha48g, Sha93-32, Sha58b, Sha84b]. **Notes** [Gol49, Sha56d, Sha56c, SW93g, SW93h, SW93i]. **novel** [GB00]. **Number** [DS46, DS93, RS93, RS42, SJ04]. **Numbers** [Sha48f, Sha50a, Sha93-52]. **Numerical** [YN11]. **Nyquist** [Ano17b, WBB<sup>+</sup>12].

**Obituary** [CS01]. **objective** [RAL<sup>+</sup>08]. **Observers** [Kov20]. **Obtaining** [Cro63]. **Oh** [Wei88]. **on-line** [HTR<sup>+</sup>08]. **One** [KNS17, Sha54b, Sha93q, GWZC12, Pri84, Pri85]. **one-dimensional** [GWZC12]. **onf** [Gal06]. **Online** [Bar01]. **Operation** [Sha53j]. **Operators** [Sha41g]. **opinion** [ID00]. **Optical** [CSJJ10]. **Optimal** [Sha93-36, Sha59c]. **Optimization** [WBB<sup>+</sup>12]. **orbital** [CS09]. **order** [Koc05, Zha09]. **Ordering** [Sha93-32, Sha58b]. **organization** [RAL<sup>+</sup>08]. **oriented** [SB21]. **Origin** [Yoc00]. **origins** [Kah84]. **Outfit** [HS54, HS93]. **Overdamped** [Sha41a, Sha93c].

**P.C.M.** [OS44, OS93]. **packets** [HSBJ02]. **Page** [Ano93]. **pages** [Mur57]. **Panel** [HS46]. **Papers** [Bro11, CMU<sup>+</sup>53, CMU<sup>+</sup>93, Lap96, Lew21, Sle74, SW93k, DL63]. **Parallel** [RS93, GFD03, RS42]. **Parametric** [Ric03]. **Parasite** [RFME<sup>+</sup>12]. **Parasite-Host** [RFME<sup>+</sup>12]. **Parkinson** [Zor89]. **Part** [SW93g, SW93h, SW93i]. **Partial** [Sha93-32, Sha58b]. **partially** [RM06, YN11]. **Partitioning** [LB08]. **pathway** [RFME<sup>+</sup>12]. **patient** [Gag98]. **Patna** [JAS89]. **Pay** [Sha56e]. **PCM** [OPS48, OPS93]. **Peak** [BSWCM14]. **Pedodiversity** [ID00]. **perfect** [Gui04]. **Periodic** [Sha44c]. **periodicity** [JGH00]. **Permissions** [SW93j]. **Personal** [Lew01, Wal01a]. **pg** [Koc05]. **phage** [ABS<sup>+</sup>13]. **Philosophy** [OPS48, OPS93]. **photon** [Koc05, POA<sup>+</sup>08]. **photon-counting** [Koc05]. **Pioneer** [Bar01]. **Pioneers** [Wei88]. **pixilated** [WBB<sup>+</sup>12]. **Plan** [Pin01]. **plane** [RD04]. **platforms** [BKU<sup>+</sup>94]. **Play** [Sil18, Cer17, SG17, Doo18b, Ano17a]. **played** [Kah84]. **Playful** [Ano01b]. **Playing** [Sha50b, Sha93h, Sha93r, Sha50g, Sha55a, Sha93-37]. **plea** [SF03]. **Pleasures** [Kör96]. **plots** [Let06, RAL<sup>+</sup>07]. **Podolsky** [Per05]. **Poetic** [Hor11]. **points** [JZL98, ZBM11]. **polarized** [RM06]. **Pollution** [JAS89]. **poly** [SBS<sup>+</sup>13]. **Polynomially** [GV15]. **popularizer** [Sug13]. **Population** [PGM<sup>+</sup>12, MBD<sup>+</sup>03]. **population-based** [MBD<sup>+</sup>03]. **populations** [YCS12]. **Portfolio** [Sha56e]. **position** [AALR09, GWZC12]. **possible** [Eme01]. **Potential** [Mar08]. **Potentialities** [Sha53h, Sha93-33]. **Power** [GBR07, LB08, Sch91, Sha50e, Sha93-29]. **Powers** [AL07]. **pp** [Sil18]. **practical** [AMS<sup>+</sup>10]. **practice** [Bla65]. **Preceding** [CMU<sup>+</sup>53, CMU<sup>+</sup>93]. **predict** [SGB02]. **Prediction** [BBS46, BS50, BS93, BKU<sup>+</sup>94, Sha51a, Sha93-34, Bla65]. **predictors** [De'12]. **Presence** [Mar08, Sha93j, Sha49a, Sha84a, Sha84b, Sha98b]. **Presentation** [Sha51c, Sha93-35]. **Press** [Mur57]. **Price** [Mur57]. **primates** [Di 00].

**Primes** [Bul15]. **Princeton** [Mur57]. **principal** [TKL<sup>+</sup>12]. **Principle** [Tim02, SGG04]. **Principles** [DM15]. **Printed** [Sha51a, Sha93-34]. **Probabilistic** [Efr08, dLMSS54, dLMSS93, dLMSS56]. **Probabilities** [Cro63, Sha55b, Sha93p]. **Probability** [Fel66, Sha56c, Sha59c, Sha93w, Sha93x, Sha93-36, Fel71, Fel09, SGB67a, SGB67b]. **Problem** [Sha53d, Sha53f, Sha56e, Sha93s, Pri84, Pri85, SS07, Wri67]. **Problems** [LS35, SSS34, LS35, SSS34]. **Proceedings** [Ano53]. **Process** [Sha48g]. **processes** [Koc05]. **Processing** [Cor87]. **Professor** [Ano01c]. **Profile** [Hor92, CFRC04]. **profile-profile** [CFRC04]. **profiles** [BKU<sup>+</sup>94]. **Profiling** [WVB10]. **Programmers** [Bar01]. **Programming** [Bar01, Sha50g, Sha93-37]. **Progress** [Sha63a, Sha93n]. **Project** [Cop25, MMS06]. **Promise** [Sha63a, Sha93n]. **Promoter** [SSK<sup>+</sup>05]. **Proof** [Sha50h]. **property** [SGB02]. **proportion** [YLR<sup>+</sup>10]. **proportional** [AES17]. **Proposal** [Sha78, MMS06, Ric03]. **protected** [JSMS12]. **protein** [APMS<sup>+</sup>12, SD96]. **provide** [RAL<sup>+</sup>08]. **published** [Hor11]. **Pulse** [OS46, Sha43b, Sha44b, Sha44d, Sha44e]. **Pulses** [Sha44a, Sha44d, Sha93e]. **putative** [FCW<sup>+</sup>00]. **Puzzle** [Efr08]. **pyrosequencing** [HGR<sup>+</sup>12].

**Q&A** [Ano17a]. **QSAR** [SGB02]. **QSDR** [APMS<sup>+</sup>12]. **Quadratic** [BERS86, RS06]. **Qualitative** [All04]. **quality** [CFRC04, RFME<sup>+</sup>12, YLR<sup>+</sup>10]. **Quantify** [WVB10]. **Quantitative** [AALR09]. **Quantum** [Ano16, LHA<sup>+</sup>16, Tim02, Bro00a, LCW<sup>+</sup>16, POA<sup>+</sup>08, Tim03, ZBM11]. **quasispecies** [HGR<sup>+</sup>12]. **quest** [Bro00a].

**R** [Wal01a]. **Raboty** [DL63]. **Ramsey** [AL07]. **random** [ABS11, WMS<sup>+</sup>12]. **Range** [WVB10]. **Rao** [RS06]. **Rate** [BSWCM14, Sha41f, Sha55b, Sha55c, Sha93p, Sha93-38, Sha93-50]. **rats** [SBS<sup>+</sup>13]. **Ray** [PST48]. **reactions** [SBS<sup>+</sup>13]. **Reading** [Sha53g, Sha93-30]. **Realization** [Sha53i, Sha93-39]. **Receiver** [OS44, OS93]. **Recognized** [Pin01]. **Reconciling** [HSS23]. **Reconstructing** [HDC96]. **Reconstruction** [BERS86]. **Rectifier** [Sha55e, Sha93-48]. **Recurrence** [RAL<sup>+</sup>07, Let06]. **Reduction** [LB08, PGM<sup>+</sup>12, Szi29, Szi76]. **Reed** [TWA<sup>+</sup>87]. **Reflections** [Luc12]. **regeneration** [RAL<sup>+</sup>08]. **regions** [Zee02]. **Reimagined** [Sil18]. **reinterpretation** [Lyn77]. **Related** [TWA<sup>+</sup>87, SSK<sup>+</sup>05, dTS<sup>+</sup>03]. **Relation** [Sha56c]. **Relations** [Zha09]. **relationship** [Liu07, YN11]. **relative** [Ric03, Wri67]. **Relativistic** [Kov20]. **Relay** [HS54, HS93, MS53b, MS53c, MS93c, MS93d, Sha37, Sha38, Sha40b, Sha41b, Sha50j, Sha93-42, Sha93-51, Sha93-59, Sha21]. **Relays** [MS54, MS93a, MS93b, MS56a, MS56b]. **relevant** [Luc12]. **Reliable** [MS54, MS56a, MS56b, MS93a, MS93b, Sha56f]. **Reluctant** [Wal01b]. **Remarkable** [Jam10, Tra10]. **Remembering** [Ano02]. **Reminder** [Pin01]. **remote** [CFRC04]. **Renyi** [LR05]. **Report** [Ano53]. **reports** [Ano40a]. **Requirements** [Sha50d, Sha93-28]. **Requires** [Sha53i, Sha93-39]. **Research**

[Bar01, Col93, Hag79, Sha48h, MMS06]. **Resistance**  
 [SH56, Sha93o, HGR<sup>+</sup>12]. **resolution** [LS10]. **Resources** [Ano17a]. **Results**  
 [Sha41f, Sha41e, Sha55e, Sha56g, Sha57c, Sha93f, Sha93-50, Sha93-46,  
 Sha93-47, Sha93-48, Sha57a, Sha57b]. **Retrospective** [Gal01, Gol01].  
**Reversing** [Sha48g]. **Review** [Cer17, Doo49, Doo18b, Mur57, Roc99,  
 Sha49d, Sha49e, Sha50j, Sha93-41, Sha93-42, Sha93-43, Tra10, Roc11, Sil18].  
**revisited** [Col93]. **Revolution** [Wal01a, Eme01]. **Rey** [ID00]. **Rice** [Hig63].  
**richness** [Gor06, Pla06, SF03]. **Riemann** [Kov20]. **rigorous** [SF03]. **Rings**  
 [Sha48d, Sha93-31]. **Riquet** [Tra10, Jam10]. **riqueza** [Pla06]. **Rise** [Sha54a].  
**risk** [AES17, JSMS12]. **River** [JAS89]. **RNAs** [WMS<sup>+</sup>12]. **Rob**  
 [Cer17, Doo18b, Sil18]. **Robot** [Bar01]. **role** [ID00, Kah84]. **Rosen** [Per05].  
**rotational** [GKL<sup>+</sup>13]. **Rubik** [Sha82b]. **Rubric** [Sha82b]. **rufiventris**  
 [dPV00]. **Rufous** [dPV00]. **Rufous-bellied** [dPV00]. **Russian** [DL63].

**S** [TWA<sup>+</sup>87]. **sample** [Siq98]. **Sampling**  
 [BERS86, Cro63, HDC96, Sha48i, Ano17b, JZL98, Mar91, Mar93]. **scale**  
 [Mar08]. **scaling** [ID00, Ric03, SK04]. **School** [Pin01]. **Schuster**  
 [Cer17, Sil18]. **Science** [Bar01, Far03, Hig63, Lap96, Lew21, Pin01, SG18,  
 Far02, FFF09, Lyn77, Pic08, Smi05, WL85]. **Scientific**  
 [Asp85, Sha80, Sha93-44, Bel53]. **scientists** [Bel54]. **Scott** [HSS23].  
**scrambler** [Kah84]. **Scribe** [New56]. **Sculpture** [Bar01]. **search** [WGB09].  
**searches** [CFRC04]. **Secrecy** [Sha49b, Sha93l, Sha98a]. **Secret**  
 [Bau13, Bau21, Cop25, Roc10, Roc11]. **secure** [Kah84]. **sediments**  
 [BKU<sup>+</sup>94]. **segmenting** [Zha09]. **seiner** [Roc10, Roc11]. **Selectivity**  
 [WVB10]. **Self** [FM99]. **Self-checking** [FM99]. **Semantic** [Som09, SB21].  
**Semicentennial** [Hig63]. **Sender** [HS46, Sha40b, Sha93-59]. **sensitive**  
 [GB01]. **separated** [Ano01b]. **September** [Ano53, Van89]. **Sequences**  
 [HWO90, Sha48k, SD96, Zha09]. **Series**  
 [BERS86, RS93, Sha43a, Sha93b, RS42, dTS<sup>+</sup>03]. **Shannon**  
 [Bau01, Bot88, Cer17, Gal03, Jam09, Kha16, Kov20, Mur57, NS12, Pin01,  
 RFME<sup>+</sup>12, Roc10, Sil18, Som09, SK01, TWA<sup>+</sup>87, APMS<sup>+</sup>12, AMS<sup>+</sup>10,  
 ABS<sup>+</sup>13, Ale03, All04, AL07, ABS11, Ano40a, Ano40b, Ano00, Ano01a,  
 Ano01b, Ano01c, Ano02, Ano17b, AALR09, AES17, Bar01, Bau01, BB88,  
 BSWCM14, BQhH08, BKU<sup>+</sup>94, Bre63, Bro11, Bro00b, BLR<sup>+</sup>01, BLR<sup>+</sup>02,  
 BERS86, CS01, CFRC04, Cer88, CHC<sup>+</sup>04, CHC<sup>+</sup>05, Cha72, CCHL05, CS09,  
 CLM<sup>+</sup>01, Col93, Cou01, Cro63, Cro01, DGH<sup>+</sup>06, De'12, Di 00, Efr08, Ell09,  
 Ell84, Eme01, Eph01, FM99, FMSS03, FCW<sup>+</sup>00, Gag98, Gal01, GKL<sup>+</sup>13,  
 GBR07, GB00, GB01, Gol01, GBC<sup>+</sup>02, GWZC12, GFD03, Gor06, GPM06,  
 Gui03, GV15, HN09, HDC96, Han10, HWO90, HGR<sup>+</sup>12, Hor90, Hor92,  
 Hor11, HSBJ02, HTR<sup>+</sup>08, HSS23, ID00, JGH00, Jam10]. **Shannon**  
 [Jan14, JAS89, JZL98, Joh01, JSMS12, Key05, KNS17, Koc05, LP12, LMC11,  
 Lei07, LB08, Let06, Lew01, Liu07, Loe59, Lom05, LHV16, LR05, LM03, LS10,  
 Lyn77, MHL12, Mar08, Mar91, Mar93, Mat94, MPPP97, MBD<sup>+</sup>03, Nah13,  
 NS10, NWV94, O'R12, PP06, PGM<sup>+</sup>12, Per05, Pla06, POA<sup>+</sup>08, Pri82, Pri84,

Pri85, RAL<sup>+07</sup>, RM06, Ric03, RS06, Rif85, Roc99, Roc10, Roc11, RAL<sup>+08</sup>,  
 RHQ<sup>+16</sup>, RD04, SSAK06, SB05, Sav11, Sav64, Sch06, SSK<sup>+05</sup>, Sen05,  
 Sha82a, Sha02, Sha07, Sha14, SK04, SS07, SBS<sup>+13</sup>, Siq98, Sla97, SW93k,  
 SW93l, SW93b, Smi05, SG17, SF03, SGB02, SJ04, SD96, Str14, SB21, SGG04,  
 SG18, Tho09, Tim02, Tim03, TKL<sup>+12</sup>, TT12, Van89, Ver98, Wal01b, WGB09,  
 WBB<sup>+12</sup>, WMS<sup>+12</sup>, WVB10, WC99, Wri67, YN11, YCS12]. **Shannon**  
 [Yoc00, YLR<sup>+10</sup>, Zac16, ZBM11, Zee02, Zha09, dPV00, dTS<sup>+03</sup>, Tra10].  
**Shannon-entropy-based** [NS12]. **Shannon-information** [SK04].  
**Shannon-type** [KNS17]. **Shape** [Sha44d]. **Shapes** [Bar01]. **Sharing** [ID00].  
**SHED** [GPM06]. **Shortz** [Efr08]. **show** [YN11]. **Side** [Sha58a, Sha93g].  
**Signal** [Sha50e, Sha54a, Sha93-29, HTR<sup>+08</sup>]. **Signaling** [Kov20]. **Signals**  
 [BERS86, HDC96, HTR<sup>+08</sup>, JGH00]. **Significance** [Sha48h]. **Silico**  
 [PGM<sup>+12</sup>]. **similarity** [WGB09]. **Simon** [Cer17, Sil18]. **Simplified**  
 [BS50, BS93]. **Simpson** [Gor06, Key05]. **simulations** [LM03].  
**Simultaneous** [Sha55d, Sha93-45]. **single** [Gor06]. **sites** [GKL<sup>+13</sup>]. **size**  
 [SK04]. **skräck** [NWV94]. **small** [New56]. **Smoothing**  
 [BBS46, BS50, BS93, Sha41c, Sha41g, Bla65]. **Sociable** [Bar01]. **Social**  
 [RFME<sup>+12</sup>]. **Society** [Pin01]. **solubility** [SGB02]. **Solution** [Sha53f].  
**Solutions** [LS35, SSS34]. **Solving** [Sha51c, Sha53f, Sha93-35, Pri84, Pri85].  
**Some** [Sha41f, Sha41e, Sha48i, Sha52b, Sha55e, Sha56g, Sha57c, Sha93-50,  
 Sha93-46, Sha93-47, Sha93-48, Sha93-49, Tho09, Sha57b]. **Soni**  
 [Cer17, Doo18b, Sil18]. **Sorry** [San05]. **sorting** [HSBJ02]. **Source**  
 [Sha54b, Sha59a, Sha59b, Sha59i, Sha93q, Sha60]. **space** [GWZC12].  
**Spanish** [Pla06, SW81]. **special** [Key05]. **species** [BQhH08, Ric03, SF03].  
**specificity** [SSK<sup>+05</sup>]. **Spectral** [Zac16]. **spectrum** [Kah84]. **Speed** [Nyq24].  
**Spielzeug** [Roc10, Roc11]. **spike** [HSBJ02]. **spin** [CS09, ZBM11]. **spiral**  
 [APMS<sup>+12</sup>]. **spiral-graph** [APMS<sup>+12</sup>]. **Splines** [BERS86]. **spontaneous**  
 [RHQ<sup>+16</sup>]. **spread** [Kah84]. **Square** [BS50, BS93]. **Stable** [WMS<sup>+12</sup>]. **Staff**  
 [Sha50j, Sha93-42]. **state** [PP06]. **States** [Sha54c, Sha93-58, Sha56h].  
**Statfjord** [BKU<sup>+94</sup>]. **Statistical** [Sha45b, Sha48k, Siq98, Wri67]. **status**  
 [Wri67]. **Staying** [Sha07]. **stem** [WMS<sup>+12</sup>]. **Stephen** [Sha49e, Sha93-43].  
**still** [Luc12]. **Storage** [Bot88]. **Story** [Bau13, Bau21, Cop25].  
**straightforward** [LR05]. **Strategic** [Pin01]. **strategy** [WGB09]. **stress**  
 [TKL<sup>+12</sup>]. **strong** [GFD03]. **Structures** [Sha49e, Sha93-43]. **Student**  
 [Pin01]. **Studien** [SM74]. **Studies** [SM56, SM74, SW93a, Mur57]. **Study**  
 [Hag79, Sha41f, Sha93-50, CLM<sup>+01</sup>, Rog94]. **style** [CLM<sup>+01</sup>]. **sub** [TKL<sup>+12</sup>].  
**subcutaneous** [SBS<sup>+13</sup>]. **subjects** [HTR<sup>+08</sup>, Szi29, Szi76]. **Submodular**  
 [KNS17]. **Subscriber** [Sha40b, Sha93-59]. **summer** [MMS06]. **Sumset**  
 [GV15]. **Supply** [LB08]. **supposed** [Tim03]. **Survey** [Asp85]. **Swedish**  
 [NWV94]. **Switching** [Cha72, Sha37, Sha38, Sha46, Sha49f, Sha53i, Sha55d,  
 Sha93y, Sha93-39, Sha93-51, Sha93-45, Sha93-53, Sha21, CSJJ10, SM53].  
**Symbol** [Sha54b, Sha93q]. **Symbolic**  
 [Sha37, Sha38, Sha93-51, Sha21, Let06, Sug13]. **Symmetrical**  
 [Sha50a, Sha93-52]. **Symposium** [Ano53]. **synonymous** [Zee02]. **Synthesis**

[GBR07, Sha49f, Sha55d, Sha93-45, Sha93-53]. **Synthesizer** [MS53c, MS93d]. **synthetic** [SGB02]. **System** [OS46, Sha43a, Sha93b, Szi29, Szi64, SSAK06, Szi76]. **Systems** [BBS46, HS46, Sha41a, Sha44c, Sha45b, Sha48j, Sha49b, Sha93c, Sha93l, Sha98a, GWZC12].

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