

Index

a

A*-based optimal GED
 computation 119
 Ackermann's function 188
 activity spreading 254
 acyclic cubical complex 342
 addition 354
 adjacency matrix 4ff., 25ff., 145
 AIDS database 127
 Albert–Barabasi limit 35
 algorithm
 – breadth-first search (BES) 236
 – Dijkstra's 190
 – dynamic programming (DP) 278
 – Hungarian 122f.
 – Kuhn–Munkres' 122f.
 – minimum cost dynamic
 multicommodity flow problem
 394
 – optimal 118
 – optimal dynamic flow 377ff.
 – spanning peripheral arcs 201
 – spanning peripheral edge 186
 – suboptimal 121
 Alon–Milman theorem 64
 analytic combinatorics 425ff.
m-antiprism 359ff.
 arc 199, 247, 386
 – downward 199
 – kernel 199
 – lateral 199
 – peripheral 199
 – reflexive 199
 – upward 199
 assignment problem 121
 authority, network 13
 automatic protein prediction 114
 automorphism 1ff., 352
 – computation 7
 automorphism group 4, 352
 – abelian 5

average shortest path (ASP) 247,
 256ff.

b

BABEL 231f.
Bacillus subtilis 282ff.
 balanced incomplete block design
 (BIBD) 153
 base graph 387
 basic interval 302
 basis problem 318
 basis system
 – complete 318
 – problem 296
 batch machine 301
 batch machine scheduling (BMS)
 problem 301f.
 Beamsearch(s), Beam(s) 121, 133
 benzenoid hydrocarbon 154
 betweenness 206
 betweenness centrality (BC) 15ff.,
 52, 58
 – vector 17f.
 binary choice model 413
 biological network 68
 biometric person identification 114
 bipartite edit distance 133
 bipartite graph 149
 bipartite graph matching 121
 bipartite (BP) method 125ff.
 bipartite model 213
 bipartite network, community 409
 bipartite substructure, complex
 network 77
 bipartite wheel 341
 Boltzmann factor, generalized 40
 bound
 – graph energy 147
 – lower 154
 – upper 147
 Bourgas Indices (BI) 49ff.

- bow-tie model 176
- m*-bracelet 363
- branching process 427, 441
- breadth-first search (BES) algorithm 236
- bridge 353
- Brownian excursion 431
- Buneman graph 346
- bypass deletion 281
- c**
- C-block graph 337
- CACTVS 231f.
- Caenorhabditis elegans* 245ff.
- cage-amalgamation graph 337ff.
- Cahn-Ingold-Prelog 223
- canonical discriminant analysis (CDA) 68
- canonical metric representation 328
- capacity function 378
- cardiac defibrillation 261
- cardiac system 261
- cardioversion 261
- CARMEN Neuroinformatics project 266
- Cartesian product 3, 327f.
- Cauchy's integral formula 433
- Cauchy-Schwarz inequality 147
- Cayley graph 87ff.
- Cayley tree 435ff.
- Cayley's formula 438
- CCDC 232
- centrality 58
- centrality measure 52
 - integrated 52
- ChEBI 232
- Chebyshev's inequality 99
- chemical database 232
- chemical graph format 231
- Chemical Markup Language (CML) 231
- chemical software package 232
- Chemistry Development Kit (CDK) 232
- chemoinformatics, graph theory 221ff.
- Cheng, Harrison, and Zelikovsky theorem 278
- chordal graph 336
- chromatic decomposition 19
- chromatic information content 20
- chromatic number 19
- circular split system 345
- class
 - $\text{CLC}(\mathcal{X})$ 304
 - complex network 66
- classification
 - elementary $(\{2,3\},4)$ -polycycle 359
 - elementary $(\{2,3\},5)$ -polycycle 359
 - elementary $(\{2,3,4,5\},3)$ -polycycle 356
 - GED-based nearest-neighbor 129
- classifier
 - *k*-nearest-neighbor 129
 - NN 133f.
- CLC, *see* connected list coloring
- closed walk (CW) 57, 77
- closeness centrality (CC) 19, 52, 58
- cluster 247
- clustering coefficient 15, 30
- cogwheel 341
 - convex 341
- collaboration model 419
- color
 - initial 311
 - label 316
- color class 19
- coloring
 - complete 19
 - connected 301
 - graph 19
 - proper 301
 - proper interval edge 301
- communicability 70
 - complex network 69
 - function 77f.
 - network community 71
- communicability graph 73ff.
- community 71f.
 - detection 73
 - identification 75
 - structure 407
 - topical profile 411
- complementary geraph 181, 199
- complete basis system 318f.
- complex network 23, 65
 - class 66
 - communicability 69
 - global topological organization 62
 - relational 48
 - statistical mechanics 23ff.
 - structure 55
- complexity 304
- component 209f.
- computation, graph edit distance 118f.
- computational geometry 61

- computational tractability 295ff.
 - computing minimum cost
 - homomorphism 277
 - concave cost function on arcs 386
 - conceptual domain 204
 - conceptual graph (CG) 209ff.
 - semiotic system 212
 - conceptual space 204ff., 216
 - conceptualistic interpretation 213
 - connected graph 151ff., 182, 326, 345, 438ff.
 - connected group 66
 - connected list coloring (CLC) 296
 - Connected List Coloring (CLC) problem 295ff.
 - CLC(\mathcal{X}) problem 296
 - CLL-negative input 312
 - CLL-positive input 312
 - connected list labeling (CLL) 309
 - problem 309
 - connected service area, problem 298
 - connected solution 299
 - connection 253
 - connectivity 49, 90
 - average nearest-neighbor 30
 - local 110
 - neutral network 90
 - peripheral 195
 - constraint satisfaction problem (CSP) 234
 - finite domain (FCSP) 234
 - convex amalgamation 327
 - convex cost function on arcs 386
 - convex excess 336
 - convex expansion 328
 - core-periphery 66
 - correspondence 381
 - cortical network 245
 - property 246
 - cortical system 264
 - cost function 378f., 393
 - cost matrix 123
 - Coulson integral formula 162f.
 - counting connected graph 438
 - cover 328
 - cubical 338
 - cross reference 193
 - crossing graph 332
 - crystal graph 230
 - crystal packing 231
 - cube
 - counting 323ff.
 - spectrum 347
 - n -cube 85ff., 324
 - binary 94
 - cube polynomial 324ff., 337ff.
 - root 340
 - cycle
 - graph 235
 - handling in pattern 280
- d**
- Daylight 232
 - defibrillation shock (DS) 261
 - degree centrality (DC) 52, 58
 - degree distribution 25f., 39ff.
 - cumulative 26
 - Poissonian 36
 - degree vector 13
 - deletion 116
 - demand–supply function 378, 393
 - density matrix 40
 - dependency tree (DT) 202
 - depth-first search (DFS) 279
 - digraph 8, 200
 - functional 436
 - Dijkstra’s algorithm 190
 - dimension, isometric 328
 - directed generalized dependency tree (DiGDT) 202
 - directed generalized spanning tree (DiGST) 200
 - directed generalized tree (DGT) 198ff.
 - directed minimum spanning generalized tree (DiMSGT) 202
 - directed spanning tree 200
 - discrete mathematical model 295
 - discrete optimization problem 295
 - disjoint hole 351
 - dissimilarity computation 114
 - dissimilarity embedding graph
 - kernel 132ff.
 - suboptimal GED 136
 - distance 34, 49
 - computation 116
 - n -cube 105
 - geodesic 179
 - graph 114
 - graph energy 169
 - matrix 169
 - shortest path 325
 - distortion operation 116
 - distribution, linking probability 30
 - Djokoviæ–Winkler relation 327
 - domain formation 216
 - domain networking 216

- dynamic flow 385ff.
 - dynamic model, flow storage at node 384
 - dynamic multicommodity flow 394
 - dynamic network 378ff., 393
 - uncapacitated 387
 - dynamic programming (DP)
 - algorithm 278
 - table 279
 - dynamics, structural and functional 245
- e**
- EC (Enzyme Commission) number 275
 - eccentricity 51
 - ecological network 68
 - edge
 - coloring 301
 - cross-reference 196
 - disengaged 230
 - engaged 230
 - kernel 181ff.
 - lateral 181ff.
 - open 353
 - peripheral 190
 - proper interval 301
 - reflexive 181
 - removal 256
 - short cut 196
 - transverse 196
 - vertical 181ff.
 - edit distance 117
 - edit path 117
 - eigenvalue 57
 - principal 64
 - eigenvector 57
 - centrality (EC) 58
 - principal 64
 - elementary elliptic (R, q) -polycycle 351ff.
 - elementary $(\{2, 3\}, 4)$ -polycycle 359
 - elementary $(\{2, 3\}, 5)$ -polycycle 359
 - sporadic 371ff.
 - elementary $(\{2, 3, 4, 5\}, 3)$ -polycycle 356
 - sporadic 364ff.
 - empirical model 413
 - energy, graph 146
 - ensemble
 - canonical 32ff.
 - random network 39
 - ensemble average 28
 - entropy 2, 37
 - graph 20
 - group-based 4
 - network 25ff.
 - nonextensive 31
 - principle 25
 - epilepsy 254
 - epileptogenesis 254
 - equidistance 207
 - equienergetic noncospectral
 - connected graph 158
 - Erdős–Rényi classical random graph 28
 - model 438
 - Erdős–Rényi (ER) network 30, 39
 - Escherichia coli* 282ff.
 - essential set of essential rings (ESER) 235
 - estimation result 417
 - Estrada index 59
 - Euclidean distance 133, 259
 - Euler-type inequality 324, 330, 332
 - partial cube 335
 - European Bioinformatics Institute (EBI) 222
 - European Nomenclature of Territorial Units for Statistics (NUTS)
 - classification 403
 - European Union’s framework program (FP) 401ff.
 - excitable medium, spreading 260
 - expansion factor 63f.
 - expansion procedure 328
 - expansion property 339
 - extended set of smallest rings (ESSR) 235
- f**
- face-regular two faced map 354
 - family
 - chain 300
 - $CLC(\mathcal{X})$ 296
 - fixed 107
 - induced 106
 - parameterized 318ff.
 - problem 320
 - FCSP, *see* constraint satisfaction problem
 - feasible dynamic flow 379f.
 - feasible dynamic multicommodity flow 393
 - finite probability scheme 2
 - fingerprint database 126
 - Fisher’s linear discriminant analysis (LDA) 131ff.

- flexible graph distance measure 114
 - flow correspondence 385
 - flow storage at nodes 384
 - food web of Canton Creek 80
 - framework program (FP) network
 - community 409
 - frieze group 352
 - functional brain network 248
 - functional dynamics 260
 - fundamental group 352
- g**
- GABA (γ -aminobutyric acid) receptor 254
 - Galton–Henry classification system 127
 - Galton–Watson process 427f.
 - Galton–Watson tree 430
 - scaled 430
 - general embedding procedure 130
 - generalized forest (GF) 208ff.
 - generalized shortest path tree (GSPT) 175ff., 190ff., 212
 - generalized shortest paths tree (GPST) 175ff., 195, 212
 - generalized spanning tree 184
 - directed 200
 - generalized subtree 207
 - type-restricted 183
 - generalized tree (GT) 175ff., 204
 - directed 199
 - minimum spanning (MSGT) 186ff.
 - orientating 197
 - undirected 180
 - weighted undirected 181, 199
 - geodesic 361
 - geodesic betweenness 206
 - geodesic distance 179
 - geodesic equidistance 207
 - geodesic path 179
 - giant component 438ff.
 - global corticocortical connectivity 263
 - i -gon 351ff.
 - good expansion (GE) 63
 - graph 115, 295
 - 2-connected 446
 - 3-connected 446
 - acyclic 50f.
 - automorphism group 11
 - bipartite 76, 149ff., 326
 - bipartite unicyclic 166
 - class 175ff.
 - complexity 47ff.
 - centrality 19
 - characteristic polynomial 145
 - chordal 336, 345
 - circulant 156
 - coloring 19
 - complementary 181, 199
 - connected 151ff., 182, 326, 345, 438ff.
 - connected (p_x, p_y) -pseudo-semiregular bipartite graph 151
 - cycle 237
 - cyclic 50f.
 - data set 125
 - data set characteristics 128
 - distance 114
 - embedding 129
 - entropy 20
 - equienergetic 157
 - equienergetic noncospectral 158
 - extremal 162
 - H -free 324
 - Hamming, *see* Hamming graph
 - hyperenergetic 156f
 - hypoenergetic 157
 - information content 2
 - isometric dimension 329
 - maximum-energy unicyclic n -vertex 167
 - minimum energy 166f.
 - minimum-energy n -vertex 162
 - non-bipartite connected 151
 - non-bipartite connected p -pseudoregular 151
 - non-isomorphic 157
 - non-trivial with identity group 3
 - planar 445
 - polynomial 6, 145
 - quasi-median 334
 - quasi-semimedian 335
 - second-minimum energy 166
 - semiregular bipartite 149
 - k -th spectral moment 155
 - third-minimum energy 166
 - tree-like 178
 - type 302
 - underlying 200
 - unicyclic 166f.
 - n -vertex noncospectral equienergetic 159
 - n -vertex regular 168
 - (n, m) -graph, minimum energy 167

- graph edit distance (GED) 113ff.
 - computation 118ff., 133
 - dissimilarity embedding graph
 - kernel based on suboptimal graph edit distance 136
 - optimal and suboptimal 133ff.
 - optimal and suboptimal algorithm 118ff.
 - graph element 47
 - weighted distribution 47
 - graph energy 145ff.
 - bound 147
 - graph kernel
 - dissimilarity-based embedding 129ff.
 - method 131
 - graph matching method 116, 226
 - erroro-tolerant 116
 - graph matching paradigm 116
 - graph spectral theory 81
 - graph spectrum 4, 55ff.
 - background 56
 - graph structure 47
 - analysis 295ff.
 - graph theoretic approaches 221
 - graph theory
 - bioinformatics 221ff.
 - chemoinformatics 221ff.
 - graph vertices 2
 - Green's function, thermal 71
 - group 4
- h**
- H*-theorem 25
 - Hamiltonian 27ff., 60
 - Hamming distance 86, 110, 324
 - Hamming graph 325
 - Hamming polynomial 324, 343f.
 - Hankel contour 434
 - Heaviside step function 73
 - height 430
 - Heuristic-A* 120, 133f.
 - hexagonal system 154
 - hidden variable distribution 40ff.
 - high-cost edge 190
 - hole 351
 - homeomorphism 276
 - homomorphism 276f.
 - hub 48
 - Hückel graph 156
 - Hückel molecular orbital (HMO) 145
 - Hungarian algorithm 122f.
 - Hurwitz generalized zeta function 42
 - hypercube 323ff.
 - *n*-dimensional 324
 - hyperenergetic graph 156
 - hypoenergetic graph 157
 - hypotactic unfolding 216
- i**
- ictiogenesis 254
 - identity graph 7
 - idleness 301
 - INChi 224
 - incompatibility graph 332
 - independence 318
 - number 297
 - individual capacity function 393
 - information
 - mean 47
 - sequence specific 106
 - total 47
 - information content, graph 2
 - information measure 49
 - information-theoretic entropy 60
 - informational network 68
 - initial color 311
 - initial vertex 311
 - CLL-negative 312
 - CLL-positive 312
 - insertion 116
 - integral constant demand–supply function 384
 - integral dimension 205
 - integral schedule 302
 - integrated centrality index 52
 - interaction 60
 - strength 60
 - intercluster communicability 72
 - internal metric 32
 - interval 301, 325
 - basic 302
 - interval edge coloring problem 301
 - hypergraph 301
 - intracluster communicability 72
 - isometric expansion 328
 - isomorphism 352
- j**
- Janson's inequality 90ff.
 - Jordan canonical form 4
- k**
- KEGG 232
 - kernel 181, 361
 - geodesic 357
 - propeller 357
 - kernel edge 181ff.

- kernel elementary polycycle 355
 - kernel function 132
 - kernel machine 132
 - kernel minimum spanning tree 188f.
 - key parameter 296
 - Kim *et al.* limits 35
 - Kneser graph 156
 - Kolmogorov complexity 1
 - König theorem 76f.
 - Koolen-Moulton upper bound 168
 - Kuhn-Munkres' algorithm 122f.
 - Kullback distance 411
 - Kuratowski's theorem 237
- I**
- label 309
 - labeling 309
 - connected list 309
 - tentative 310
 - Laguerre polynomial 42
 - Laplacian graph energy 169
 - Laplacian matrix 169
 - Laplacian spectrum of graph 57
 - largest component 93
 - letter database 125
 - limit probability 89
 - line, covered and uncovered 122
 - linear chain 55
 - linear cost function on arcs 386
 - linear discriminant analysis (LDA) 131ff.
 - Fisher 136
 - link 35ff.
 - linking probability 33ff.
 - distribution 40
 - microscopic 42
 - list 358ff.
 - local expansion 429
 - lopsided set 348
 - low-price edge 190
- m**
- macro-level structure 210
 - macromolecular assembly
 - crystal packing 229
 - Macromolecular Structure Database (MSD) 222
 - macroscopics 31
 - majority rule 327
 - mapping
 - formylTHF biosynthesis 284ff.
 - glutamate degradation VII pathway 288f.
 - interconversion of arginine, ornithine, and proline pathway 288
 - metabolic pathway 282
 - pentose phosphate pathway 284
 - statistical significance 283
 - Markov process 444
 - Markov's inequality 102
 - maximum flow 383
 - maximum dynamic flow problem 380
 - maximum matching problem 307
 - median 52
 - median closure 347
 - median graph 321ff.
 - cube polynomial 339
 - cube-free 332ff.
 - maximal cube 345
 - Q_4 -free 333
 - median grid graph 333
 - median network 346
 - median vertex 325
 - medical diagnosis 114
 - meso-level coherence 210
 - metabolic pathway 271ff.
 - filling hole 286
 - metric basic structure 210
 - metric space 32, 205
 - micro-level coherence 210
 - microscopics 35
 - microstate 60
 - middle complexity problem 319
 - minimality 206
 - minimum cost dynamic flow problem 378
 - minimum cost dynamic multicommodity flow problem 392
 - minimum cost homomorphism problem 277
 - minimum spanning generalized tree (MSGT) 186ff.
 - revisited 187
 - minimum spanning tree (MST) 187
 - kernel 188
 - modelling metabolic pathway mappings 275
 - modularity 247, 408
 - molecular graph 222
 - common problem 223
 - Moon–Moser graph 73
 - Mulder's convex expansion 328
 - multicommodity flow 395
 - multidimensional conceptual space 211
 - multidomain conceptual space 208

- multiparametric complexity analysis 296
 - multiple cluster 259
 - multiple discriminant analysis (MDA) 136
 - MDA* 139
 - transformation 138
 - multisource tree 276ff.
 - pattern 278
 - Munkres' algorithm 122f.
 - mutual capacity function 393
- n**
- Nagelkerke (*R*)-squared 418
- nearest-neighbor, GED-based 129
- k*-nearest-neighbor, classifier 129
- neighbor connectivity 30
- neighborhood degree vector, point-deleted 13
- neighborhood betweenness centrality vector, point-deleted 18
- network, *see also* graph
 - almost bipartite 76
 - bipartivity 76f.
 - broad-scale 65
 - complexity 47ff.
 - connectivity 49
 - definition 404
 - distance 49
 - entropy 25ff.
 - growing 26ff.
 - homogeneous 65
 - macroscopic parameter 23ff.
 - measure 30
 - microscopic rule 23
 - modular 63
 - non-growing 26
 - nonhomogeneous 65
 - optimal dynamic flow 377ff.
 - random, *see* random network
 - real-world 24, 65
 - scale-free 23f., 65
 - single-scale 65
 - small-world 23f., 258ff.
 - state 25
 - structure 405
 - thermodynamics 25, 35
 - time-expanded 381ff., 394
 - universal topological class 65
 - universality class 29
- network change, development 258
- network cluster 259
- network community 71
 - communicability 71
- network ensemble 28
- network generation model
 - generalization 32
 - unification 32
- network Hamiltonian 27ff.
- network mapping 271ff.
 - method 273
- network model
 - spectral scaling approach 67
 - unified 32ff.
- network optimization problem (NOP) 175ff.
- network organization, universal law 176
- network science 265
- neural connectivity 252
 - prediction 252
- neural network 251
- neuron, inhibitory 254
- neuronal network 245
 - property 246
- neuronal system 264
- neutral network 110f.
- Nikiforov's theorem 156
- no-idle requirement 301
- no-wait requirement 301
- node 24ff., 39, 58, 247, 259, 379
 - flow storage 384
 - merging 116
 - random 447
 - removal 257
 - splitting 116
- node centrality 47ff., 58
- node degree 48
- node-repulsion graph 80
- nonextensivity 31
- normal distribution 438ff.
- NP-complete problem 319
- NP-complete subproblem 304
- null model 408
- NUTS (Nomenclature of Territorial Units for Statistics) 403
- o**
- object classification, graph-based 115
- offspring distribution 429
- OPEN 119ff.
- open edge 353
- open reading frame (ORF) 272
- open shop problem 301
- OpenBabel 232
- OpenEyes 232
- optical character recognition 114

- optimal dynamic flow 377ff.
- optimal dynamic multicommodity flow problem 392
- optimal dynamic single-commodity flow problem 378ff.
- orbit 2ff.
 - approximating 11
 - graph 12
 - size 9
 - vertex 12
- order relation, path 179
- organization projection property 406
- orientation 198

- p**
- parallel machine (PM) 300
 - problem 300
- parameter 414
- partial cube 325, 335
- partial Hamming graph 325
- particle 427
- partition function 36, 60
 - subgraph centrality 60
- partitioning 184
- path 175ff.
 - disjoint 102f.
 - edit 117
 - geodesic 179
- pathway
 - identifying conserved pathways 285
 - mapping 285
 - visible and hidden holes 286
- pattern 271ff.
 - handling cycle 280
- pattern graph ordering 279
- pattern vertex deletion 281ff.
- p -batch machine 301f.
- PDB, *see* Protein Data Base
- PDB ligands 232
- periphery 181, 199
- Perron–Frobenius eigenvalue 57
- phase, network 28
- phylogenetic validation 285
- phylogenetics 346
- PISA (Protein Interfaces, Surfaces, and Assemblies) 231
- planar graph 445
- planar subgraph 237
- Plant Location Problem (PL problem, PLP) 298f.
 - (R, q)-polycycle 351ff.
 - boundary 353
 - elementary 351ff.
 - elliptic 351
 - fixed-point-free 352
 - hyperbolic 351ff.
 - kernel-elementary 355
 - nonextendible 354
 - parabolic 351ff.
 - simply connected 352
 - with holes 352
 - (R, q)_{simp}-polycycle 352ff.
 - kernelable 356
 - ({2,3},4)-polycycle
 - elementary 359
 - ({2,3},5)-polycycle
 - elementary 359
 - sporadic elementary 371ff.
 - ({2,3},5)_{simp}-polycycle 361f.
 - ({2,3,4,5},3)-polycycle
 - elementary 356
 - sporadic elementary 364ff.
- polymorphic categorization 196
- polynomial 6ff.
 - solvability 318
 - time 306ff.
- polynomial-time solvable subproblem 305
- posteromedial suprasylvian arean (PMSL) 255
- prescription 296
- principal component analysis (PCA) 131ff.
- probability 33, 60, 88, 100, 414
- probability distribution 20f.
- probability space 88
- problem formulation 277
- product graph 342
- product median graph 342
- profile 431
- project projection property 407
- projection length distribution 251
- proper faces 351
- Protein Data Base (PDB) 222ff.
- protein quaternary structure (PQS) 229
- protein secondary structure network 68
- protein structure, comparison and 3D alignment 225
- protein-protein interaction network 56
- prototype selection 131
- provider 298
- PS-completeness 318
- pseudo-median 334
- pseudograph

- edge 181
- rooted 181
- PubChem 232

- q**
- quality dimension 204
- quasi-clique cluster 78
- quasi-bipartite cluster 78
- quasi-median graph 334
- quasi-semimedial graph 335

- r**
- R&D (research and development) 402
- random graph 28, 425
 - model of Erdős and Rényi 438
- random mapping 436
- random network 23f.
 - degree distribution 39
 - ensemble 39
 - superstatistics 39
- random tree 432
- real-world network 24, 65, 401
- relation 327
- relation database management system (RDBMS) 234
- relative 302
- removal
 - edge 256
 - node 257
- Riemann zeta function 430
- RNA string 85, 106
- RNA structure 85, 110
 - induced subcube 85
- root
 - cube polynomial 340
 - rational 340
 - real 341
- RQA (recurrence quantification system) 261
- runtime analysis 279

- s**
- Saccharomyces cerevisiae* 282ff.
- 3-SAT problem 305
- scale-free feature 248
- scale-freeness 65
- scanning, vertex 314
- scheduling 301
 - feasible 302
 - no-idle 300
 - unit job 301
- scheduling problem 295ff.
- secondary structure element (SSE) 225ff.
- semantic space 204
- semicube 326
- semiotic network 175
- semiotic system 211f.
 - conceptual graph 212
- semiregular bipartite graph 149
- sequence, binary 346
- set of smallest cycles at edges (SSCE) 235
- Shannon equation 47
- Shannon expression 60
- short cut 193
- short cut edge 196
- shortest path generalized tree (SPGT) 193
- shortest path tree (SPT) 190ff.
- single source problem 190
- skeleton 181
- small-world connectivity descriptor 49
- small-world connectivity index B2 49
- small-world feature 247
- small-world network 23f., 258ff.
- small-worldness 65
- smallest set of smallest rings (SSSR) 235
- SMARTS 225
- SMILES 224
- Soares *et al.* limit 35
- social network 16, 68, 401ff.
- social tagging 215
- solution, connected 299
- spanning peripheral edge algorithm 186
- spanning peripheral arcs algorithm 201
- sparse graph 190
- spatial growth 258
- spatial layout 250
- spatial range 259
- spectral scaling method 63
- spectral graph theory 56
- spectral measure 58
- spectrum 145
- split 326, 345
 - compatible 330
 - incompatible 330
- split system 326, 345
 - full circular 346
- sporadic elementary $\{[2,3],5\}$ -polycycle 371ff.
- sporadic elementary $\{[2,3,4,5],3\}$ -polycycle 364ff.

- spreading, topological inhibition 262
- SQL (Structured Query Language) 232ff.
- star 55
- state 31
- static network 389ff.
- statistical mechanics 23ff.
- strength 60
 - interaction 60
- stress centrality 19
- string edit distance 133
- strong deletion 281
- structural brain network 249
- structural complexity 19
- structural damage 255
- structural dynamics 255
- structuralistic interpretation 213
- structured value 205
- subcomponent (sc) 95
- subcube 85
- subgraph
 - convex 325
 - isometric 325
 - isomorphism solution 232
 - planar 237
 - random induced 85ff.
- subgraph centrality 59
 - partition function 60
- submatrix, visual cortex 253
- substitution 116
- Sudarshan–Glauber representation 40
- support vector machine (SVM) 136
- symmetry 1, 206
 - group 354
- syncytium 260
- sysres EUPRO database 402

- t**
- technological system 68
- temperature 29
 - superposition 29
- text 271
- text graph 274
 - preprocessing 278
- text networking 214
- thematic centralization 216
- thematic condensation 216
- thematic progression 216
- thematic shortcut 216
- theory of graph energy 146
- thermodynamics of network 25
- Thermus thermophilus* 282ff.
- time window 259
- time-expanded network 381ff., 394ff.

- total cost
 - dynamic flow 380
 - dynamic multicommodity flow 394
- total wiring length 251
- transit function 390
- transit time function 378, 393
- transition 36
- tree 55, 161ff., 426ff.
 - (p, q) -bipartition 166
 - equienergetic 161
 - height 430
 - induced 95
 - initial 311
 - maximum energy 164
 - minimum energy 164f.
 - planted plane 426ff.
 - profile 431
 - n -regulated 100
 - second minimum energy 164
 - simply generated 427f.
 - n -vertex 164
- tree-like equality 330
- triangle inequality 206
- triangulated graph 336
- Tsallis entropy 26ff.

- u**
- unified model, limit 35
- unipartite model 213
- unit job 301
 - scheduling 301
- utility 36

- v**
- variable
 - construction 415
 - dependent 415
 - FP experience of organization 415
 - geographical effect 415
 - relational effect 416
- ventricular fibrillation (VF) 261
- vertex 12ff., 63, 275, 361
 - betweenness centrality 15
 - bipartition 149
 - boundary 87ff.
 - degree 13, 47ff., 155
 - degree distribution 48
 - dependency matrix 17
 - disjoint 97ff.
 - disjoint path 102ff.
 - distance 51
 - distance distribution 48f.

- feedback set 278
- geodesically equidistant 207
- independent 19
- interior 351
- intermediate 300
- orbit 12
- point-deleted neighborhood 14
- rooted 448
- scanning 314
- top-level 210
- vertex-to-vertex mapping 290

w

- walk 69
- web page database 127
- width 434
- Wright's method 438

z

- Zachary karate club 74
- zero
 - primed 122
 - starred 122