**Graphmetriken – Liste (+ andere graphbeschreibende Eigenschaften)**

|  |  |
| --- | --- |
| **Parameters (of vertices and edges; basic metrics)** | |
|  | Vertices (Order) |
|  | Edges (Size) |
|  | max. degree |
|  | min. degree |
|  | avg. Degree |
|  | Degree distribution |
|  | Cubic |
|  | #Regular |
|  | #Simple graph (keine Metrik) |
|  | #Multi graph (keine Metrik) |
|  | min. multi edge |
|  | max. multi edge |
|  | avg. multi edge |
|  | multi edge distribution |
|  |  |
|  |  |
|  |  |
| **Circle-based Matrics**   |  |  | | --- | --- | |  | Circumference | |  | Girth | | |
| **Colouring** | |
|  | Chromatic number |
|  | Chromatic index |
|  | Fractional Chromatic Number |
|  | Fractional Chromatic Index |
|  | Achromatic number |
|  | Pseudo achromatic number |
|  |  |
| **Visualizabilty/Topology** | |
|  | Planarity |
|  | Outerplanarity |
|  | Toroidal |
|  | Book thickness |
|  | Queue number |
|  | Crossing number |
|  | Unit distance |
|  | Matchstick graph |
|  |  |
| **Connectivity** | |
|  | Number of Components |
|  | Strength |
|  | Density |
|  | Edge connectivity |
|  | Vertex connectivity |
|  | Bridgeless |
|  | #Bridges |
|  | Articulationless |
|  | #Articulations |
|  |  |
| **Distance/Pathes** | |
|  | Shortest path |
|  | Longest path |
|  | Average path length |
|  | Path lengths distribution |
|  | #Eulerian (cycle) |
|  | Eulerian path |
|  | #Hamiltonian (cycle) |
|  | Hamiltonian path |
|  | Hypohamiltonian |
|  |  |
| |  |  | | --- | --- | | **Distance based Metrics** | | |  | Radius | |  | Diameter | |  | #CentralVertices | |  | #BorderVertices | |  | Eccentricity | |  | Eccentricity distribution |   **Substructures/Patterns** | |
|  | Triangle-free |
|  | Bull-free |
|  | Diamond-free |
|  | Claw-free |
|  | Triangles |
|  | Bulls |
|  | Diamonds |
|  | Claws |
|  | Chordal |
|  | Cycles |
|  | Shortest cycle (girth) |
|  | Longest cycle (circumference) |
|  | Cycle distribution |
|  | #loop vertices |
|  |  |
| **Centrality** | |
|  | Degree |
|  | Closeness |
|  | Harmonic |
|  | Betweenness |
|  | Eigenvector |
|  | Katz |
|  | PageRank |
|  | Percolation |
|  | Cross-Clique |
|  | Freeman |
|  | Independence number (independent set, stable set, coclique or anticlique) |
|  |  |
| **Cliques** | |
|  |  |
|  | Max. #cliques |
|  | Clique number (max. clique) |
|  | Distribution n-clique |
|  | Intersection number |
|  | Clique cover number |
|  |  |
|  |  |
|  |  |
| **Arboricity**   |  |  | | --- | --- | |  | Arboricity | |  | Linear Arboricity | | |
|  |  |
|  |  |
| **Clustering** | |
|  | cluster\_triangles |
|  | clustering\_average |
|  | clustering\_coeff |
|  | cluster\_transitivity()Return the transitivity (fraction of transitive triangles) of the graph |
|  |  |
| **Special** | |
|  | Automorphismus |
|  | Polyhedral |
|  | Self complementary |
|  | block graph |
|  | split graph |
|  | interval graph |
|  | claw-free graph |
|  | graceful |
|  | not graceful |
|  | penny graph |
|  | vertex transitive |
|  | edge transitive |
|  | distance transitive |
|  | Cayley |
|  | strongly regular |
|  | symmetric |
|  | distance regular |
|  | quartic |
|  | locally linear |
|  | cactus graph |
|  | platonic graph |
|  | well covered |
|  | bipartite |
|  | perfect |
|  | semi symmetric |
|  | genus |
|  | Halin |
|  | pancyclic |
|  | treewidth |
|  | fractional chromatic number |
|  | cage |
|  | crossing number |
|  | Orientably simple |
|  | Laman graph |
|  | Integral |
|  | Archimedean graph |
|  | Apex |
|  | Snark |
|  | Cage |
|  |  |
| **Mathematics** | |
|  | Algebraic connectivity |
|  | Laplacian largest eigenvalue |
|  | Second largest eigenvalue |
|  | Smallest eigenvalue |
|  | Spectrum |
|  | Eigenvector |
|  | eigenspaces |
|  | Authomorphism group |
|  | Characteristic polynom |
|  | Circulant graph |
|  |  |
|  |  |
| **Unclear** | |
|  | Index? |
|  | Szeged Index |
|  |  |
| **Other things, not a metric in the narrower sense** | |
|  | Matching (Max., Find, number of, …) |
|  | Dominating set |