

Structural Analysis Of Complex Networks

[DOWNLOAD HERE](#)

1;Preface;6 2;Contents ;10 3;Contributors;12 4;Chapter 1: A Brief Introduction to Complex Networks and Their Analysis;16 4.1;1.1 Introduction;16 4.2;1.2 Important Network Classes;17 4.2.1;1.2.1 Simple Networks;17 4.2.2;1.2.2 Random Networks;17 4.2.3;1.2.3 Degree Distribution;18 4.2.4;1.2.4 Clustering Coefficient;19 4.2.5;1.2.5 Small-World Networks;19 4.2.6;1.2.6 Scale-Free Networks;19 4.2.7;1.2.7 Trees;20 4.2.8;1.2.8 Generalized Trees;21 4.3;1.3 Structural Network Analysis;23 4.3.1;1.3.1 Degree Distribution;23 4.3.2;1.3.2 Clustering Coefficient;23 4.3.3;1.3.3 Path-Based Measures;23 4.3.3.1;Distance Matrix;24 4.3.3.2;Mean or Characteristic Distance;24 4.3.3.3;j-Sphere;24 4.3.3.4;Eccentricity, Diameter, and Radius;24 4.3.3.5;Degree, Degree Statistics, and Edge Density;25 4.3.4;1.3.4 Centrality Measures;25 4.3.4.1;Point Centrality;26 4.3.4.2;Degree Centrality;26 4.3.4.3;Betweenness Centrality;26 4.3.4.4;Closeness Centrality;26 4.3.4.5;Graph Centrality;27 4.3.4.6;Degree Centrality;27 4.3.4.7;Betweenness Centrality;27 4.3.4.8;Closeness Centrality;28 4.3.4.9;Extended Centrality Measures;28 4.3.4.10;Eigenvector Centrality;28 4.3.4.11;Joint Betweenness Centrality;28 4.3.5;1.3.5 Comparative Network Analysis;29 4.3.5.1;Measures Based on Isomorphic Relations;29 4.3.5.2;Measures Based on Graph Transformations;30 4.3.5.3;Measures Based on Graph Grammars;31 4.3.5.4;Methods Based on Machine Learning Techniques;31 4.3.6;1.3.6 Community or Module Detection;32 4.4;1.4 Information-Theoretic Methods;35 4.5;1.5 Conclusions;36 4.6;References;37 5;Chapter 2: Partitions of Graphs;42 5.1;2.1 Introduction and Notation;43 5.1.1;2.1.1 Examples of M-Partitions;43 5.1.2;2.1.2 Hereditary Properties;44 5.1.3;2.1.3 Reducibility;46 5.1.4;2.1.4 Examples of Some Reducible Bounds;47 5.1.5;2.1.5 Minimal Reducible Bounds for Outerplanar and Planar Graphs;47 5.1.6;2.1.6 Minimal Reducible Bounds for Some Other Classes of Graphs;48 5.1.7;2.1.7 Complexity of Some Selected Graph Partition Problems;49 5.2;2.2 k-Clustering;50 5.2.1;2.2.1 Minimum k-Clustering;50 5.2.2;2.2.2 Strongly Chordal Graphs;51 5.2.3;2.2.3 Hereditary Clique-Helly Graphs;52 5.2.4;2.2.4 Minimum k-Clustering in HCHC;53 5.2.5;2.2.5 Balanced Graphs;55 5.3;2.3 Matching Cutset;56 5.4;2.4 Acyclic Colourings;57 5.4.1;2.4.1 Selected Results;57 5.4.2;2.4.2 Brooks-Type Results;58 5.4.3;2.4.3 Improper Acyclic Colouring;58 5.5;References;60 6;Chapter 3: Distance in Graphs;63 6.1;3.1 Overview of Chapter;63

6.2;3.2 Distance, Diameter and Radius;64 6.2.1;3.2.1 Diameter and Radius;64 6.2.2;3.2.2 Bounds for the Radius and Diameter;65 6.2.3;3.2.3 Changes in Diameter and Radius with Edge and Vertex Removal;66 6.2.4;3.2.4 Matrices and Walks;67 6.3;3.3 Other Measures of Centrality;68 6.4;3.4 Special Graph Classes;69 6.4.1;3.4.1 Chordal Graphs;69 6.4.2;3.4.2 Cartesian Products;70 6.4.3;3.4.3 Distance Hereditary Graphs;71 6.4.4;3.4.4 Random Graphs;72 6.5;3.5 Average Distance;72 6.5.1;3.5.1 Bounds on the Average Distance;73 6.5.2;3.5.2 The Average Distance and Other Graph Invariants;74 6.5.3;3.5.3 Edge Removal and the Average Distance;75 6.5.4;3.5.4 Vertex Removal and Average Distance;76 6.6;3.6 Directed Graphs;77 6.6.1;3.6.1 The Average Distance of Digraphs;77 6.6.2;3.6.2 Tournaments;78 6.7;3.7 Convexity;78 6.8;3.8 Metric Dimension;80 6.9;3.9 Algorithms and Complexity;81 6.9.1;3.9.1 Shortest Paths;81 6.9.2;3.9.2 All Pairs Shortest Paths;81 6.10;3.10 Steiner Distances;82 6.10.1;3.10.1 Extending Distance Measures;82 6.10.2;3.10.2 Steiner Intervals and Graph Convexity;83 6.11;References;84 7;Chapter 4: Domination in Graphs;87 7.1;4.1 Introduction;88 7.2;4.2 Bounds on the Domination Number;89 7.3;4.3 Two Other Types of Domination;92 7.4;4.4 Results on Criticality;96 7.4.1;4.4.1 k Edge-Critical Graphs;97 7.4.2;4.4.2 k-t-Edge-Critical Graphs;100 7.4.3;4.4.3 k-c-Edge-Critical Graphs;102 7.4.4;4.4.4 k Vertex-Critical Graphs;103 EAN/ISBN : 9780817647896 Publisher(s): Birkhuser, Springer Science & Business Media Discussed keywords: Graphen Format: ePub/PDF Author(s): Dehmer, Matthias

[DOWNLOAD HERE](#)

Similar manuals:

[Theory Of Bilayer Graphene Spectroscopy](#)

[Graphene](#)

[Graphene Nanoelectronics](#)

[Raman Spectroscopy In Graphene Related Systems](#)

[Forschungsleistungen Von International Bedeutenden Humangeographen: Der Wissenschaftliche Beitrag Von Dietrich Bartels - Arthur Benisch](#)

[Anwendungen FÃ¼r Neuartige Kohlenstoffpartikel: \(Fullerene, Graphen, Graphan\) - Fabian Heinzelmann](#)

[Graphene And Carbon Nanotubes](#)

[Unterrichtsstunde: Zuordnungen \(Begriff, Darstellungsarten Mit Überleitung Zur Graphendarstellung\): Einführung In Die Zuordnungen In Klasse 7 \(G8\) - Stefanie Winter](#)

[Unterrichtsstunde Mathematik: Die Fläche Zwischen Zwei Funktionsgraphen - Robert Leuck](#)

[Epistulae Morales Ad Lucilium: Analyse Der Paragraphen XVI,1-5 - Alexander Windeck](#)