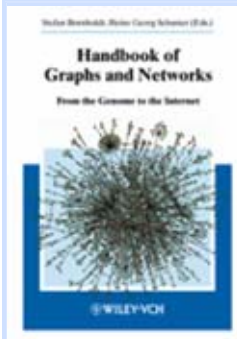


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Bornholdt, Stefan / Schuster, Heinz Georg (eds.)

## **Handbook of Graphs and Networks**

From the Genome to the Internet

### Table of Contents

[http://www.pro-physik.de/Phy/pdfs/Bornholdt\\_Inhaltsverz.pdf](http://www.pro-physik.de/Phy/pdfs/Bornholdt_Inhaltsverz.pdf)

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### **Short**

Defining the  
this book

as a key concept across several disciplines.

The contributions present common underlying principles of network dynamics and their theoretical descriptions, and are thus of interest to specialists as well as to non-specialized readers looking for an introduction to this new and exciting field.

### **description**

field of complex interacting networks in its infancy,  
presents the dynamics of networks and their structure

From the contents:

Themes in biological networks: regulatory networks in the genome, neural networks, ecological networks and food webs.

Further themes: Internet and the World-Wide Web, peer-to-peer networks, computer viruses, traffic networks.

Methods: scale-free networks, small-world networks, generalized random graphs.

### **From the contents**

Bela Bollobas and Oliver Riordan:

1. Mathematical Results on Scale-free Random Graphs

no pdf

Mark Newman:

2. Random Graphs as Models of Networks

<http://www.santafe.edu/sfi/publications/Working-Papers/02-02-005.pdf>

Albert-Lazlo Barabasi:

3. Emergence of Scaling in Complex Networks

[http://www.pro-physik.de/Phy/pdfs/Bornholdt\\_K3\\_069\\_084.pdf](http://www.pro-physik.de/Phy/pdfs/Bornholdt_K3_069_084.pdf)

R. Cohen, S. Havlin, and D. ben-Avraham:

#### 4. Structural Properties of Scale-Free Networks

<http://citeseer.nj.nec.com/cohen02structural.html>

Romualdo Pastor-Satorras and Alessandro Vespignani:

#### 5. Epidemics and Immunization in Scale-free Networks

<http://arxiv.org/abs/cond-mat/0205260>

<http://eclectic.ss.uci.edu/~drwhite/ISCOM/0205260.pdf>

Ralf J. Sommer:

#### 6. Cells and Genes as Networks in Nematode Development and Evolution

no pdf

Ricard V. Solé and Romualdo Pastor-Satorras:

#### 7. Complex Networks in Genomics and Proteomics

<http://www.santafe.edu/sfi/publications/Working-Papers/02-06-026.pdf>

Sergei Maslov, Kim Sneppen and Uri Alon:

#### 8. Correlation Profiles and Motifs in Complex Networks

see: [http://cmth.phy.bnl.gov/~maslov/protein\\_networks\\_science.pdf](http://cmth.phy.bnl.gov/~maslov/protein_networks_science.pdf)

and: <http://cmth.phy.bnl.gov/~maslov/matlab.htm> for software

Wolfgang Kinzel:

#### 9. Theory of Interacting Neural Networks

<http://arxiv.org/abs/cond-mat/0204054>

<http://eclectic.ss.uci.edu/~drwhite/ISCOM/0204054.pdf>

B. Drossel and A. J. McKane:

#### 10. Modelling Food Webs

<http://theory.ph.man.ac.uk/~ajm/webreview.pdf>

<http://theory.ph.man.ac.uk/~ajm/foodwebs.html>

Kai Nagel:

#### 11. Traffic Networks

no pdf

Alan Kirman:

#### 12. Economic Networks

no pdf

Lada A. Adamic, Rajan M. Lukose and Bernardo A. Huberman:

#### 13. Local Search in Unstructured Networks

<http://arxiv.org/abs/cond-mat/0204181>

<http://eclectic.ss.uci.edu/~drwhite/ISCOM/0204181.pdf>

S.N. Dorogovtsev and J.F.F. Mendes:

14. Accelerated Growth of Networks

<http://arxiv.org/abs/cond-mat/0204102>

<http://eclectic.ss.uci.edu/~drwhite/ISCOM/0204102.pdf>

Gérard Weisbuch and Sorin Solomon:

15. Social Percolators and Self Organized Criticality

<http://www.soc.surrey.ac.uk/simsoc5/talks-page/talk11.htm>

Sanjay Jain and Sandeep Krishna:

16. Graph Theory and the Evolution of Autocatalytic Networks

<http://arxiv.org/abs/nlin.AO/0210070>

<http://eclectic.ss.uci.edu/~drwhite/ISCOM/0210070.pdf>

Related:

Navigation in small world networks, a scale-free continuum model

<http://www.cs.vu.nl/~rmeester/preprints/sw.pdf>

The diameter of a scale-free random graph, Béla Bollobás and Oliver Riordan, to appear in *Combinatorica*.

<http://www.dpmms.cam.ac.uk/~omr10/diam/diam.pdf>

Coupling scale-free and classical random graphs, Béla Bollobás and Oliver Riordan, submitted to *Internet Mathematics*.

<http://www.dpmms.cam.ac.uk/~omr10/coupling/coupling.pdf>