Preface

There is convergent consensus among scientists that many social, economic and financial phenomena can be described by a network of agents and their interactions. Surprisingly, even though the application fields are quite different, those networks often show a common behaviour. Thus, their topological properties can give useful insights on how the network is structured, which are the most “important” nodes/agents, how the network reacts to new arrivals. Moreover the network, once included into a dynamic context, helps to model many phenomena. Among the topics in which topology and dynamics are the essential tools, we will focus on the diffusion of technologies and fads, the rise of industrial districts, the evolution of financial markets, cooperation and competition, information flows, centrality and prestige.

The volume, including recent contributions to the field of network modelling, is based on the communications presented at NET 2006 (Verbania, Italy) and NET 2007 (Urbino, Italy); offers a wide range of recent advances, both theoretical and methodological, that will interest academics as well as practitioners.

Theory and applications are nicely integrated: theoretical papers deal with graph theory, game theory, coalitions, dynamics, consumer behavior, segregation models and new contributions to the above mentioned area. The applications cover a wide range: airline transportation, financial markets, work team organization, labour and credit market.

The volume can be used as a reference book for graduate and postgraduate courses on Network Theory and Complex Systems in Faculties of Economics, Mathematics, Engineering and Social Sciences. In Part I, the invited tutorials introduce Graph Theory from the theoretical point of view (Marusic) and the possible applications to economics (Battiston). In Part II, the contributions cover local and global interaction, complex behavior, network games, while in Part III they refer to Markov chains and topology. The applications are all placed in Part IV.

Fifteen papers have been selected among roughly thirty submitted extended abstracts; each paper has been reviewed by two referees. Space limitations are the main reason why no more papers have been accepted, although many of them were really interesting.
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Contents

Part I Tutorials

Some Topics in Graph Theory ............................................. 3
Klavdija Kutnar and Dragan Marušič

From Graph Theory to Models of Economic Networks. A Tutorial ...... 23
Michael D. König and Stefano Battiston

Part II Strategic Interaction, Economic Models and Networks

Games of Coalition and Network Formation: A Survey ................. 67
Marco A. Marini

Network Formation with Closeness Incentives .......................... 95
Berno Buechel

A Dynamic Model of Segregation in Small-World Networks .......... 111
Giorgio Fagiolo, Marco Valente, and Nicolaas J. Vriend

Interdependent Preferences ............................................. 127
Ahmad K. Naimzada and Fabio Tramontana

Co-Evolutive Models for Firms Dynamics ............................. 143
Giulia Rotundo and Andrea Scozzari

Part III Markov Chains and Topology

Betweenness Centrality: Extremal Values and Structural Properties .... 161
R. Grassi, R. Scapellato, S. Stefani, and A. Torriero

How to Reduce Unnecessary Noise in Targeted Networks .............. 177
Giacomo Aletti and Diane Saada
The Dynamic Behaviour of Non-Homogeneous Single-Unirreducible Markov and Semi-Markov Chains ........................................ 195
Guglielmo D’Amico, Jacques Janssen, and Raimondo Manca

Part IV Applications

Shareholding Networks and Centrality: An Application to the Italian Financial Market .................................................. 215
M. D’Errico, R. Grassi, and S. Stefani, and A. Torriero

Network Dynamics when Selecting Work Team Members ............ 229
Arianna Dal Forno and Ugo Merlone

Giulia De Masi

Network Measures in Civil Air Transport: A Case Study of Lufthansa . 257
Aura Reggiani, Sara Signoretti, Peter Nijkamp, and Alessandro Cento

On Certain Graph Theory Applications .................................. 283
Klavdija Kutnar and Dragan Marušič