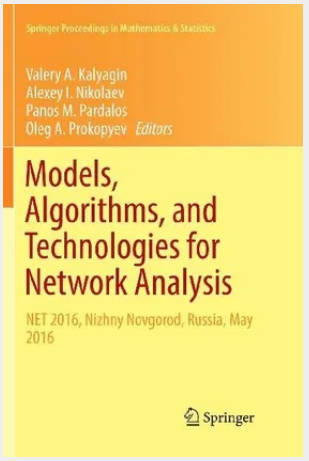
Kalyagin / Nikolaev / Pardalos

Models, Algorithms, and Technologies for Network Analysis

NET 2016, Nizhny Novgorod, Russia, May 2016



This valuable source for graduate students and researchers provides a comprehensive introduction to current theories and applications in optimization methods and network models. Contributions to this book are focused on new efficient algorithms and rigorous mathematical theories, which can be used to optimize and analyze mathematical graph structures with massive size and high density induced by natural or artificial complex networks. Applications to social networks, power transmission grids, telecommunication networks, stock market networks, and human brain networks are presented.

Chapters in this book cover the following topics:

- Linear max min fairness
- Heuristic approaches for high-quality solutions
- Efficient approaches for complex multi-criteria optimization problems
- Comparison of heuristic algorithms
- New heuristic iterative local search
- Power in network structures
- Clustering nodes in random graphs
- Power transmission grid structure
- Network decomposition problems
- Homogeneity hypothesis testing
- Network analysis of international migration
- Social networks with node attributes
- Testing hypothesis on degree distribution in the market graphs
- Machine learning applications to human brain network studies

This proceeding is a result of The 6th International Conference on Network Analysis held at the Higher School of Economics, Nizhny Novgorod in May 2016. The conference brought together scientists and engineers from industry, government, and academia to discuss the links between network analysis and a variety of fields.

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