

# Preface

This volume contains two types of papers either presented on the 2nd International Conference on Network Analysis (which took place on May 7–9, 2012 in Nizhny Novgorod, Russia) or submitted within an open call for papers reflecting the activities of LATNA—Laboratory of Algorithms and Technologies for Networks Analysis at the Higher School of Economics. This conference is sponsored by LATNA. All participants, authors and editors are gratefully acknowledge the financial support by The Russian Federation Government Grant, ag.11.G34.31.0057. Our special thanks going to the LATNA's staff, especially to Dr. Mikhail Batsyn for many efforts in the process of collecting and reviewing the submitted papers including the compilation of this final volume. We are grateful to the members of Program Committee and the external referees for their careful reading and many useful comments essentially improving the quality of this book. The success of this conference was pre-defined by the following distinguished plenary speakers:

1. Ding-Zhu Du (University of Texas at Dallas, USA) Min-Weight Connected Sensor Cover and Max-Lifetime Target Coverage
2. Christodoulos Floudas (Princeton University, USA) Towards Large Scale Deterministic Global Optimization
3. Boris Mirkin (Higher School of Economics, Russia) Representing Activities by Taxonomy Concepts: Clustering and Lifting
4. Mauricio Resende (AT&T, USA) Randomized Algorithms for the Handover Minimization Problem in Wireless Network Design

The plenary lectures are unforgettable from many points of view. They were not only based on the state-of-the art in each topic represented by the corresponding speaker but have shown how to organize an overview lecture in an easy understandable way bringing even undergraduate students to the frontier of science in networks and algorithms. This volume contains many new results in modeling and powerful algorithmic solutions applied to the problems in vehicle routing, single machine scheduling, modern financial markets, cell formation in group technology, comparison of brain activities of left- and right-handers, speeding up algorithms for the maximum clique problem, analysis, and applications of different measures in clustering.

There are three overview papers in this volume: an overview of Kernel Principal Component Analysis including its implementation of the improved nearest neighbor and kernel regression methods in MATLAB, an overview of clique relaxation models and their applications, and an overview of the double partition technique together with research progress on approximations for the minimum sensor cover problem. Also this volume contains a new formulation of the facility layout problem and its applications to different issues in health care as well as graph-based analysis applied to the BRIC countries stock markets.

More than 60 researchers including undergraduate students from universities, institutes, governmental agencies, and industrial companies worldwide attended the conference.

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