Preface

This special issue is devoted to a selection of papers from CO2004, a conference held at Lancaster University, UK, from 28th to 31st March 2004. The conference is one in a series of international symposia that are usually held biennially. Since 1994, the symposia have taken place alternately in the UK and in one of the countries of continental Europe.

The Lancaster conference attracted about 90 participants, many from overseas. Three parallel streams ran throughout the conference allowing over 75 papers to be presented. In addition, there were four invited plenary speakers. Bill Cook (Georgia Institute of Technology) discussed the solution of large Traveling Salesman Problems, Kathryn Dowsland (Gower Optimal Algorithms Ltd. and University of Nottingham) showed how problem specific information in real-life problems can be used to aid their solution, Silvano Martello (University of Bologna) presented some recent results on packing problems and Gerhard Woeginger (University of Twente, Netherlands) surveyed issues concerning exact algorithms—a paper based on his plenary presentation is included in this collection.

The following papers have been selected from those submitted to be revised and included in this special issue:

- Chlebik and Cheblikova study the weighted version of the well-known Vertex Cover Problem. They propose some interesting crown reductions that enable the graph to be reduced in size without losing the optimal solution.
- Dowsland and Thompson describe an ant colony optimization heuristic for the graph coloring problem. They demonstrate how a series of improvements to an existing approach leads to a competitive algorithm.
- Hoai An and Tao address a class of concave cost supply management problems. They use a deterministic continuous approach based on DC (Difference of Convex functions) programming.
- Mannino, Rossi, Sassano and Smriglio examine a problem that arises in the new Digital Video Broadcasting (DVB-T) system that is being introduced in European countries. They show how the combinatorial structure of the problem can be exploited and demonstrate the effectiveness of their approach on data from the Italian broadcasting system.
- Miralles, García, Andrés and Cardós introduce a new problem called the Assembly Line Worker Assignment and Balancing Problem. As well as providing a solution method, the authors describe how this work is applicable to sheltered work centers for the disabled.
- Reinelt and Theis examine the 0/1-polytope associated with the General Routing Problem. They provide a node-lifting result, prove the facet-defining property for some types of valid inequalities and study more general associated polyhedra.
- Reinelt, Theis and Wenger propose an algorithm for finding the finest mincut partitions of a graph. They apply their approach to the exact solution of the General Routing Problem.
- Woeginger is interested in exponential time solutions for NP-hard problems with a relatively good worst-case behaviour. Some known results and open questions are described.

We would like to thank all the authors who submitted papers for this special issue and the referees who reviewed them. We are grateful to Peter Hammer, the Editor-in-Chief of *Discrete Applied Mathematics* and his assistant Katie D'Agosta for their cooperation in the preparation of the issue. In the final stages of preparing this special issue we heard of the tragic death of Dr. Hammer. We were shocked and saddened to hear this news and extend our condolences to his

family and friends. We would like to record our gratitude to Dr. Hammer who supported the series of CO conferences by publishing several special issues devoted to papers from this source.

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