## Contents

### Invited Paper

Learning Tabu Search for Combinatorial Optimization

_Nicolas Zufferey and David Schindl_  

### Methodologies and Technologies

Four Serious Problems and New Facts of the Discriminant Analysis

_Shuichi Shinmura_  

Simulated Annealing Algorithm for Job Shop Scheduling on Reliable Real-Time Systems

_Daniil A. Zorin and Valery A. Kostenko_  

Nash Equilibria for Multi-agent Network Flow with Controllable Capacities

_Nadia Chaabane Fakhfakh, Cyril Briand, and Marie-José Huguet_  

A Fuzzy Model for Selecting Safeguards to Reduce Risks in Information Systems

_E. Vicente, A. Mateos, and A. Jiménez-Martin_  

A Performance Improvement and Management Model for Small and Medium Sized Enterprises

_Madani Alomar and Zbigniew J. Pasek_  

Adjacency Variables Formulation for the Minimum Linear Arrangement Problem

_Serigne Gueye, Sophie Michel, and Mahdi Moeini_  

A Vessel Scheduling Problem with Special Cases

_Selim Bora, Endre Boros, Lei Lei, W. Art Chovalitwongse, Gino J. Lim, and Hamid R. Parsaei_  

Archimedean Copulas in Joint Chance-Constrained Programming

_Michal Houda and Abdel Lisser_  

Comparison of Stochastic Programming Approaches for Staffing and Scheduling Call Centers with Uncertain Demand Forecasts

_Mathilde Excoffier, Céline Gicquel, Oualid Jouini, and Abdel Lisser_  

A New Look at the Covariance Matrix Estimation in Evolution Strategies

_Silja Meyer-Nieberg and E. Kropat_
A Relax and Fix Approach to Solve the Fixed Charge Network Design Problem with User-Optimal Flow .......................................................... 173
  Pedro Henrique González, Luidi Gelabert Simonetti, Carlos Alberto de Jesus Martinhon, Edcarlos Santos, and Philippe Yves Paul Michelon

Analysis of a Downward Substitution Strategy in a Manufacturing/Remanufacturing System .......................................................... 186
  Fethullah Gocer, S. Sebnem Ahiska, and Russell E. King

Risk Tolerance Evaluation for an Oil and Gas Company Using a Multi-criteria Approach .......................................................... 199
  António Quintino, João Carlos Lourenço, and Margarida Catalão-Lopes

A Mathematical Programming Model for the Real Time Traffic Management of Railway Networks Under Disturbances .......................... 215
  Astrid Piconese, Thomas Bourdeauduy, Mariagrazia Dotoli, and Slim Hammadi

Applications

Solving to Optimality a Discrete Lot-Sizing Problem Thanks to Multi-product Multi-period Valid Inequalities .................................................. 237
  Céline Gicquel and Michel Minoux

A Quadratic Knapsack Model for Optimizing the Media Mix of a Promotional Campaign .......................................................... 251
  Ulrich Pferschy, Joachim Schauer, and Gerhild Maier

A Decomposition Approach to Solve Large-Scale Network Design Problems in Cylinder Gas Distribution ............................................. 265
  Tejinder Pal Singh, Nicoleta Neagu, Michele Quatrone, and Philippe Briet

Elaboration of General Lower Bounds for the Total Completion Time in Flowshop Scheduling Problems through MaxPlus Approach ........ 285
  Nhat Vinh Vo, Pauline Fouillet, and Christophe Lenté

Author Index ................................................................................. 301