

# Preface

Global optimization is a multi-disciplinary research field that deals with the analysis, characterization, and computation of global minima and/or maxima of nonlinear, nonconvex, and nonsmooth functions in a continuous or discrete form. Global optimization problems are frequently encountered in modeling real-world systems for a very broad range of applications including aerospace and civil engineering, chemical and process engineering, computational biology and bioinformatics, computational materials science, clustering and pattern recognition, computer vision and robotics, cryptography and data mining, electrical and control engineering, information and technology management, industrial and systems engineering, communication and information network design, intelligent information and security, management science and operations research, mathematical economics and financial engineering, mechanical and structural engineering, neuroscience and cognition, refining and petrochemicals, reliability and quality engineering, signal and image processing, tomography and seismic optimization, production planning and scheduling, transportation and logistics, etc.

With the rapid development and deployment of practical global optimization methodologies in the last 30 years, more and more scientists in diverse disciplines have been using global optimization techniques and algorithms to solve their problems. Global optimization is playing a pivoting role in the development of modern engineering and sciences.

The World Congress on Global Optimization in Engineering & Science (WCGO) is an international conference held biennially. It is supported by the International Society of Global Optimization (iSoGO), which is a professional organization that seeks to promote common understanding of all disciplines in related fields of global optimization, and to advance the theory and methodology for academicians and practitioners. The 1st and 2nd WCGO were successfully held in Changsha, Hunan, China, 2009 and in Chania, Greece 2012, respectively. The 3rd WCGO was held in the Yellow Mountains, Anhui, China during July 8–12, 2013. More than 100 participants from over 20 countries attended this WCGO-III.

This special volume is dedicated to this 3rd WCGO, which contains selected papers from over 100 submissions for the congress. These papers are grouped in eight sections: Mathematical Programming, Combinatorial Optimization, Duality Theory, Topology Optimization, Variational Inequalities and Complementarity Problems, Numerical Optimization, Stochastic Models and Simulation, Complex Simulation, and Supply Chain Analysis. The completion of this book would not have been possible without the assistance of many of our colleagues. We wish to express our sincere appreciation to all those who helped. We are also deeply grateful to selected anonymous referees who provided prompt and insightful reviews for all the submissions. Their constructive comments have greatly contributed to the quality of the volume. Our special thanks go to Eve Mayer and her team at Springer for their great enthusiasm and professional help in expediting the publication of this book.

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