

# Preface

Engineering problem solving is essentially that of design and optimization, which is critical to the success of product development and implementation. In the broad spectrum of issues relating to design and optimization, the most challenging ones are usually relevant to mechanical and manufacturing engineering. As such, the editors of the current issue of the book series and its corresponding conference organizers decided to continually focus their efforts on providing a forum for the international researchers and engineers, from mechanical and manufacturing engineering area, to exchange ideas and showcase their latest research findings.

Being the third one in a series, the book *Advances in Engineering Design and Optimization III*, and the conference *Third International Conference on Engineering Design and Optimization, Shaoxing, PRC (ICEDO 2012)*, have not only attracted many attentions from academics and engineering sectors worldwide, but also won many supports from various levels of government and managerial organizations. One of which worth special noting is that, Zhejiang Provincial Natural Science Foundation of China has selected our conference to be one of its officially supported conference projects in Year 2012. All of these not only demonstrate the growing influence of our conferences and the book series, but also show recognition of our efforts in organizing the whole events.

Similar to the last two issues of the series, *Advances in Engineering Design and Optimization* (in 2010) and *Advances in Engineering Design and Optimization II* (in 2011), the current book is also a compilation of selected and peer-reviewed papers from its corresponding conference, i.e. ICEDO 2012. In fact, due to the overwhelming support from the authors worldwide, we have received a large number of submissions to ICEDO 2012. After a rigorous review and revision process, some 278 papers were eventually selected and compiled into the current book. Together, they present a state-of-art research results in the aforementioned areas of engineering design and optimization.

This book is a joint effort from all the contributors, including the authors, the reviewers, the conference organizers, etc. The editors would like to thank all the authors for their valuable contributions and the reviewers for the constructive comments. Thanks are also due to the members of the Organizing Committee and International Advisory Committee, in particular, to the conference secretariat, as well as a lot of other colleagues and students, for their hard work and great efforts in making the whole event a success.

The Editors  
Ningbo, PRC  
May 2012

## **Organized by**

Ningbo University, PRC

Physical Technical Institute of the National Academy of Sciences, Belarus

Ningbo Institute of Technology of Zhejiang University, PRC

## **Sponsored by**

Zhejiang Provincial Natural Science Foundation of China

## **Hosted by**

Ningbo University, PRC

# **Organizing Committee**

## **Chair**

Prof. Zhimei Fang, Ningbo University, PRC

## **Co-Chair**

Prof. Xuedao Shu, Ningbo University, PRC

## **Members**

Prof. Guofu Li, China

Prof. Valery Ya. Shchukin, Belarus

Prof. Xiangrong Xu, USA

Prof. Vladimir Petrenko, Belarus

Prof. Aibin Yu, China

Prof. Yi-Min Deng, China

A/Prof. Jun Liu, China

Prof. Hongfei Zhan, China

Prof. Guoping Li, China

Prof. Chang Sam Hsu, USA

## **Secretariat**

A/Prof. Baoshou Sun

Miss Lanlan Liu

Dr. Zhiyong Ma

A/Prof. Xiaobin Pan

A/Prof. Jianfei Tu

A/Prof. Wei Xiang

A/Prof. Junhe Yu

Dr. Wenfei Peng

Miss Jin Guan

Dr. Yijui Chiu

A/Prof. Haibo Huang

Mr. Jiaqi Rong

## **International Advisory Committee**

Prof. Xiangrong Xu, Florida State University, USA

Prof. Valery Ya. Shchukin, Physical Technical Institute of the National Academy of Sciences, Belarus

Prof. Qingxue Huang, Taiyuan University of Science and Technology, PRC

Prof. Vladimir Petrenko, Physical Technical Institute of the National Academy of Sciences, Belarus

Prof. Changan Wang, Tsinghua University, PRC

Prof. Haijun Zhang, Zhejiang University, PRC

Prof. Yong Zang, Beijing University of Science and Technology, PRC

Prof. Di Zheng, Ningbo Institute of Technology of Zhejiang University, PRC

Prof. Lianguan Shen, University of Science and Technology of China, PRC

Prof. Xiaoxiong Jin, Tongji University, PRC

Prof. Zhiwu Han, Jilin University, PRC

Prof. Yan Peng, Yanshan University, PRC

Prof. Renwang Li, Zhejiang University of Science and Technology, PRC