

# Preface

This volume contains papers contributed to the 2013 4th International Conference on Advances in Materials and Manufacturing (ICAMMP 2013) held on 18-19 December, 2013 in Kunming, China. The International Conference on Advances in Materials and Manufacturing is the premier forum for the presentation of new advances and research results in the field of materials and manufacturing processes. This conference series brings together leading researchers, engineers, and scientists in the materials and processes field through the world. The first ICAMMP was successfully held from November 6-8, 2010 in Shenzhen, the second ICAMMP was held from December 16 to 18, 2011 in Guilin, and the third ICAMMP was held from December 22 to 23, 2012 in Beihai. Delegates from more than 30 countries or districts had attended these conferences.

All papers published in this volume of Advanced Materials Research have been peer reviewed through processes administrated by the organizing committee. Reviews were conducted by expert referees to the professional and scientific standards. Studies presented in this book cover these topics: Computer-Aided Design and Research in Mechanical Engineering, Research and Design Solutions in Machinery Industry, Mathematical Modeling and Optimization in Engineering Sciences, Technology of Measurement and Signal Processing, Sensor Technology, Microelectronics, Circuit Technology and Embedded Systems, Mechatronics and Control, Technologies of Machine Vision and Identification, Industrial Robotics and Automated Manufacturing, Applied Information Technologies, Construction Technologies, Structural Strength and Reliability, Product Design, Operations and Production Management, Environmental Engineering, Multidisciplinary Engineering Education, etc.

We are grateful to all the invited speakers who came to share their knowledge with us. We would also like to thank all the authors for their papers and presentations and all reviewers for their efforts to review the papers.

## ***The Committee of ICAMMP 2013***

The 2013 International Conference on  
Advances in Materials and Manufacturing  
(ICAMMP 2013)

**Conference Organization**

**Co-Chairmen**

Prof. Zhengyi Jiang, University of Wollongong, Australia

Prof. Xianghua Liu, Northeastern University, China

Prof. Jingtao Han, University of Science and Technology Beijing

Prof. Sihai Jiao, Research Institute, Baosteel, China

**Technical and Organizing Committee**

Prof. Liqun Ai, Hebei United University, China

Prof. Jinglong Bu, Hebei United University, China

Prof. Daolun Chen, Ryerson University, Canada

Prof. Yongjin Chen, Kunming Univ. of Science of Technology, China

Prof. Weixing Chen, Xi'an Technological University, China

Prof. Jiwei Cai, Henan University, China

Prof. Wenbo Du, Beijing University of Technology, China

Prof. Huili Ding, Hebei University of Technology, China

Prof. Xianjin Yu, Shandong University of Technology, China

Prof. Ming Dong, Shanghai Jiao Tong University, China

Prof. Xiaoxing Feng, Hebei University of Technology, China

Prof. Wenzhi Fu, Jilin University, China

Prof. Jiwei Fan, Zhongyuan University of Technology, China

Prof. Zhengping Fang, Zhejiang University, China

Prof. Jian Gao, Guangdong University of Technology, China

Prof. Jing Guo, Dalian Polytechnic University, China

Prof. Kai Gu, Beijing Institute of Petrochemical Technology

Prof. Yin Biao Guo, Xiamen University, China

Prof. Zhaojun Huang, China University of Geosciences, China

Prof. Junjie Hao, University of Science & Technology Beijing , China

Prof. Julong He, Yanshan University, China

Prof. Xingang Hou, Lanzhou University of Technology, China

Prof. Jingtao Han, University of Science & Technology Beijing , China

Prof. Xiaoming Jia, Hebei United University, China

Prof. Xiaolin Jia, Zhengzhou University, China

Prof. Zhenglian Jiang, Research Institute, Baosteel, China

Prof. Sihai Jiao, Research Institute, Baosteel, China

Prof. Shanqing Li, Research Institute, Baosteel, China

Prof. Xianghua Liu, Northeastern University, China

Prof. Jiacheng Liu, Tianjin University, China

Prof. Kaiqi Liu, Iron&Steel Reserch Institute, China

Prof. Yaqing Liu, North University of China

Prof. Jialu Li, Tianjin University of Technology, China

Prof. Yungang Li, Hebei United University, China

Prof. Dehong Lu, Kunming University of Science and Technology

Prof. Changsheng Li, Northeastern University, China

Prof. Baochun Lu, Nanjing University of Science and Technology

Prof. Chenxu Lu, Insti. of Process Eng., Chinese Academy of Science

Prof. Yongcheng Lin, Central South University, China

Prof. Gaifei Peng, Beijing Jiaotong University, China

Prof. Dianli Qu, University of Science and Technology Liaoning

Prof. Junan Shen, Georgia Southern University, USA

Prof. Wenlei Sun, Xinjiang University, China

Prof. Junyou Shi, Qingdao University of Science&Technology,China

Prof. Zhiming Shi, Inner Mongolia University of Technology, China

Prof. Yi Shen, Hebei United University, China  
Prof. Xiaoming San, Hebei United University, China  
Prof. Xitang Wang, Wuhan University of Science and Technology  
Prof. Jun Wang, Northeastern University, China  
Prof. Qiang Wang, University of Jinan, China  
Prof. Pengcheng Wang, Inner Mongolia University of Technology, China  
Prof. Mingzhi Wang, Yanshan University, China  
Prof. Jiuba Wen, Henan University of Science and Technology  
Prof. Ming Wen, Hebei University of Technology, China  
Prof. Kaiming Wu, Wuhan University of Science and Technology  
Prof. Guoqing Xiao, xi'an University of Architecture and Technology  
Prof. Peiyu Yan, Tsinghua University, China  
Prof. Xiaoyan Yuan, Tianjin University, China  
Prof. Shao Hui Yin, Hunan University, China  
Prof. Rong Zhu, University of Science & Technology Beijing , China  
Prof. Anping Xu, Hebei University of Technology, China  
Prof. Daoyuan Yang, Zhengzhou University, China  
Prof. Zepeng Zhang, China University of Geosciences, China  
Prof. Chun Liang Zhang, Guangzhou University, China  
Prof. Jianmin Zeng, Guangxi University, China  
Prof. Ping Zou, Northeastern University, China  
Prof. Shihong Zhang, The Institute of Metal Research, CAS  
Prof. Changsheng Zhao, Sichuan University, China  
Prof. AKM Nurul Amin, International Islamic University, Malaysia  
Prof. Carlos Caceres, The University of Queensland, Australia  
Dr. Chunsheng Lu, Curtin University of Technology, Australia  
Dr. Dongbin Wei, University of Wollongong, Australia  
Prof. Geun Jo Han, Dong-A Univeristy, Korea  
Dr. Gui Wang, The University of Queensland, Australia

Prof. Jong Kook Lee, Chosun University, Korea  
Prof. Ken-ichi Manabe, Tokyo Metropolitan University, Japan  
Prof. Jeng-Haur Horng, National Formosa University, Taiwan  
Prof. Jia-Horng Lin, Feng Chia University, Taiwan  
Prof. Indra Putra Almanar, Universiti Sains Malaysia  
Prof. Kyung-Man Moon, Korea Maritime University, Korea  
Dr. Mark Fong, Hong Kong Industrial Technology Research Centre  
Prof. P. S. Pa, National Taipei University of Education, Taiwan  
Prof. Sagar Kamarthi, Northeastern University, USA  
Prof. Shahrum Abdullah, University Kebangsaan Malaysia, Malaysia  
Prof. Toshio Haga, Osaka Institute of Technology, Japan  
Prof. Walid Mahmoud Shewakh, Beni Suef university, Egypt  
Prof. Yun-Hae Kim, Korea Maritime University, Korea  
Dr. Yuentong Gu, Queensland University of Technology,  
Prof. Yu-Shiang Wu, China University of Sci. and Tech., Taiwan  
Prof. Heinz-Gunter, Brokmeier, Technische Universitat Clausthal,Germany  
Prof. Zhengyi Jiang, University of Wollongong, Australia  
Prof. Yun-Hae Kim, Korea Maritime University, Korea  
Prof. Christian Kloc, Nanyang Technological University, Singapore  
Prof. Jacques Noudem, CRISMAT laboratory, France  
Mr. Mohammad Hadi Hafezi, National university of Malaysia, Malaysia  
Dr. Jingwei Zhao, University of Wollongong, Australia