

Preface

The international conference on advanced design and manufacturing engineering series provides a forum for accessing to the most up-to-date and authoritative knowledge from both industrial and academic worlds, sharing best practice in the field of advanced design and manufacturing engineering. The meeting will provide an opportunity to highlight recent developments and to identify emerging and future areas of growth in this exciting field. The first of this conference series (ADME 2011) was held in Guangzhou, China, in September 2011 with the participation of Scientists from the Asia-Pacific region, Europe and the United States. Following the success of the inaugural conference, the 2nd International Conference on Advanced Design and Manufacturing Engineering (ADME 2012) was taken place in Taiyuan, China, in August, 2012. This conference successfully brought together scientists and engineers from industry and academia and provided a forum for exchange of ideas, cooperation and future directions by means of keynote speeches, regular presentations and a round-table discussion.

All papers had undergone the careful peer-review by expert referees to the professional and scientific standards before it is selected for publications in those volumes. Studies presented in this book cover these topics: composites, micro/nano materials and equipments, metal alloy materials, steel, polymer materials, optical/electronic/magnetic materials, energy materials and new energy technology, environmental friendly materials and waste utilization, biomaterials and preparation technology, thin films, structure materials and earthquake resistant structures, functional materials, surface engineering/coatings, modeling, analysis and simulation, materials processing technology, laser processing technology, mechanical behavior & fracture, tooling testing and evaluation of materials, thermal engineering theory and applications, detection and control technology.

We believe that this conference provided a medium for scientists and experts in the field to effectively communicate and share ideas. We would like to express our sincere thanks to all participants for their contributions and stimulating discussions. We are also grateful to keynote speakers, referees, exhibitors, committee members and many others for their patience and efforts.

The editors

The 2nd International Conference on
Advanced Design and Manufacturing Engineering
(ADME 2012)

Organized by:

Taiyuan University of Science and Technology, China

Co-organized by:

Hong Kong Polytechnic University, HK

Chinese University of Hong Kong, HK

National Formosa University, Taiwan

Conference Organization

Chairman

Prof. Qingxue Huang, Taiyuan University of Science and Technology

International Scientific Committee

Prof. Ruxu Du, Chinese University of Hong Kong, HK

Prof. Li Cheng, Hong Kong Polytechnic University, HK

Prof. Kai Tang, Hong Kong University of Science and Technology, HK

Prof. Zexiang Li, Hong Kong University of Science and Technology, HK

Prof. Zhouping Yin, Huazhong University of Science and Technology, China

Prof. Xiangwei Zhang, Guangdong University of Technology, China

Prof. Guoqun Zhao, Shandong University, China

Prof. He Yang, Northwestern Polytechnical University, China

Prof. Jianmin Zeng, Guangxi University, China

Prof. W B Lee, Hong Kong Polytechnic University, HK

Prof. Yu Wang, Chinese University of Hong Kong , HK

Prof. Tian Huang, Tianjin University, China

Prof. Shijian Yuan, Harbin University of Technology, China

Prof. Hejun Li, Northwestern Polytechnical University, China

Prof. Xianghua Liu, Northeastern University, China

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

Prof. Quan Yang, University of Science and Technology Beijing, China

Prof. Liping Chen, Huazhong University of Science and Technology, China

Prof. Yongsheng Zhao, Yanshan University, China

Prof. Xinyu Shao, Huazhong University of Science and Technology, China

Prof. Tianlong Gu, Guilin University of Electronic Technology, China

Prof. Xianmin Zhang, South China University of Technology, China

Prof. Xipeng Xu, Huaqiao University, China

Prof. Kaiyong Jiang, Huaqiao University, China

Prof. Jianhua Zhang, Shandong University, China

Prof. Fengzhou Fang, Tianjin University, China

Prof. Zhenduo Cui, Tianjin University, China

Prof. Shiping Zhao, Sichuan University, China

Prof. Yongkang Zhang, Jiangsu University, China

Prof. Jieyu Zhang, Shanghai University, China

Prof. Ming Chen, Shanghai Jiao Tong University, China

Prof. Yong Li, Tsinghua University, China

Prof. Liqun Zhang, Beijing University of Chemical Technology, China

Prof. Yongping Lei, Beijing University of Technology, China

Prof. Zhenyuan Jia, Dalian University of Technology, China

Prof. Xuejun Jin, Shanghai Jiao Tong University, China

Prof. Juntang Yuan, Nanjing University of Science and Technology, China

Prof. Jiuhua Xu, Nanjing University of Aeronautics and Astronautics, China

Prof. Lin Hua, Wuhan University of Technology, China

Prof. Zhongxiu Shi, Qingdao University, China

Prof. Di Li, South China University of Technology, China

Prof. Rupeng Zhu, Nanjing University of Aeronautics and Astronautics, China

Prof. Wuyi Chen, Beijing University of Aeronautics and Astronautics, China

Prof. Bingyan Jiang, Central South University, China

Prof. Daoguo Yang, Guilin University of Electronic Technology, China

Prof. Zhijian Zong, Sun Yat-Sen University, China

Prof. Yong Tang, South China University of Technology, China

Prof. Junhe Yang, University of Shanghai for Science and Technology, China

Prof. Xiaochun Wu, Shanghai University, China

Prof. Liyang Xie, Northeastern University, China

Prof. Dong Gao, Harbin University of Technology, China

Prof. Baochun Lu, Nanjing University of Science and Technology, China

Prof. Yinbiao Guo, Xiamen University, China

Prof. Kaiming Wu, Wuhan University of Science and Technology, China

Prof. Shaohui Yin, Hunan University, China

Prof. Jinglong Bu, Hebei United University, China

Prof. GuoGuang Jin, Tianjin Polytechnic University, China

Prof. Pengcheng Wang, Inner Mongolia University of Technology, China

Prof. Lin He, Guizhou University, China

Prof. Shiqiang Lu, Nanchang Hangkong University, China

Prof. Wenlei Sun, Xinjiang University, China

Prof. Jun Wang, Northeastern University, China

Prof. Chunliang Zhang, Guangzhou University, China

Prof. Qiang Wang, Jinan University, China

Prof. Zhenhua Bai, Yanshan University, China

Prof. Jialu Li, Tianjin Polytechnic University, China

Prof. Sihai Jiao, Research Institute, Baosteel, China

Prof. Zhengyi Jiang, University of Wollongong, AU

Prof. Niels Bay, University of Denmark, Denmark

Prof. Viktor P. Astakhov, General Motor Business Unit of PSMi, MI, USA

Prof. Jian Cao, Northwestern University, USA

Prof. Cesar de Sa, Jose, University of Porto, Portugal

Prof. Christian Kloc, Nanyang Technological University, Singapore

Prof. Cheng Kai, Brunel University, UK

Prof. Yusuf Altintas, University of British Columbia, Vancouver, Canada

Prof. Phil Koshy, McMaster University, Hamilton, Ontario, Canada

Prof. Kambakar P Rajurka, University of Nebraska-Lincoln, USA

Prof. Nabil Gindy, University of Nottingham, UK

Prof. V.K. Jain, Indian Institute of Technology, Kanpur, UP, India

Prof. Walid Mahmoud Shewakh, Beni Suef university, Egypt

Prof. Yun-Hae Kim, Korea Maritime University, Korea

Prof. Carlos Caceres, The University of Queensland, Australia

Prof. Shahrum Abdullah, University Kebangsaan Malaysia, Malaysia

Dr. Xiangping Bu, Wayne State University, USA

Prof. Sagar Kamathi, Northeastern University, USA

Prof. Heinz-Gunter, Brokmeier, Technische Universitat Clausthal, Germany

Prof. Toshio Haga, Osaka Institute of Technology, Japan

Prof. Jia-Horng Lin, Feng Chia University, Taiwan

Prof. Jong Kook Lee, Chosun University, Korea

Prof. Junan Shen, Georgia Southern University, USA

Prof. Jeng-Haur Horng, National Formosa University, Taiwan

Prof. Jiwei Cai, Hebei United University, China

Conference Secretary

Prof. Xiaozhong Du, Taiyuan University of Science and Technology