

# Preface

Materials processing is an important and essential process for the formation of usable products. It is one of the major wealth-generating activities that create the economic basis for genuine improvements in the quality of human life. With the increasing requirements for the production of high precision, high integrity and high density devices and systems in our modern life, materials processing has become more important than ever before. Following the previous eight publications for the series of “Asia-Pacific Conference on Materials Processing”, this book presents the latest development in this field on new understanding of the underlying mechanisms and new technologies for materials processing to meet the increasing needs of industry.

This book is a collection of selected, peer-reviewed papers contributed from around the world. The topics covered in this book include new development and applications in subtractive processes including advanced and non-traditional processes and abrasive machining, micro/nano-fabrication, material forming, new techniques for the processing of materials and understanding of underlying principles and materials performance enhancement.

This book provides a valuable reference for researchers in the materials processing field who wish to further understand the underlying mechanisms and create new and practical technologies, systems and processes. It should also be particularly useful for practicing engineers in materials processing who are responsible for the efficient and effective operations.

The Editors would like to thank all the authors for their contributions to the book and the referees for their constructive comments to make the papers such a high quality. Thanks are also due to the members of the Organising Committee for their help in putting the book together.

The Editors  
March 2012

# **The 10th Asia-Pacific Conference on Materials Processing (APCMP2010)**

**14-17 June 2012, Jinan, Australia**

## **Jointly Organised by**

Shandong University, China  
National University of Singapore, Singapore  
Nanyang Technological University, Singapore

## **Hosted by**

Shandong University, China

## **Sponsored by**

National Natural Science Foundation of China

## **Conference Chairpersons**

Chairman: Xing Ai, Academician of CAE, Shandong University, China  
Co-chairman: Chuanzhen Huang, Shandong University  
Jianfeng Li, Shandong University, China  
Xiaoping Li, National University of Singapore, Singapore  
Jun Wang, The University of New South Wales, Australia

## **International Advisory Committee**

Chairman: Xiaoping Li, National University of Singapore, Singapore  
Co-chairman: Zhanqiang Liu, Shandong University, China  
Members:

Han Huang, Australia	P.Q. Ge, Mainland China	K.S. Lee, Singapore
Mark Hoffman, Australia	Yong Wang, China	Lu Li, Singapore
Zhengyi Jiang, Australia	Z.H. Yang, Mainland China	Jerry Fuh, Singapore
Robert Short, Australia	Emin Bayraktar, France	M. Rahman, Singapore
L.C. Zhang, Australia	Y.S. Gao, Hong Kong	Anders Jarfors, Singapore
G.B. Wang, Mainland China	K.M. Liew, Hong Kong	Arthur Chen, Taiwan
Ming Chen, Mainland China	S.S. Joshi, India	H.T. Young, Taiwan
F.Z. Fang, Mainland China	N.R. Babu, India	Y.M. Huang, Taiwan
P.Q. Guo, Mainland China	S. Paul, India	P.L. Tso, Taiwan
Ning He, Mainland China	Uday A. Dabade, India	Y.S. Liao, Taiwan
Lin He, Mainland China	T. Obikawa, Japan	M. Hamdi, Malaysia
R.K. Kang, Mainland China	T. Kuriyagawa, Japan	S. Thipprakmas, Thailand
S.Y. Li, Mainland China	Jun'ichi Tamaki, Japan	Suthep Butdee, Thailand
X.L. Liu, Mainland China	Yongbo Wu, Japan	T. Somkiat, Thailand
Yong Tang, Mainland China	Jiawang Yan, Japan	K. Venkatakrishnan, Canada
C.Y. Wang, Mainland China	L.B. Zhou, Japan	S. Narayanswamy, Canada
Wei Xia, China	Y. T. Im, Korea	R. Dashwood, UK
X.P. Xu, Mainland China	J.P. Pavim, Portugal	M.N. Morgan, UK
Y.X. Yao, Mainland China	Y.S. Wong, Singapore	X. Chen, UK
J.L. Yuan, Mainland China	David Butler, Singapore	M. P. Clode, UK
W.Z. Yuan, Mainland China	A. Y. C. Nee, Singapore	Yong Gan, USA
D.W. Zuo, Mainland China	M.J. Tan, Singapore	I.S. Jawahir, USA

## **Organising Committee**

Chairman: Chuanzhen Huang, Shandong University, China

Co-chairman: Zhanqiang Liu, Shandong University, China  
Fangyi Li, Shandong University, China

Members: Hanlian Liu, Shandong University, China  
Hongtao Zhu, Shandong University, China  
Yi Wan, Shandong University, China  
Bin Zou, Shandong University, China  
Jianyong Li, Shandong University, China  
Yue Liu, Shandong University, China