

## **Preface**

On the successful basis of GBMCE 2011, 2012 the Second International Conference on Green Building, Materials and Civil Engineering (GBMCE) will be held in SanYa during August 22-23, 2011, The conference aims mainly at promoting the development of Green Building, Materials and Civil Engineering, strengthening the international academic cooperation and communications, and exchanging research ideas.

In this conference, we received more than 1000 submission from email and electronic submission system, which were reviewed by international experts, and about 300 papers have been selected for presentation, representing 13 national and international organizations. I think GBMCE 2012 will be the most comprehensive Conference focused on the Building, Materials and Civil Engineering. We believe the proceedings will provide the readers a broad overview of the latest advances in the field of Building, Materials and Civil Engineering.

On behalf of the guest editors for this conference proceeding, We would like to thank the National 863 Program of China, National Science Fund of China. We also thank the conference organization staff, and the members of International Technological Committees for their hard work. Dr. Thomas Wohlbier, Managing Editor of Journal of Advanced Materials Research, is greatly acknowledged.

We hope that GBMCE 2012 will be successful and enjoyable to all participants. We look forward to seeing all of you next year at the GBMCE 2013.

June, 2012

Wen-Pei Sung

National Chin-Yi University of Technology

# **GBMCE 2012 Committee**

## **Honor Chairs**

Prof. Hsien-Te Lin, National Cheng Kung University, Taiwan

## **Conference Chairman**

Prof. Wen-Pei Sung, National Chin-Yi University of Technology, Taiwan

Prof. Jimmy (C.M.) Kao, National Sun Tat-Sen University, Taiwan

## **Publication Chair**

Dr. Chen Ran, International Frontiers of science and technology Research Association

## **International Technological Committees**

Yu-Kuang Zhao, National Chin-Yi University of Technology

Hong Chen, Zhengzhou University

Endong Wang, Ocean University of China

Lin Qing, Hainan Medical College

Moacir Kripka, University of Passo Fundo, Brazil

Guozhong Zheng, North China Electric Power University

Huang Fengyuan, Eastern Liaoning University

S. Gopalakannan, Adhiparasakthi Engineerong College, India

Mohd Mustafa Al Bakri Abdullah, University Malaysia Perlis (UniMAP), Malaysia

Peyman Ghatee, Islamic Azad University, Iran

S. Farhad Nabavi, University of Technology Sydney

Jianwei Huang, Structure Design and Rehabilitaion, Florida, USA

zhao jing, Tianjin University

Cristina, Elena Lascu, Politehnica University, Bucharest, Romania

Peng Zhan, Central South University of Forestry and Technology

Hessam Azari Jafari, Civil faculty of Tabari Institute of Higher Education

Wen-Sheng Ou, National Chin-Yi University of Technology, Taiwan

Ming-Hsiang Shih National Chi Nan University, Taiwan

Viranjoy M.Srivastava, Jaypee University of Information Technology, Solan, H.P. India

Liu Yunan, University of Michigan, USA  
Mir Mahdi Zalloi, Iran  
Hsien-Jung Wang, Rong sheng Engineering Design Co., Ltd  
Wang Liying, Institute of Water Conservancy and Hydroelectric Power, P. R. China  
Zhou Liang, Donghua University, China  
Chenggui Zhao, Yunnan University of Finance and Economics, P. R. China  
Ting-Yu Chen, National Chin-Yi University of Technology, Taiwan  
Tzai-Tang Tsai, National Chin-Yi University of Technology, Taiwan  
Li-Xin GUO, Northeastern University, P. R. China  
Hsiang-Chuan Liu, Asia University  
Mostafa Shokshok, National University of Malaysia, Malaysia  
Ramezan ali Mahdavinejad, University of Tehran, Iran  
Wei Fu, Chongqing University, C P. R. China  
Anita Kovač Kralj, University of Maribor, Slovenia  
Tjamme Wieggers, Delft University of Technology, Netherlands  
Gang Shi, Inha University, South Korea  
Zengtao Chen, University of New Brunswick, Canada  
Bhagavathi Tarigoppula, Bradley University, USA

**Co-Sponsored by**

Control Engineering and Information Science Research Association  
International Frontiers of science and technology Research Association  
Trans Tech Publications  
Chongqing Xueya Conferences Co., Ltd