

Mechanical Engineering and Materials Science

Part 1

Edited by
M.R. Xue, K.M. Li, M.H. Lee and X.Y. Zhang



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Mechanical Engineering and Materials Science

PART 1

Selected, peer reviewed papers from the
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Edited by

M.R. Xue, K.M. Li, M.H. Lee and X.Y. Zhang



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Preface

It is our pleasure to welcome you to the 2014 International Conference on Intelligent Mechanics and Materials Engineering (ICIMME 2014) in Shenzhen, China. ICIMME 2014 is the first conference dedicated to issues related to Mechanical Engineering, Mechatronics, Manufacturing, Power Systems and Electronics, Measurement, Monitoring and Control, Automation, Information technology, Communication and network, Civil and Structure Engineering, Architecture Science, Computing Methods and Algorithms, Electric Applications, Materials Science and Engineering, Chemical Engineering and Environmental Engineering, Projects Management and Industrial Engineering. A major goal and feature of it is to bring academic scientists, engineers, industry researchers together to exchange and share their experiences and research results, and discuss the practical challenges encountered and the solutions adopted.

We hope you will have a technically rewarding experience, and use this occasion to meet old friends and make many new ones. Don't miss the opportunity to explore in Shenzhen, China. And don't forget to take a sample of the many and diverse attractions in the rest of the China.

The program consists of invited sessions, and technical workshops and discussions with eminent speakers covering a wide range of topics in Mechanical Engineering, Mechatronics, Manufacturing, Power Systems and Electronics, Measurement, Monitoring and Control, Automation, Information technology, Communication and network, Civil and Structure Engineering, Architecture Science, Computing Methods and Algorithms, Electric Applications, Materials Science and Engineering, Chemical Engineering and Environmental Engineering, Projects Management and Industrial Engineering. This rich program provides all attendees with the opportunities to meet and interact with one another. We hope your experience with ICIMME 2014 is a fruitful and long lasting one. With your support and participation, the conference will continue its success for a long time.

We would like to thank the organization staff, the members of the program committees and reviewers. They have worked very hard in reviewing papers and making valuable suggestions for the authors to improve their work. We also would like to express our gratitude to the external reviewers, for providing extra helps in the review process, and the authors for contributing their research result to the conference. Special thanks go to TTP Publisher.

We wish all attendees of the ICIMME 2014 an enjoyable scientific gathering in Shenzhen, China. We look forward to seeing all of you next year at the conference.

Organizing Committee

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CHAPTER 1:

Materials Science and Processing Technologies, Chemical Processes and Biotechnologies