

Preface

With extended gratification, we want to note the successful holding of the 5th International Conference on Sensors, Materials and Manufacturing (ICSMM 2021) (November 19-21, 2021) and 2021 9th International Conference on Nanomaterials and Materials Engineering (ICNME 2021) (December 20-22, 2021), which were held virtually.

The main objective and feature of the conferences were to bring together academicians, researchers, and industrialists to share and exchange their research experiences and results in nanomaterials and nanotechnologies, building materials, materials and technologies of their processing in mechanical engineering. Conference committee members and international reviewers reviewed all the papers, which were selected based on their quality and thematic relevance.

We would like to express our gratitude and appreciation to the Conference Technical Committee for their great contribution in organizing these conferences. Moreover, we would like to thank the keynote speakers for sharing their knowledge with the rest of the participants. We hope the experience of ICSMM 2021 and ICNME 2021 was intellectually stimulating to all participants.

Finally, we hope that the contents of this volume could provide useful information that will allow researchers and practitioners to develop and apply new engineering solutions in materials science, nanomaterials, construction, and the development of materials processing technologies.

Prof. Xiaohong Zhu
Sichuan University, China

Conference Committees

Advisory Chair

Prof. Norbert Schwesinger, Technical University of Munich, Germany
Prof. Yanwei Ma, Chinese Academy of Sciences, China

Conference Chair

Prof. Zongjin Li, University of Macau (UM), China
Prof. Xiaohong Zhu, Sichuan University, China

Conference Co-Chair

Prof. Shen-Ming Chen, National Taipei University of Technology, Taiwan
Prof. Ying-Hao Eddie Chu, National Chiao Tung University, Taiwan

Conference Local Chair

Prof. Jiliang Zhu, Sichuan University, China

Program Chairs

Prof. Kwang Leong Choy, University College London, UK
Prof. Han-Yong Jeon, Inha University, South Korea
Prof. Ashok Srivastava, Louisiana State University, USA
Assoc. Prof. Yulong Sun, Northwestern Polytechnical University, China
Prof. Mohamed Henini, University of Nottingham, UK
Prof. Qingming Shen, Nanjing University of Posts and Telecommunications, China

Publicity Chair

Assoc. Prof. Deyang Chen, South China Normal University, China

Steering Committee

Prof. Sergei Alexandrov, Beihang University, China

Publicity Chair

Prof. Parames Chutima, Chulalongkorn University, Thailand

International Technical Committee

Behzad Nematollahi, Swinburne University of Technology, Australia
Changxue Xu, Texas Tech University, USA
Eduardo M. G. Rodrigues, Management and Production Technologies of Northern Aveiro, Portugal
Faruk Elaldi, University of Baskent, Turkey
Guohua Xie, Wuhan University, China
Hongbo Zhang, East China university of Science and Technology, China
Khaled Abou-El-Hossein, Nelson Mandela University, South Africa
Marcelo H. Prado da Silva, Military Institute of Engineering-IME, Brazil
Nguyen Thanh Tu, Nguyen Tat Thanh University, Vietnam
Pavel Ripka, Czech Technical University, Czech Republic

Qifeng Zhang, North Dakota State University, USA
Rattanaphol Mongkhorrattanasit, Rajamangala University of Technology Phra Nakhon, Thailand
Ren Jianxin, Lanzhou Jiaotong University, China
Ricardo Branco, University of Coimbra, Portugal
Sheila Shahidi, Islamic Azad University, Iran
Siripron Sripiboon, Rangsit University, Thailand
Songling Huang, Tsinghua University, China
Subbiah Alwarappan, CSIR-Central Electrochemical Research Institute Karaikudi, India
Supawan Tirawanichakul, Prince of Songkla University, Thailand
Suriati binti Sufian, Universiti Teknologi PETRONAS Malaysia, Malaysia
Tingkai Zhao, Northwestern Polytechnical University, China
V A Brodskiy, D. Mendeleev University of Chemical Technology of Russia, Russia
Vu Ngoc Pi, Nguyen Tat Thanh University, Vietnam
Xiaoliang Zhu, Hitachi America Ltd. R&D, China
Yang Xi, II-VI Corp., USA
Yu-Chung Chang, National Changhua University of Education, Taiwan
Azfarizal Mukhtar, Universiti Tenaga Nasional, Malaysia
Marianne G. Wata, University of Mindanao, Philippines
Ping Xiang, Central South University, China
Aidy Ali, National Defence University of Malaysia, Malaysia
Osman Adiguzel, Firat University, Turkey
Geetesh Goga, K.C. College of Engg. & I.T., India
Chen Wen, China Academy of Space Technology, China
Zhe Zhuang, Southeast University, China
Yuzheng Wang, Shenyang University of Technology, China
Muhammad Abid, Harbin Engineering University, China
Ke Chang, Applied Materials Pte. Ltd., Singapore
Syed Bahari Ramadan Syed Adnan, University of Malaya, Malaysia
Azmah Hanim Mohamed Ariff, Universiti Putra Malaysia, Malaysia
I. D. G. Ary Subagia, Udayana University, Indonesia
Adel Mohamed Amer Mohamed, Suez University, Egypt
Mert Gülüm, Karadeniz Technical University, Turkey
Nirali Gondaliya, SVM Institute of Technology, India
Shanmuga Priya Natesan, Siddaganga Institute of Technology, India
Abid Ali Shah, International Islamic University, Pakistan
Muhammad Irfan-ul-Hassan, University of Engineering and Technology, Pakistan