

## **Preface GCMN 2019**

The 2019 3rd International Conference on Green Composite Materials and Nanotechnology (GCMN 2019), co-organized by AEIC Academic Exchange Information Centre and Association Franco-Chinoise en Sciences et Technologies, was successfully held on November 15-17, 2019 in Shenzhen, China. GCMN 2019 is to bring together innovative academics and industrial experts in the field of Green Composite Materials and Nanotechnology to a common forum. The primary goal of the conference is to promote research and developmental activities in Green Composite Materials and Nanotechnology and another goal is to promote scientific information interchange between researchers, developers, engineers, students, and practitioners working all around the world. The conference will be held every year to make it an ideal platform for people to share views and experiences in Green Composite Materials and Nanotechnology and related areas.

It was wonderful to have around 200 participants representing various universities at home and abroad attended this conference. We were very honored to have Prof. Ziad Moumni, Shanghai Jiaotong University and Prof. David BASSIR, University of Bourgogne Franche-Comté (UTBM) and Researcher at ENS-CMLA, as our Conference Chairman. Three excellent keynote speakers representing different top-level universities at home and abroad have shared their valuable and remarkable speeches on economic management and model engineering at the conference.

We are pleased to introduce the proceedings of GCMN 2019 which contains a selection of papers from contributed presentation at the conference. The proceedings features recent results and contemporary research in materials science and technologies of materials processing. All the papers have been through rigorous review and process to meet the requirements of the international publication standard.

On behalf of the committee, we would like to express our gratitude to the distinguished speakers who have come to share their valuable findings and knowledge, to the chairman and all participants, who contributed a lot and made this conference a great success. We would also like to thank the contributors for submitting their papers and patiently revised them according to the suggestions of the designated reviewers.

Finally, we hope that all the articles in this conference can provide a valuable summary and reference for researchers in this field.

The Organizing Committee of GCMN 2019

# **Committee Member**

## **Conference Chairman**

Prof. Ziad Moumni, Shanghai Jiaotong University, China

Prof. David BASSIR, University of Bourgogne Franche-Comté (UTBM) & Researcher at ENS-CMLA, France

## **Technology Program Committee**

Prof. Weihua Dan, Sichuan University, China

Prof. Yinzhong Jiang, Zhejiang University, China

A.Prof. Mingfeng Chen, Fujian Normal University, China

Prof. Behzad Niroumand, Isfahan University of Technology (IUT), Iran

Prof. Konovalov Sergey, Samara National Research University, Russia

Prof. Weigang ZHAO, Fujian Agriculture & Forestry University, China

Prof. Xiulin Ji, Hohai University, China

Dr. Xinhua Gong, Wuyi University, China

Prof. Lin Xu, Aerospace Research Institute of Materials & Technology, China

Prof. Caihong Lei, Guangdong University of Technology, China

A. Prof. Fei Peng, Sun Yat-sen University, China

Prof. Yifeng Zhong, Chongqing University, China

Prof. Xinli Guo, Southeast University, China

## **Preface ICPSA 2019&CMME 2019**

The 2019 International Conference on Polymer Synthesis and Application (ICPSA 2019) and 2019 International Conference on Composite Materials and Metallurgical Engineering (CMME2019) have been held on November 15 to 17, 2019 in Shenzhen, China. ICPSA 2019-and CMME 2019 provides an enabling platform for innovative academics, engineers and industrial experts in the field of Composite Materials and Metallurgical Engineering and Polymer Synthesis and Application to exchange new ideas and present research results. This conference also promotes the establishing of business or research relations among global partners for future collaboration.

The Conference work was carried out in 2 sections:

- Composite Materials and Metallurgical Engineering
- Polymer Synthesis and Application

All submitted papers were reviewed by appropriately qualified experts in the field selected by the Conference Committee. After the tight selection procedure, good quality papers were accepted for oral presentation and publication in this proceeding. We hope that this volumewill not only provide the readers with a broad overview of the latest advances but also provide the researchers with a valuable summary and reference in this field.

On behalf of the organizing committee and scientific committee of the ICPSA 2019 and CMME 2019 we would like to express our gratitude to all the participants, presenters, technical reviewers, and all collaborative partners for their contributions to the conference. We would like also thank the contributing authors for submitting papers and for being very patient to revise them multiple times based on the recommendations of the assigned reviewers.

As well, we would like to thank the technical committee members, who get the papers from the contributors being reviewed by suitable experts. We have received valuable feedback from all the participants, which will help us in organizing such conferences in a better way in the coming future. Additionally, we place on record our sincere gratitude to the chairperson of each and every conference session, for decently conducting the oral presentation of the technical papers and coordinating the discussions among the participants. The discussions and deliberations during the sessions are sure to be valued by the participants.

The Organizing Committee of ICPSA 2019&CMME 2019

# Committee Member

## Conference Chairs

Prof. Weihua Dan, Sichuan University, China

## Organizing Committee

A.Prof.Mingfeng Chen, College of Chemistry and Materials Science, Fujian Normal University, China

Dr. Xinhuai Gong, Ecology and Resources Engineering College, Wuyi university, China

Prof. Yifeng Zhong, School of Civil Engineering, Chongqing University, China

Prof. Hui-Mi Hsu, National Dong Hwa University, Taiwan, China

A. Prof. Dan Nianhua, Sichuan University, China

A. Prof. Yang Hu, Huazhong Agricultural University, China

Dr. Hao Wang, R&D Centre, China Tobacco Yunnan Industrial Co., Ltd.

Dr. Hao Peng, College of Chemistry and Chemical Engineering, Yangtze Normal University, China

Dr. Ang Zi Yang Adrian, Temasek Polytechnic, School of Engineering, Singapore

A.Prof. Wenbo Liu, School of Mechanical Engineering, Sichuan University, China

Prof.Sheng-Rui Jian, Department of Materials Science and Engineering, I-Shou University, Taiwan, China

Dr. Ana Almerich-Chulia, Universitat Politècnica De Valencia, Spain

Prof. Xiaoyong Lai, State Key Laboratory of High-Efficiency Utilization of Coal and Green Chemical Engineering, Ningxia University, China

Prof.Dinesh C. Gupta, School of Studies in Physics, Jiwaji University, Gwalior -474011 (MP), India

Dr. Muhammad Akhyar Farrukh, Department of Chemistry, Forman Christian College (A Chartered University), Lahore

Dr. Na Zha, Department of MSMP, R&D Center, AECC, China

Dr. Han Zheng, R&D Centre, China Tobacco Yunnan Industrial Co., Ltd.

Dr. Chaogang Zhou, North China University of Science and Technology, College of Metallurgy and Energy, China.

A. Prof. Hesham Moustafa, National Institute of Standards, Polymer Metrology & Technology Department, Egypt.

Prof.Dr. B. Ramesh, St. Joseph's Institute of Technology/ Mechanical Engineering, India.

Dr.Ruoyang Wu, Wilson & Company, USA.

Prof.Jun Bian, School of Materials Science and Engineering, Xihua University, China

Prof. Yen Yee wen, National Taiwan University of Science and Technology, China

Prof. Yun-Peng Chao, Feng Chia University, China

Pro.Mohammad Ismail, University Technology Malaysia

Dr. Chou Pui May, Taylor's University

Dr. Mohd Firdaus Omar, Universiti Malaysia Perlis (UniMAP)

Dr. Anil Annadi, National University of Singapore

Dr. Gu Qilin, National University of Singapore

Dr. Wan Fahmin Faiz bin Wan Ali, Technological University of Malaysia- UTM

Dr. Chong Fai Kait, Universiti Teknologi PETRONAS

Dr. Ong Siew Kooi, Universiti Kuala Lumpur

Dr. Ab Malik Marwan Ali, Universiti Teknologi MARA

Dr. Lam Sze Mun, Universiti Tunku Abdul Rahman

Dr. Leong Kah Hon, Universiti Tunku Abdul Rahman

Dr. Mst Sadia Mahzabin, Universiti Tunku Abdul Rahman

Dr Jun Hieng Kiat, Universiti Tunku Abdul Rahman

Dr. Uday M. Basheer Al-Naib, Universiti Teknologi Malaysia

Dr. Nurjannah Salim, Universiti Malaysia Pahang

Dr. Liew Yun Ming, Universiti Malaysia Perlis  
Dr. Lee Te Chuan, Universiti Tun Hussein Onn Malaysia  
Dr. Teh Pei Leng, Universiti Malaysia Perlis  
Dr. Ho Li Ngee, University Malaysia Perlis  
Dr. Mokhtari Majda, Echahid Hama Lakhder University  
Dr. Mohamad Ashry Jusoh, Universiti Malaysia Pahang  
Ahmad Zahirani Bin Ahmad Azhar, International Islamic University Malaysia  
Ahmad Salihin Samsudin, Universiti Malaysia Pahang  
Iis Sopyan, International Islamic University Malaysia  
Prof. Hui-Mi Hsu, National Dong Hwa University, Taiwan, China  
Prof. An Cheng, National ILan University, Taiwan, China  
Prof. Elmsellem Hicham, Université Mohammed Premier Oujda  
Prof. Wan Ahmad Yusmawiza Bin Wan Yusoff, University of Hail  
Prof. Jun Bian, Xihua University, China  
Prof. Hongxia Qiao, Lanzhou University of Technology, China  
Prof. Renate Wellen, The Federal University of Paraíba, Brazil  
Prof. Dinesh C. Gupta, Jiwaji University, India  
Prof. Depeng Chen, Anhui University of Technology, China  
Prof. Xiaoyong Lai, Ningxia University, China  
A. Prof. Wenbo Liu, Sichuan University, China  
Dr. Yongqiang Shi, Southern University of Science and Technology, China