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Editors

# Materials, Design, and Manufacturing for Sustainable Environment

Select Proceedings of ICMDMSE 2020

 Springer

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# Preface

The First International Conference on Materials, Design and Manufacturing for Sustainable Environment (ICMDMSE 2020) by the Department of Mechanical Engineering, PSG Institute of Technology and Applied Research, Coimbatore, India, was conducted on March 13 and 14, 2020, in association with Fluid Control Research Institute (FCRI), Palakkad. The scope of the conference includes original research and the latest advances in the field, focusing on advanced materials, vibration, tribology, finite element method (FEM), computational fluid dynamics (CFD), heat transfer, fluid mechanics, energy engineering, manufacturing technology, additive manufacturing, robotics and automation, automobile engineering, industrial and production engineering, Industry 4.0, MEMS and nanotechnology, sustainable environment, optimization techniques, condition monitoring system and new paradigms in technology management.

Over 162 papers were received from India and other countries. Based on the comments of reviewers and the scientific merits of the submitted manuscripts, 110 articles were accepted for presentation in the conference, out of which 65 papers have been selected for the publication in the Lecture Notes in Mechanical Engineering. The deliberations of ICMDMSE 2020 were categorized under (i) materials and design, (ii) manufacturing and industrial engineering, (iii) thermal and energy engineering, (iv) digital solutions and (v) allied applications. All registered authors discussed their ideas and professionally interacted with other delegates.

We want to express our thanks to the reviewers who contributed to the review process with their experience and scientific background. Only through their effort, it was possible to complete the review process in a short span of time. Furthermore, we thank the keynote speakers Dr. A. Senthilkumar, National University of Singapore; Dr. RamaGopal V Sarepaka, Senior Vice President, SPDT & IR Optics; Dr. C. Balaji, IIT Madras; Dr. Rajesh Ranganathan, CIT Coimbatore; and Dr. N. Siva Shanmugam, NIT Trichy, for sharing their in-depth research knowledge in their fields with the participants.

We would like to thank PSG Management, FCRI—Palakkad, Indian Institute of Technology Palakkad, all the participants, session chairs, session co-chairs, committee members, reviewers, international and national advisory committee

members, co-sponsors and all the people who have directly or indirectly contributed to the success of this conference. Our special thanks to Dr. P. V. Mohanram, Dr. G. Chandramohan, Dr. N. Saravanakumar, Dr. R. Ramesh, Dr. D. Elangovan and Dr. P. Manojkumar, PSG iTech; and Dr. Jacob Chandapillai and Dr. S. Ram Mohan, FCRI, for their immense contributions. The editors would also like to thank Springer Editorial Team for their support and for publishing the papers as part of the *Lecture Notes in Mechanical Engineering* series.

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