
Editorial

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Biographical notes: Vinod V. Vanmore has 12 years of professional experience (industry, research and academics). He has completed his Masters in Production Engineering from the premier institute – Walchand College of Engineering, Sangli. He has submitted his PhD in Mechanical Engineering to Shivaji University, Kolhapur – a leading university in research outputs. He has published six research articles in refereed journals. His research interests include non-conventional machining and micro-machining for difficult to cut materials, fluidics, and optimisation techniques.

Rahul B. Patil has 17 years of professional experience (research and academics). He has been awarded the Departmental Research Fellowship by Shivaji University, Kolhapur and completed PhD in Physics in 2008. Further, he has been PostDoctoral Fellow at National Central University Taiwan during 2009–2010. He has authored five textbooks and one reference book. He has published 22 research articles in Scopus indexed refereed journals and has attended/presented numbers at various national/international conferences. His research interests include nanomaterials, green synthesis, thin films. Currently, he is working as Head of Department of Physics at YP Science College. He is a life member of ISTE (Indian Society for Technical Education). He has been editor of national and international conferences proceedings.

3rd International e-Conference on Frontiers in Mechanical Engineering and nanoTechnology [ICFMET] has been successfully organised on 27–28 November, 2020. The whole world was suffering through the pandemic, but could not much affect the scientific temperament of the researchers. The research in medical sciences geared-up and there was time to rethink and revise their research profiles and further plans. This special issue as *Advances in Engineering and Nanotechnology* consists of 10 papers from ICFMET-2020. The invited talks were delivered by eminent experts from IIT Indore, IIT Delhi, IIT Roorkee, IIT Jammu and Sungkykwan University and Yeungnam University South Korea. The objective of this conference was to share

and exchange the ideas, knowledge and experiences in the field of mechanical engineering and nanotechnology.

The ICFMET-2020 received 118 abstracts out of which only half of them were invited to submit the full manuscripts. The guest editors of this special issue have picked the ten manuscripts for this special issue. The technical committee have thoroughly checked the suitability and fitting with journal's guidelines. We also appreciate the willingness of the authors in this regard. All the selected manuscripts went through single blind peer review. We hope that readers will enjoy this special issue.

The first paper concludes that optical methods cannot be used in sedimentation study of magnetorheological fluids (MRFs) specifically with higher concentration of particles. MRFs are class of smart materials. The second paper focuses on the Taguchi-GRA-PCA methodology for the optimisation of stiffness and deflection behaviour process variables for a technical way to control the limitations of single objective techniques in multiple performance characteristics problems. Third paper focuses on experimental investigations on direct absorption solar flat plate collector using Al_2O_3 nanofluid. Fourth paper investigates the influence of the hardness, sliding distance and time on the surface roughness during the sliding process. Fifth paper deals with the extraction, characterisation and consumption of waste plastic oil (WPO) extracted through pyrolysis process of mixed plastic waste in single cylinder diesel engine. Sixth paper focuses on performance improvement of variable compression ratio diesel engine using H_2O_2 as fuel additive. The seventh paper is about shape and the size of nanoparticles which are the crucial parameters of nanostructure that need to be securely controlled, owing to their versatility for tailoring the properties and functions of nanostructures towards a variety of applications. This paper reviews shape based surface plasmon resonance (SPR) of silver nanostructures. The eighth paper aims to utilise the experimental approach to perform the optimisation of processing parameters affecting the bio-oil yield in fast pyrolysis. In the modern industrial world, steam is widely used to generate electricity, and for power transmission and heating purposes where direct heating is not possible as in petroleum, food, paper and other industries. The ninth paper deals with design of vertical fire tube boiler using IBR code and FEA analysis. Tenth paper discuss the simulation based study on the disc brake temperature distribution for optimising hole geometry.

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We would like to express our gratitude to the editorial board of the *International Journal of Nanotechnology (IJNT)* and especially to Dr. Lionel Vayssieres, the Editor-in-Chief of the IJNT, for his kind cooperation towards this fruitful output.