

Editorial

# Preface: International Conference on Processing and Performance of Materials (ICPPM 2023) †

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## 1. Introduction

### 1.1. About the Conference

The International Conference on Processing and Performance of Materials (ICPPM 2023) was held on the 2nd and 3rd of March 2023 at the Sri Sivasubramaniya Nadar College of Engineering (SSNCE), Kalavakkam, Chennai. This is the second edition in the theme of materials, their processing and performance hosted by the Department of Mechanical Engineering, SSNCE. The first edition, ICPCM 2022, was held online and was a remarkable success, with close to 300 registrations received and over 100 full length papers published online. This second edition of the conference was held in a hybrid mode, with both physical/in-person sessions and online sessions. Over 250 abstracts were received, out of which 205 were shortlisted for presentation. This volume, published by MDPI's *Engineering Proceedings*, highlights 49 chosen articles that elicit the latest developments in the processing and performance of materials.

The conference had two main foci:

1. **Processing of Materials:** which covered Additive Manufacturing, Advances in Manufacturing of Metals, Ceramics and Metal Matrix Composites, Computer Aided Manufacturing/Computer Integrated Manufacturing, Casting and Forming Technology, Composites and Polymer Processing, Conventional and Unconventional Machining, Green and Sustainable Manufacturing, High Speed Machining, Hybrid Manufacturing, Industrial Automation and Industry 4.0, Micro-nano Manufacturing, Materials Joining and Forming Processes, Powder Metallurgy Processing, Precision Manufacturing and Robotics and AI in Manufacturing.
2. **Performance of Materials:** which covered Computer Aided Engineering, Computer Aided Process Planning, Corrosion and Erosion, Materials Characterization, Microstructure, Plasticity and Testing, Mechanical Behaviour and Fracture, Nano Materials, New Energy Materials, Non-Destructive Testing, Measurement and Metrology, Modelling and Simulation, Optimization Algorithms, Smart and Biomaterials, Surface Engineering and Coatings and, lastly, Tribology and Wear.

### 1.2. About the Institution

The Sri Sivasubramaniya Nadar College of Engineering (SSNCE), founded by Padma Bhushan Dr. Shiv Nadar, Chairman, HCL Technologies, stands out as a premier centre of higher learning, with a mission of pursuing excellence in education and research. The institution, with its diverse and dynamic community of students, offers a distinctive combination of some of the finest graduate, undergraduate and research programs, accomplished faculty, world class facilities and a residential campus set on a sprawling 230 acres of sylvan



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surroundings. The SSNCE is home to aesthetically designed buildings with state-of-the-art computer and internet facilities, modern workshops, seminar halls, auditoriums and well-stocked libraries, sports and games fields, in addition to an indoor stadium with a gymnasium. The SSNCE has a faculty population of 254 with a faculty–student ratio of 1 faculty member for every 15 students. The SSNCE has been ranked 12th among all the private engineering colleges in the country and ranked 45th among all the engineering colleges in the NIRF (2023), instituted by the MHRD, Government of India.

### 1.3. About the Department

The department of Mechanical Engineering, SSNCE, was established in t 2007. The department has offered B.E (Mechanical Engineering) since the academic year 2007–2008, M.E (Manufacturing Engineering) since the academic year 2012–2013 and M.E (Energy Engineering) since the academic year 2013–2014. The department became an approved research centre of Anna University in the year 2012. Ever since, 67 students have successfully completed their Ph.D. and currently 104 students are pursuing their Ph.D. The UG program of the department has been accredited by the prestigious National Board of Accreditation (NBA). The department has research projects funded by the Department of Science and Technology (DST), All India Council for Technical Education (AICTE), Science and Engineering Research Board (SERB) and Naval Research Board (NRB) totalling around INR 5.15 Crores for conducting research in the fields of Friction Stir Welding, Magnetic Moulding of Composite Materials, Vibration Studies, Robotics, Abrasive Reclamation and Finite Element Analysis of Composites. The department is also actively involved in consultancy projects. The department has an active AICTE-sponsored Industry Institute Partnership Cell (IIPC) to carry out beneficial institute–industry interactions at various levels as well.

## 2. Committee Members

This conference has been extensively supported by the Sri Sivasubramaniya Nadar College of Engineering with the guideship of the following members:

- **Chief Patron:** Dr. Shiv Nadar, Founder and Chairman of HCL Technologies Ltd., Founder of Shiv Nadar Foundation.
- **Patrons:** Dr. Kala Vijaykumar, President—SSN Institutions, Dr. V. E. Annamalai, Principal—SSNCE and Dr. S. Radha, Vice-Principal—SSNCE
- **General Co-Chairs:** Dr. P. Ramasamy, Dean (Research)—SSNCE and Dr. K. S. Vijay Sekar, Professor and Head of Mechanical Engineering, SSNCE

### 2.1. Organizing Committee

Eight faculty members from the Mechanical Engineering Department actively participated in organizing this conference, while the remaining members ensured the smooth conduct of the event. The organizing committee had **four main conveners**:

- Dr. K. Babu, Associate Professor, SSNCE.
- Dr. R. Damodaram, Associate Professor, SSNCE.
- Dr. S. Santosh, Assistant Professor, SSNCE.
- Dr. Anirudh V. K., Assistant Professor, SSNCE.

In addition, **four co-conveners** were also involved in this process, and they are:

- Dr. M. Dhananchezian, Associate Professor, SSNCE.
- Dr. K. Jayakumar, Associate Professor, SSNCE.
- Dr. R. Rajeswari, Associate Professor, SSNCE.
- Dr. Divya Zindani, Assistant Professor, SSNCE.

### 2.2. Advisory Committee

This conference had the opportunity to be guided by several stalwarts across the world. Of these, the following members were part of the International Advisory Committee:

- Dr. Haizea Gonzalez-Barrio, University of the Basque Country, Spain.
- Dr. J. Paulo Davim, University of Aveiro, Portugal.
- Dr. Luis Norberto Lopez De Lacalle, University of Basque Country, Spain.
- Dr. Manoj Gupta, NUS Singapore.
- Dr. Swee Leong Sing, NUS Singapore.
- Dr. Mediha Kok, FIRAT University, Turkey.
- Dr. Murali Sundaram, University of Cincinnati, USA.
- Mr. Prasanna Kumar, SMATech, Belgium.
- Dr. Ramana V. Grandhi, Wright State University, USA.
- Dr. S. Parasuram, Monash University, Malaysia.
- Dr. Soumya Sridar, University of Pittsburgh.
- Dr. T.V.R.L. Sravya, Max-Planck Institute Germany.
- Dr. V. Selvakumar, Nizwa College of Technology, Oman.
- Dr Chithirai Pon Selvan, Curtin University, Dubai.
- Mr. Ravi Ravishankar, CIO/VP, Jabil, USA.

We also had the pleasure to obtain valuable suggestions, feedback and information from across India, and these members were part of the National Advisory Committee:

- Dr. M. Vasudevan, IGCAR,
- Dr. S. Aravindan, IIT Delhi,
- Dr. N. V. Ravikumar, IIT Madras,
- Dr. G. Phanikumar, IIT Madras
- Dr. V. Sampath, IIT Madras,
- Dr. I.A. Palani, IIT Indore,
- Dr. N. Chawake, IIT Kanpur,
- Dr. P. Ramkumar, IIT Madras,
- Dr. K. Jayabal, IIITDM Kanchipuram,
- Dr. V. Anandkrishnan, NIT Trichy,
- Dr. N. Gnanasekaran, NIT Surathkal,
- Dr. K. Sekar, NIT Calicut,
- Dr. Sumit Bhowmik, NIT Silchar,
- Dr. Jagadish, NIT Raipur,
- Dr. Pradeep Kumar, Anna University, Chennai,
- Dr. K. Balachandar, SASTRA, Thanjavur,
- Dr. Surya Prakash, IIHMR University, Jaipur,
- Dr A. S. Balakrishnan, VP, Ford motors Pvt Ltd.
- Dr K. Mohanavelu, Scientist F, DEBEL, DRDO, GOI,

### 2.3. Technical Committee

Every conference deserves a technical committee which can scrutinize the work along with the conveners. We were lucky to have the following members as part of the technical team as they helped shortlist abstracts and evaluate the worthiness for this conference:

- Dr. S.R. Koteswara Rao, Professor, SSNCE.
- Dr. S. Vijayan, Professor, SSNCE.
- Dr. B. Anand Ronald, Associate Professor, SSNCE.
- Dr. K. Rajkumar, Associate Professor, SSNCE.
- Dr. A. K. Lakshminarayanan, Associate Professor, SSNCE.
- Dr. D. Ananthapadmanaban, Associate Professor, SSNCE.
- Dr. L. Poovazhagan, Associate Professor, SSNCE.
- Dr. K. L. Hari Krishna, Associate Professor, SSNCE.

#### 2.4. Programme Committee

Since this conference was conducted in a hybrid mode, several arrangements were made to ensure the smooth conduct of the event. For this purpose, a programme committee was set up including the following members:

- Dr. N. Lakshmi Narasimhan, Associate Professor, SSNCE.
- Dr. M. Selvaraj, Associate Professor, SSNCE.
- Dr. M. Suresh, Associate Professor, SSNCE.
- Dr. K.S. Jayakumar, Associate Professor, SSNCE.
- Dr. M. S. Alphin, Associate Professor, SSNCE.
- Dr. S. Suresh Kumar, Associate Professor, SSNCE.
- Dr. S. Rajkumar, Associate Professor, SSNCE.
- Dr. R. Prakash, Associate Professor, SSNCE.
- Dr. A.S. Ramana, Associate Professor, SSNCE.
- Dr. M. Nalla Mohamed, Associate Professor, SSNCE.
- Dr. G. Satheesh Kumar, Associate Professor, SSNCE.
- Dr. G. Selvakumar, Associate Professor, SSNCE.
- Dr. R. Vimal Singh, Associate Professor, SSNCE.
- Dr. C. Arun Prakash, Assistant Professor, SSNCE.
- Dr. B. Jayakishan, Assistant Professor, SSNCE.
- Dr. D. Ebenezer, Assistant Professor, SSNCE.
- Dr. T. Micha Premkumar, Assistant Professor, SSNCE.

#### 3. Keynote Speakers

Four Keynote Speakers were invited for this event (Figures 1 and 2):

- Dr. Swee Leong Sing, Assistant Professor, NUS Singapore.
- Dr. Khalid Rafi, Senior Lead, ASTM International, Singapore.
- Dr. M. Vasudevan, Director, IGCAR, India.
- Dr. G. Phanikumar, Professor, IIT Madras.



**Figure 1.** Release of the Book of Abstracts: In photo (From L to R): Dr. Koteswara Rao, Dr. Annamalai V. E., Dr. Khalid Rafi, Dr. M. Vasudevan, Dr. K. Babu.



**Figure 2.** Dr. G. Phanikumar, Professor, IIT Madras, presenting his keynote lecture at the conference.

#### 4. Sponsors

The conference received infrastructure and financial support from the Sri Sivasubramaniya Nadar College of Engineering to organize the entire event. The conference also had the opportunity to collaborate with the Chennai chapter of the American Society of Metals (ASM) India. The ASM Chennai chapter sponsored the prize for the best paper award, which was presented to Mr. Jagadeesh by Dr. Srinivasa Rao Bakshi, Professor, IIT Madras, on behalf of ASM India (Figure 3).



**Figure 3.** Mr. Jagadeesh receiving his best paper award from Dr. Srinivasa Rao Bakshi, Professor, IIT Madras.

**Conflicts of Interest:** The authors declare no conflicts of interest.

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