

An International Conference

Translational Research: Metals and Materials

19 – 21st November 2023

TRMM 2023



Celebrating
“silver jubilee”
of

Department of Materials
and Metallurgical
Engineering,

National Institute of
Advanced Manufacturing
Technology, Ranchi
834003, Jharkhand -India



Peer reviewed papers will be published in reputed journals

About TRMM 2023

Industry 4.0 is challenging and full of opportunities for various organizations and institutes. Be it the mining sector, steel industry, defense, mobility, electronics and so on. Materials and Metallurgical Engineering has always been the driver of advancements in these sectors. The International conference, TRMM 2023 comes to focus on the translational research in field of materials & metals to bridge out the gap between concepts to commercial scale production. TRMM 2023 is an event in which Industry, R&D and Academia will come together to share their learnings, challenges and opportunities for futuristic growth of metallurgical and materials sector. The three days conference will encompass the following broad areas :

- ❖ Scope and definition of translational research in materials and hardware
- ❖ Approach towards responsible use and recycling of resources in materials technology
- ❖ Potential materials and processes awaiting translation into pilot scale field trial and commercial exploitation
- ❖ Benchmarking in the process of translation across the innovation chain
- ❖ Potential application areas of translational research in metals and materials
- ❖ Translational research in the industry 4.0 framework including integration with IOT
- ❖ System and funding readiness and policy changes to promote translational research
- ❖ Case studies and success stories in the area of translational research

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ABOUT Translational Research

The last quarter of 20th century has witnessed several breakthroughs in emergence of new materials and process in one hand, and demand of exotic, customisable, integrable and adoptive materials to match the increasing sophistication of technology, on the other. During the first quarter of 21st century, digitisation and sustainability have emerged as the driver and track, respectively for the futuristic technology.

Undeniably, history of technology is founded on advancement in materials. At the same time all the past waves of technology revolution have been driven by overexploitation of resources leaving behind mounting volume of waste and unabated emission. Therefore, the objectives of technological progress, in turn materials research, are inherently conflicting in nature. Here, the role of translational research is to find the optimised solution.

The last couple of decades have recorded the emergence of large number of novel materials (e.g., nanomaterials, metallic glass, high entropy alloys, bio-materials, bio-degradable polymers, functional ceramics, rare earths, semi conducting materials, smart and adoptive materials etc.) and processes (e.g., Hydrogen-based processing technology, non-equilibrium processing, bottom-up processing, self-assembly etc.). During the same time, a unique confluence of three knowledge streams, namely, theoretical, experimental and computational, has accelerated the exploration of complex and multiscale phenomena in materials science. For example, bottom-up processing has been immensely helpful not only in 1D, 2D, and 3D building of materials structure in either pre-configured or self-assembled mode, but also unveiling the phenomena at different length and time scale, which otherwise is experimentally inaccessible in top-down route.

Despite the huge volume of research output recorded in recent times, the initiatives in upscaling and benchmarking of the emerging materials and processes against the demanded products is yet to attract proportional interest of research sector and/or industries, barring a few areas like health care, semiconductor, space etc. Moreover, the critical issues and barriers in technology and product innovation chain also remains to be addressed.

In recognition to the urgent need of evolving the research framework and initiatives for the awaited translation of the breakthroughs in advanced materials research, into commercial technologies, products, and applications, IOP has instituted the Translational Materials Research journal. The scope of the journal aims to address all the stages of the materials innovation chain from discovery and invention to product development and manufacturing.

In view of the growing importance of translational research in metals and materials, Metallurgical and Materials Engineering Department of National Institute of Advanced Manufacturing Technology, in commemorating its Silver Jubilee, has taken the initiative to organize an International Conference in Translational Research in Metals and Materials. The objective of the conference is to create a common platform for the researchers, industry experts, budding engineers, funding agencies, policy-makers, and other stake holders to share their knowledge and views in subject domain of the conference.

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About NIAMT



National Institute of Advanced Manufacturing Technology

In consonance with the general guidelines of UNESCO (1962) regarding establishment of specialized institutes, National Institute of Foundry and Forge Technology (NIFFT) was created in 1966 under the UNDP program to cater to the need of a large number of technicians. The particular emphasis was on Foundry and Forge technology to meet the demand of trained manpower in the primary metal manufacturing sectors like automobile, heavy engineering, machine and component manufacturing etc. The forward-looking endeavor, pursued over the years, has evolved a four-tier academic framework in NIFFT involving advanced diploma, B Tech, M Tech and doctoral program with a balanced emphasis on training, education and research. In 2021, name of the Institution was changed from “National Institute of Foundry and Forge Technology” to “National Institute of Advanced Manufacturing Technology (NIAMT)” .



About Department

This conference is a celebration to the successful completion of 25 years (silver jubilee) of Department of Materials and Metallurgical Engineering. MME Department was established in 1998, has emerged as a powerhouse for academics, scientific research and cutting-edge technologies. The department is actively involved in research areas such as development of Metal Matrix Composites (MMC) using Laser Technique, Spark Plasma Sintering, Cladding and Warm Extrusion, thermo-mechanical treatment effect on mechanical properties and corrosion resistance of nano-alloyed steel and Fe-Ni steel, synthesis of novel material system such as high entropy alloy, eco-friendly solder alloy and many more. All these research areas are explored in association with experts from nearby entities such as Tata Steels, Usha Martin, RDCIS, SAIL, and NML etc

Department of Materials and Metallurgical Engineering

पदार्थ एवं धातुकर्म अभियांत्रिकी विभाग
MATERIALS AND METALLURGICAL ENGINEERING DEPT.



Organizing Committee

All the faculty members of the Department of Materials and Metallurgical Engineering

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Tentative list of speakers

- **Prof. Shiv Gopal Kapoor**
University of Illinois Urbana-Champaign
United States
- **Prof. Marc J Madou**
University of California, Irvine
- **Dr. Martin Strangwood**
University of Birmingham, UK
- **Prof. Sir Harry Bhadesia**
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- **Dr. Pankaj Kumar**
University of New Mexico, US State
- **Dr. Renu Gupta**
Head, Design QA and Design Manufacturing
Larsen & Toubro, Mumbai

Contact us: trmm2023niamt@gmail.com

Registration Fees

Important Dates

Start of Abstract Submission: 20th Aug 2023

Last date of Abstract Submission: 15th Sept 2023

Review of Abstracts: 1st to 15th Oct 2023

Notification of Abstract : 15th to 25th Oct 2023
acceptance

Fee payment deadline: 10th Nov 2023

Conference date: 19th to 21st Nov 2023

Alumni meet: 21st Nov 2023

E-certificate availability: 1st to 31st Dec 2023

Paper submission deadline: 15th Dec 2023

Early Bird Registration

National

- ❖ Research Scholars/Students: INR 1000/-
- ❖ Faculty: INR 4000/-
- ❖ Industrial Person : INR 6000/-

International

- ❖ Research Scholars/Students: \$ 50
- ❖ Faculty: \$ 100
- ❖ Industrial Person : \$ 150

Late Registration (after deadline)

National

- ❖ Research Scholars/Students: INR 1500/-
- ❖ Faculty: INR 4500/-
- ❖ Industrial Person : INR 6500/-

International

- ❖ Research Scholars/Students: \$ 60
- ❖ Faculty: \$ 110
- ❖ Industrial Person : \$ 160

Abstract can be submitted either to technical.trmm2023@gmail.com
or via website: www.trmm2023.com

NIAMT Campus at a glance

