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From HoD's Desk

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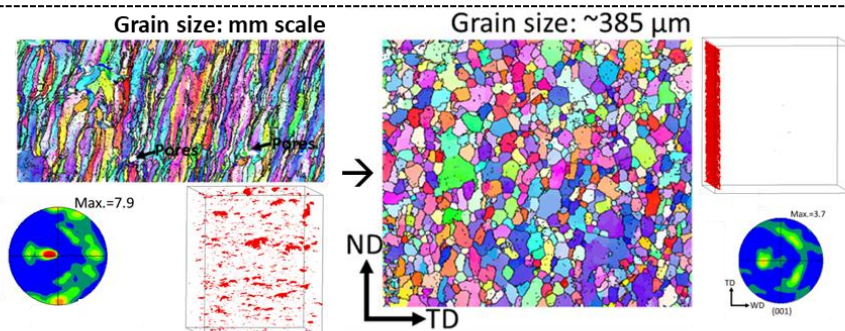
Dear Readers,

The ninth edition of our department's monthly newsletter begins with journal publications showcasing outstanding research contribution of the various research groups of our department.

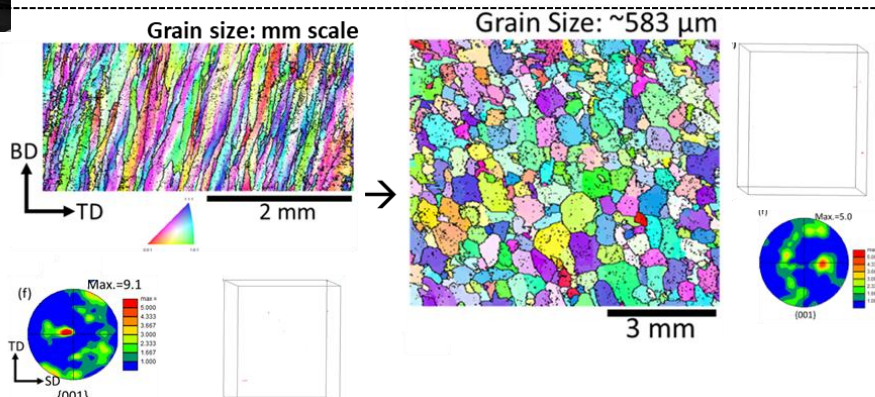
*Further our department has developed significant lab facilities for our students. In addition a national conference "**CRISP - 2025**" is being organized in the department of Fuel, Minerals & Metallurgical Engineering commemorating **100 years of legacy of IIT(ISM) Dhanbad**, in the month of October bringing together leading researchers, industry experts, policymakers and young scholars to comprehensively explore the cutting edge advancement in processing of critical metals and make it a grand success.*

Pores and residual stress guided prior β -grain refinement

With Pores



Without Pores



Publications

1. Ritukesh Sharma, Dhiman Kumar Mahata, Amritendu Roy, Partha Sarathi De, **Avanish Kumar**: *Investigation on corrosion and indentation behavior of a novel Al-TiB₂-AlCuFeMn composite*. Journal of Materials Engineering and Performance (2025) Accepted.
2. **Vivek Kumar Sahu**, HR Siller, MH Shen; Effectiveness of residual stress and pores on the β -grain refinement in L-PBF Ti6Al4V processed with hot isostatic pressing; *Additive Manufacturing Letters*(2025). DOI: <https://doi.org/10.1016/j.addlet.2025.100291>
3. M. H. Tyeb, **Subhendu Mishra**, and A. K. Majumder, Roping Hysteresis: A Novel Phenomenon Associated with Reverse Transition from Rope to Spray Discharge in Hydrocyclones, 2025, Taylor & Francis Group, mineral processing and extractive metallurgy review.DOI: 10.1080/08827508.2025.2507877.

Lab Development



Prof. Kesavan Ravi

Grit Blaster Commissioned in Surface and Coatings Lab – FMME Department

The Surface and Coatings Laboratory of the Department of Fuel, Minerals and Metallurgical Engineering (FMME), IIT (ISM) Dhanbad has recently commissioned a state-of-the-art grit blasting unit to support ongoing research and advanced experimentation in surface engineering and materials processing.

Grit blasting, also known as abrasive blasting, is a high-energy surface treatment technique that involves propelling abrasive particles at high velocity to clean, roughen, or activate surfaces prior to coating, bonding, or further processing.

The newly installed equipment is designed to handle a variety of metallic and non-metallic substrates and allows precise control over blasting parameters such as pressure, nozzle distance, and exposure time. This makes it ideal for applications ranging from oxide removal and surface texturing to pre-treatment for cold spray coatings and additive manufacturing.

The grit blaster enhances the department's capabilities in preparing test samples for research in corrosion protection, adhesion strength improvement, and microstructural tailoring of coatings. It also offers valuable hands-on learning opportunities for students working on B.Tech, M.Tech, and Ph.D. projects. The addition of this facility marks a significant step forward in developing an integrated infrastructure for surface modification and advanced materials research within the institute.



Outreach Activities



Prof. Rajkumar Dishwar



Prof. Raj Kumar Dishwar, Assistant Professor in the Fuel, Mineral, and Metallurgy Department of IIT (ISM) Dhanbad, visited **Indian Institute of Technology (IIT), Benaras Hindu University (BHU)** and interacted with a few experts on extractive metallurgy (**Prof. Sunil Mohan, Prof. K. K. Singh and Prof. C. K. Behera**) to have discussion on extracting critical Minerals from the plant wastes for collaborations and projects in future.





National Conference
on



Critical Metals

(Recycling, Innovation, Separation & Processing)

CRISP-2025

13-15 OCTOBER 2025

Organized by

Department of
Fuel, Minerals & Metallurgical Engineering
IIT(ISM) Dhanbad

In collaboration with





Commemorating **100 years of legacy of IIT(ISM) Dhanbad**, the department of Fuel, Minerals & Metallurgical Engineering is pleased to announce a national conference on **Critical Metals: Recycling, Innovation, Separation and Processing (CRISP-2025)** from **13-15 October 2025** at IIT(ISM) Dhanbad, Jharkhand-India's historic mining hub.

CRISP-2025 will bring together leading researchers, industry experts, policymakers and young scholars to comprehensively explore the cutting edge advancement in processing of critical metals. The conference will features:

- § Identification, exploration and characterization of critical minerals
- § Beneficiation of critical minerals
- § Critical metals extraction from primary & secondary resources
- § Advanced separation and purification techniques
- § Value addition and alloy development
- § Role of AI and automation in critical metals exploration and extraction
- § Environmental impact and lifecycle analysis
- § National policy and regulatory framework on critical metals
- § Future trends and opportunities in critical metals

|| Call for ABSTRACT SUBMISSION & REGISTRATION are now open||

The last date of abstract submission is 15th August 2025.

More information is available in the attached brochure and the conference website (<https://people.iitism.ac.in/~crisp2025/>) of CRISP-2025.

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