

Perspectives on the Mechanical Behaviour of Materials

May 11-13 2026

Venue: Hall #22, 2nd Floor, VMCC Building, IIT Bombay

Workshop Schedule

May 11, 2026

Time	Session
08:30 – 09:00	Registration and Breakfast
09:00 – 09:10	Introduction to the workshop
	Advances in mechanical characterization
09:10 – 09:50	Prof. Subramanya Sarma, IIT Madras Effect of strain rate on the retained austenite stability in a Medium-Mn steel
09:50 – 10:30	Prof. Nilesh Gurao, IIT Kanpur Deformation twinning in uniaxial and sequential compression of Mg-0.5 wt.% Ce alloy
10:30 – 11:10	Prof. Sudarshan Phani, University of Hyderabad High throughput nanoindentation testing: the new paradigm in small-scale mechanical testing
11:10 – 11:40	Tea / Coffee Break
11:40 – 12:20	Dr. V. Karthik, IGCAR, Kalpakkam Recent advances in small punch testing for evaluating tensile, fatigue and fracture properties
12:20 – 13:00	Prof. Eswara Prasad, IIT Indore Investigating the mechanical behavior of magnesium using in-situ experiments: Insights into deformation twinning
13:00 – 14:20	Lunch
	Microstructure engineering through deformation methods - I
14:20 – 15:00	Prof. Suresh Neelakantan, IIT Delhi Engineering microstructures via martensitic transformation for enhanced mechanical properties in metastable β titanium alloys
15:00 – 15:40	Prof. Devinder Yadav, IIT Patna Furnace-free electric-field-induced high strain rate superplasticity in 3YSZ
15:40 – 16:20	Prof. Sanjib Acharya, Jadavpur University High-temperature fatigue crack growth behavior of structural materials: mechanistic understanding and experimental analysis
16:20 – 18:30	Tea / Coffee + Posters

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May 12, 2026

Time	Session
	Computation of deformation mechanisms in materials
09:00 – 09:40	Prof. Anand Kanjarla, IIT Madras Microstructure informed crystal plasticity modelling of low cycle fatigue behavior of IN718
09:40 – 10:20	Prof. Anirban Patra, IIT Bombay Scale Bridging Strategies for Computationally Efficient Prediction of Anisotropic Deformation at the Mesoscale and Macroscale
10:20 – 10:50	Tea / Coffee Break
10:50 – 11:30	Prof. Prita Pant, IIT Bombay Effect of Solute Segregation on Deformation Behavior: Cottrell and (or versus) Suzuki?
11:30 – 12:10	Abhik Chaudhury, IISc Bangalore Towards intrinsically coupled microstructure informed damage models for the prediction of creep life in Ni-based superalloys
12:10 – 12:50	Prof. Rajeshwar Eleti, IIT Roorkee Electronic-structure governed strengthening in face-centered cubic high-entropy alloys: A unified framework for solid-solution and grain size strengthening mechanisms
12:50 – 13:05	Industry talk – Maximator India Pvt. Ltd.
13:05 – 14:20	Lunch
	Deformation, Processing and Degradation of Nuclear Structural Materials
14:20 – 15:00	Dr. R. N. Singh, BARC Mumbai Mechanical properties evaluation and its application for safety assessment of internally pressurized components.
15:00 – 15:40	Dr. M. Vasudevan, IGCAR Kalpakkam Strategies for Enhancing the Creep Strength of Ferritic-Martensitic Steels and their Weld Joints
15:40 – 16:20	Prof. Satyam Suwas, IISc Bangalore Dwell Fatigue in Titanium alloys

16:20 – 16:50	Tea / Coffee Break
16:50 – 17:30	Prof. Ankur Chauhan, IISc Bangalore Exploring the Irradiation Response of Multi-Principal Element Alloys: Insights from Proton-Induced Defect Dynamics and Recovery
17:30 – 18:10	Dr. Rajeev Kapoor, BARC Mumbai Physics-based constitutive framework for α -Zr alloys deformed at low to warm temperatures and across quasi-static to dynamic strain rates
18:30 – 21:00	Dinner + Poster Awards

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May 13, 2026

Time	Session
09:00 – 09:40	Microstructure engineering through deformation methods – II Prof. Debalay Chakrabarti, IIT Kharagpur Thermomechanical simulation of grain structure evolution in steels
09:40 – 10:20	Prof. R. S. Kottada, IIT Madras Creep of additively manufactured Ni-base superalloys
10:20 – 11:00	Prof. Shanta Chakrabarty, KIIT Bhubaneswar Tailoring microstructure and texture evolution through strain path in low-Ni austenitic stainless steel
11:00 – 11:30	Tea / Coffee Break
	Materials under extreme conditions and environments
11:30 – 12:10	Dr. Vani Shankar, IGCAR Kalpakkam Analysis of fatigue hysteresis loops to understand the evolving microstructures of high temperature materials under various cyclic loading waveforms
12:10 – 12:50	Prof. K. V. Vamsi, IIT Indore Modelling Deformation Pathways in Ordered Alloys via Planar Fault Energetics
12:50 – 14:20	Lunch
14:20 – 15:00	Prof. Dhiraj Mahajan, IIT Ropar Perspectives on Hydrogen-Assisted Fatigue Crack Initiation in Metals using Small-Scale Experiments and Crystal Plasticity Simulations
15:00 – 15:40	Prof. Niraj Chawake, IIT Kanpur Effect of Ti Addition on Screw-Dislocation Mediated Plasticity in W-Containing Refractory High-Entropy Alloys
15:40 – 16:40	High Tea + Discussion (What did we learn and the way forward)