

# SPARC Phase-III Symposium on Texture in Materials

15<sup>th</sup> – 16<sup>th</sup> Jan 2026

**Overview:** Polycrystalline materials like minerals, metals, ceramics, semiconductors, superconductors are all made up of aggregate of millions of small crystals. These materials are used in modern engineering applications like aerospace, automobile, electronics, bioimplants, actuators, etc.. Making these engineering components require knowledge of processing techniques to engineer the microstructures and crystallographic texture to obtain desired properties. With the advancement in technology and the concerns regarding environmental degradation, there is a high demand for developing components maintaining sustainability. The objective of this symposium is to provide the tools to understand and quantify microstructure and crystallographic texture. The symposium will cover (i) quantitative microscopy, (ii) Crystal structure & stereographic projection, (iii) texture tools – Pole figures, Euler space, (iv) XRD, (v) EBSD, (vi) dislocations & grain boundaries, and (vii) Solidification, phase transformation, plastic deformation, and recrystallization texture in FCC, HCP, & BCC polycrystals.

## Schedule

	15-01-2026		16-01-2026	
9:00 AM - 10:00 AM	Innauguration session		Fundamentals of triple junctions and their importance in nanostructured polycrystals	Dr. David P Field, Professor, WSU Pullman, USA
10:00 AM – 10:15 AM	High Tea			
10:15 AM – 11:15 AM	Fundamentals of crystallography and introduction to texture	Dr. David P Field, Professor, WSU Pullman, USA	Effect of composition and processing on the microstructure and texture of steels	Dr. Debalay Chakraborty, Professor, IIT Kharagpur
11:15 AM – 11:30 AM	Tea break			
11:30 AM – 12:30 PM	How to represent texture? Pole figures and 3D texture analysis	Dr. Satyam Suwas, Professor, IISc Bangalore, India	What are coincident site lattice boundaries?	Prof. Sumantra Mandal, Professor, IIT Kharagpur
12:30 PM – 2:00 PM	Lunch break			
2:00 PM – 3:00 PM	How to determine texture from X-ray diffraction?	Dr. K. S. Suresh, Associate Professor, IIT Roorkee, India	On the quantitative microscopy using electron back scatterd diffraction and transmission Kikuchi diffraction	Prof. Nilesh P Gurao, Professor, IIT Kanpur
3:00 PM – 3:15 PM	Tea break			
3:15 PM – 4:15 PM	Microstructure and texture evolution in Titanium alloys	Dr. Shibayan Roy, Associate Professor, IIT Kharagpur, India	Microstructure and texture evolution in Al alloys: deformation, recrystallization, and aging	Dr. Sandip Ghosh Choudhury, Director, NML Jamshedpur, India
4:15 PM – 4:30 PM	Tea break			
4:30 PM – 5:30 PM	Plastic deformation of polycrystals: Microstructure and texture modeling	Dr. Somjeet Biswas, Associate Professor, IIT Kharagpur, India	Valedictory session	

**You** should attend if you are:

1. Working on problems related to (i) quantitative microscopy, (ii) Crystal structure & stereographic projection, (iii) crystallographic texture, (iv) XRD, (v) EBSD, (vi) dislocations & grain boundaries, (vii) phase-field modelling, (viii) atomistic (molecular dynamics and density functional theory) simulations.
2. An engineer or researcher from the materials science and metallurgical industry (such as Tata Steel, JSW, GE) and from research centres such as BARC, IGCAR, ISRO and DMRL.
3. Student at the post-graduate level (MTech/PhD) or early-stage researcher (post-docs and faculty) from reputed academic or technical institutions.

**Registration:** Interested researchers, faculty members, and students must register through link: <https://forms.gle/Vq3JTdicLjJKUvfF7>. Acceptance of the registration will be sent to you by email.

**T**here is no registration fee.

## Distinguished Speakers & Associated Members



**Dr. DAVID P. FIELD**, Professor & Director at Institute of Materials Research, Washington State University, Pullman, USA. He is presently the Editor-in-Chief of Materials Characterization journal. His research interests include physical & mechanical metallurgy, metal deformation & recrystallization, crystallographic texture, grain boundary structure, thin film & IC interconnect structure/properties relationships, & advanced experimental techniques.



**Dr. SATYAM SUWAS**, Professor & Dean, Department of Materials Engineering, Division of Mechanical Sciences, IISc Bangalore. His research interests include crystallographic texture and crystal plasticity, focusing on deformation behavior in crystalline materials.



**Dr. SANDIP GHOSH CHOWDHURY**, Director & Scientist National Metallurgical Laboratory, Jamshedpur. His research interests include Materials Development, Thermomechanical Processing and Crystallographic Texture, Deformation Behaviour.



**Dr. DEBALAY CHAKRABARTY**, Professor in the Dept. of Metallurgical and Materials Engineering & Associate Dean of Research & Development, IIT Kharagpur. His research interests include Physical metallurgy, iron and steel technology, Mechanical metallurgy, and Deformation and fracture mechanics.



**Dr. NILESH PRAKASH GURAO**, Professor, Department of Materials Science and Engineering, IIT Kanpur. His research interests include crystallographic texture, residual stresses, and crystal plasticity, with expertise in X-ray/neutron diffraction and EBSD.



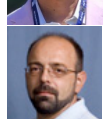
**Dr. SUMANTRA MANDOL**, Professor in the Dept. of Metallurgical and Materials Engineering & Associate Dean of Faculty of Engineering and Architecture, IIT Kharagpur. His research interests include grain boundary engineering and corrosion science, with a focus on CSLB/CSL boundary characterization.



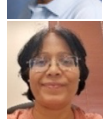
**Dr. K. S. SURESH**, Associate Professor, Department of Metallurgical and Materials Engineering, IIT Roorkee. His research interests include electron microscopy and crystallographic texture for microstructure and deformation analysis.



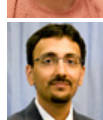
**Dr. SHIBAYAN ROY**, Associate Professor, Materials Science Center, IIT Kharagpur. His research interests include mechanical properties, with a focus on crystallographic texture and EBSD-based microstructural characterization.



**Dr. SINISA DJ MESAROVIC**, Professor at School of Mechanical & Materials Engineering, Washington State University, Pullman, USA. His research interests are mathematical formulation of physical processes with interest in multiscale & computational models. Current focus is on computational methods for coupled problems with moving boundaries.



**Dr. SHAMPA AICH**, Professor in the Dept. of Metallurgical and Materials Engineering, IIT Kharagpur, INDIA. Her research interests are materials and microstructure characterization & correlation with functional properties such as magnetic and shape memory effects. Atomic migration & diffusion between multi-layer bi-metallic thin films.



**Dr. SOUMIK BANERJEE**, Associate Professor at School of Mechanical and Materials Engineering, Washington State University, Pullman, USA. His research interests include modeling of processing, structure & functional properties of materials & interfaces relevant to energy conversion & storage, batteries, thin perovskite films in solar cells.



**Dr. SOMJEET BISWAS** is an Associate Professor in the Dept. of Metallurgical and Materials Engineering, IIT Kharagpur, INDIA. His research domains are quantitative microscopy, crystallographic texture, grain boundary engineering, plastic deformation behavior of polycrystalline materials, fatigue and fracture behavior, and recrystallization mechanism of metals and alloys.



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