

International Conference on Electron Microscopy & XLIV Annual Meeting of the
Electron Microscope Society of India
October 2-4, 2026



Organized by: *The East Zone Chapter*

Organizing
Institute



Partner
Institute



Collaborative
Institutes



NIRBI
NATIONAL INSTITUTE FOR
RESEARCH IN BACTERIAL INFECTIONS

IIT Kharagpur Research Park,
NewTown, Kolkata

INTERNATIONAL CONFERENCE ON ELECTRON MICROSCOPY

EMSI 2026 Souvenir

International Conference on Electron Microscopy and XLIV Annual Meeting of the Electron Microscope Society of India

2-4 October 2026

IIT Kharagpur Research Park, New Town, Kolkata

Pre-conference workshops: 30 September - 1 October 2026

Organized under the aegis of the Electron Microscope Society of India (EMSI), East Zone Chapter, with IIT Kharagpur, CSIR-CGCRI and participating institutions.

[Conference website](#)[EMSI website](#)[Programme Schedule](#)

Conference at a Glance

Conference 2-4 October 2026 IIT Kharagpur Research Park New Town, Kolkata	Pre-conference workshops 30 September - 1 October 2026 IIT Kharagpur (Materials Science) Bose Institute, Kolkata (Biosciences)
Scientific breadth Physical, chemical & materials sciences Biological sciences Earth & planetary sciences	Core microscopy TEM / STEM / SEM / EBSD Cryo-EM / tomography Spectroscopy / 4D-STEM / in situ

EMSI-2026 brings together researchers, students, microscopy practitioners, instrument developers and industry professionals for scientific exchange across materials, life sciences and advanced characterization. The programme combines memorial lectures, plenaries, invited and contributory talks, posters, industry sessions, awards and pre-conference training.

EMSI

About the Electron Microscope Society of India

Established in 1961, the Electron Microscope Society of India (EMSI) promotes electron microscopy, allied techniques and their applications in scientific research and technological development in India. The Society also encourages the efficient use of advanced microscopy facilities and seeks to motivate the scientific community, particularly young researchers, to engage with state-of-the-art instrumentation and methodologies.

Over the decades, EMSI has developed into a national platform bringing together researchers, academicians, scientists, engineers, students, microscopy practitioners and industry professionals working across diverse areas of science and technology. Electron microscopy has evolved considerably since the Society was established, expanding from conventional imaging and diffraction to sophisticated analytical, spectroscopic, three-dimensional, in situ, operando and high-resolution techniques. EMSI has continued to provide a forum for interaction and exchange as these developments have shaped modern research.

The Society's activities encompass a broad range of applications of electron microscopy and allied characterization methods. These include materials science and engineering, physical and chemical sciences, biological and life sciences, medicine, nanoscience, energy materials, advanced manufacturing and other emerging areas of research. By bringing together complementary scientific disciplines, EMSI facilitates the exchange of ideas between researchers who develop microscopy methods and those who apply them to address scientific and technological problems.

EMSI mission in practice

Scientific meetings • training and workshops • interdisciplinary exchange • support for young microscopists • dissemination of advances in imaging, diffraction, spectroscopy and allied techniques

EMSI-2026 is the XLIV Annual Meeting of the Society, continuing a national forum in which microscopy is connected to materials design, biology, engineering, instrumentation, data analysis and emerging applications.

EMSI mission in practice

A central feature of EMSI's activities is its emphasis on scientific interaction and capacity building. Conferences, workshops and technical programmes provide opportunities for researchers to present their work, learn emerging methodologies, discuss experimental challenges and establish new collaborations. Training programmes and hands-on activities are particularly important in enabling young researchers to develop practical familiarity with advanced microscopy techniques and analytical workflows.

The Society also provides a platform for interaction between academia, national research laboratories, industrial organizations and instrument manufacturers. Such interaction is increasingly important as modern electron microscopy combines sophisticated electron optics with detectors, spectroscopy, computation, image analysis, simulation and data-driven approaches. The resulting integration of instrumentation, methodology and scientific interpretation is expanding the role of microscopy from structural observation towards quantitative understanding of materials and biological systems.

EMSI's programmes also recognize the importance of scientific excellence and professional contribution. The Society administers recognition programmes including the EMSI Fellowship, Lifetime Achievement Award, Excellence in Microscopy Award and EMSI Distinguished Service Award, acknowledging contributions to the field and encouraging continued engagement with microscopy research.

The Society's national meetings provide an important forum for this continuing exchange. EMSI-2026, the XLIV Annual Meeting of the Society, continues this tradition by bringing together the microscopy community for scientific presentations, plenary and distinguished lectures, technical sessions, workshops, exhibitions and discussions spanning materials, biological sciences, instrumentation, computation and emerging applications.

Through its sustained emphasis on scientific exchange, education, collaboration and the responsible use of advanced instrumentation, EMSI continues to contribute to the growth of electron microscopy and allied techniques in India. Its activities provide a common platform for established experts and the next generation of microscopists, supporting the development of microscopy as an essential tool for scientific discovery and technological innovation.

CONFERENCE OVERVIEW

About EMSI 2026

EMSI-2026 is designed as a broad, cross-disciplinary microscopy meeting with a strong link between method development and scientific application. The programme spans physical, chemical and materials sciences, biological sciences, earth and planetary sciences, and advanced microscopy techniques.

Scientific objectives

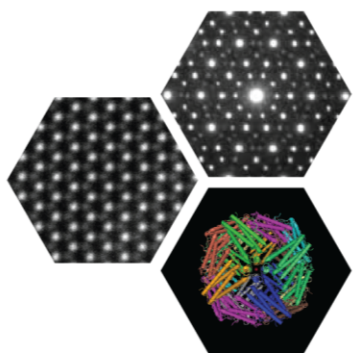
- Bring together the Indian and international microscopy community.
- Connect structure, chemistry and properties across length scales.
- Highlight modern high-resolution, analytical, 3D, multimodal and in situ methods.
- Create interaction between academia, national laboratories, instrument developers and industry.
- Support hands-on learning and professional development of young researchers.

Conference formats

- N. N. Dasgupta Memorial Lecture
- Srikumar Banerjee Memorial Lecture
- Plenary lectures across materials and biology
- Parallel invited and contributory sessions
- Poster sessions and micrograph competition
- Industry plenaries and exhibition
- EMSI awards, student awards and panel discussion

Central idea

Microscopy is presented not only as an imaging tool, but as an experimental platform for linking morphology, structure, defects, interfaces, chemistry and dynamic evolution to scientific and technological function.



EMSI 2026

Oct 2-4, 2026

International Conference on Electron
Microscopy & XLIV Annual Meeting of the
Electron Microscope Society of India



Message from the Patron

It gives me immense pleasure to welcome all participants to the International Conference on Electron Microscopy and the XLIV Annual Meeting of the Electron Microscope Society of India, EMSI-2026, being hosted by IIT Kharagpur from 2–4 October 2026 at the IIT Kharagpur Research Park, New Town, Kolkata.

Electron microscopy has become an indispensable tool for understanding matter across different length scales (micrometer to sub-nanometer). From advanced materials and nanostructures to biological systems, energy technologies, electronics, and manufacturing, microscopy enables researchers to connect structure with properties and performance. The rapid development of high-resolution, in situ, analytical, three-dimensional, and multimodal techniques is opening new possibilities for scientific discovery and technological innovation.

IIT Kharagpur is pleased to host this important meeting in collaboration with the Electron Microscope Society of India and partner institutions. The conference will bring together researchers, students, instrument developers, industry professionals, and practitioners from diverse scientific and engineering disciplines. Such interaction is essential for strengthening interdisciplinary research, encouraging technology development, and building the skills required for India's future scientific and industrial growth.

The programme, covering physical, chemical, materials, biological, earth and planetary sciences, reflects the breadth and continuing relevance of electron microscopy. The pre-conference workshops will further support hands-on learning and the effective use of advanced microscopy techniques, particularly by young researchers.

The hosting of EMSI-2026 also reflects IIT Kharagpur's continuing investment in advanced microscopy. The Institute has recently expanded its electron microscopy infrastructure to include three transmission electron microscopes and multiple scanning electron microscopy and electron backscatter diffraction facilities. This growing capability supports high-resolution imaging and spectroscopy of materials, interfaces, defects, phases, and microstructural evolution, while creating new opportunities for collaborative research, technology development, and hands-on training of young researchers.

I am confident that EMSI-2026 will provide a stimulating forum for scientific exchange, collaboration, and professional development. I extend my warm greetings to all delegates and wish the conference every success.

Suman Chakraborty

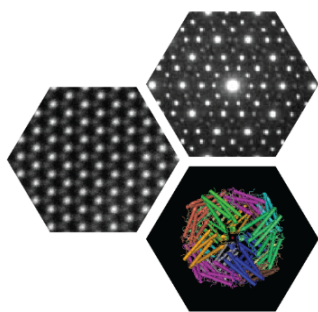
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Director, IIT Kharagpur



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EMSI 2026

Oct 2-4, 2026

International Conference on Electron
Microscopy & XLIV Annual Meeting of the
Electron Microscope Society of India



Message from the Patron

It is my absolute pleasure to welcome the delegates of EMSI-2026, the International Conference on Electron Microscopy and the XLIV Annual Meeting of the Electron Microscope Society of India, to the 'City of Joy'. The conference, to be held from October 2-4, 2026 at the IIT Kharagpur Research Park in New Town, Kolkata, brings together the Indian and international microscopy community to share their recent research on a wide spectrum of advanced materials for diverse applications, including biological materials.

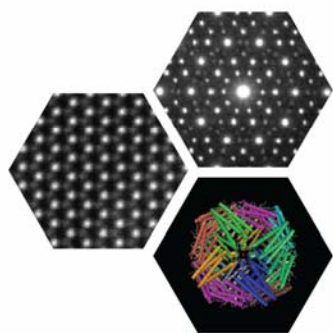
With the carefully designed technical sessions and plenary talks by the leaders in the field, this conference will underscore the significance of the quantitative multiscale microstructure evaluation for the development of new generation of glass, ceramics, metals and alloys, polymers, biomaterials, semiconductors, energy materials, fabricated using conventional and advanced manufacturing routes. While revealing morphology, defects, interfaces, phase constitution, chemical composition, and structural evolution at different length scales, modern microscopy techniques uniquely provide the evidence needed to design and to engineer materials with improved performance. The EMSI-2026 will bring together multiple dimensions of microscopy: instrumentation, imaging, spectroscopy, tomography, diffraction, data interpretation, image simulation and application-driven research.

This conference will also reflect the close association of researchers from CSIR-CGCRI, IIT Kharagpur, Bose Institute and other participating institutions. Established in 1950, CSIR-CGCRI over the years has developed several technologies and created a niche in the areas of structural and functional ceramics, glasses and glass-ceramics and have transferred those to several industries for applications in human healthcare, green energy, strategic sectors (defense, space), water and sustainability. Electron Microscopy has gone beyond a simple fancy imaging technique, it enables materials discovery, process optimization, failure analysis and technology development, thereby synergizing fundamental research into target oriented industrial applications.

I am confident that the conference will encourage new collaborations, strengthen the microscopy ecosystem in India and inspire young researchers to pursue challenging problems at the interface of science, engineering, and technology. I extend my best wishes to all the participants for a highly successful and enriching meeting and I hope the deliberations lead to meaningful outcomes and fruitful collaborations.

Prof. Bikramjit Basu

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EMSI 2026

Oct 2-4, 2026

International Conference on Electron
Microscopy & XLIV Annual Meeting of the
Electron Microscope Society of India



Message from the Convenor

It is my privilege and pleasure to welcome researchers, students, faculty members, scientific professionals, industry representatives, and invited speakers to EMSI-2026, the International Conference on Electron Microscopy and the XLIV Annual Meeting of the Electron Microscope Society of India, being held from 2–4 October 2026 at the IIT Kharagpur Research Park, New Town, Kolkata.

We are delighted by the overwhelming response to EMSI-2026, which has brought together a vibrant and diverse scientific community. The programme features 217 scheduled talks, including 158 invited, 30 contributory, 20 industry, 2 memorial, and 7 plenary talks, across seven parallel sessions covering a wide range of topics in materials and life sciences, advanced microscopy, and related areas. The conference also features nearly 120 posters and around 50 micrographs, providing especially valuable opportunities for young researchers to present and discuss their work.

The pre-conference workshops on “Advanced Electron Microscopy and Allied Techniques in Materials Science” at IIT Kharagpur and “From Grid to Structure – Practical Cryo-TEM in Biology” at the Bose Institute provided focused lectures and hands-on training by reputed academicians and scientists.

We are honoured to have distinguished Plenary and Invited Speakers from India and around the world sharing their expertise and ideas with us. I sincerely thank all our speakers for accepting our invitation and joining us in Kolkata.

I express my sincere appreciation to our sponsors and industry partners for their generous financial and technical support. I encourage all participants to visit the exhibition stalls, interact with our industry partners, and learn about their latest technologies and products.

A conference of this scale would not have been possible without the dedication and hard work of our colleagues, research scholars, staff members, and student volunteers from IIT Kharagpur, CSIR-CGCRI, SINP, CSIR-IICT, J.C. Bose Institute, ICMR-NIRBI, and IISER-Kolkata. I place on record my sincere appreciation for the immense efforts of our core organizing team over the past six months. I also thank the staff of the IIT Kharagpur Research Park for their valuable support.

I hope EMSI-2026 will provide all participants with a stimulating and enriching experience, fostering scientific interaction, learning, collaboration, and discovery.

I look forward to welcoming you all to Kolkata and to sharing three memorable days of microscopy, science, discussion, and discovery.

Best wishes,

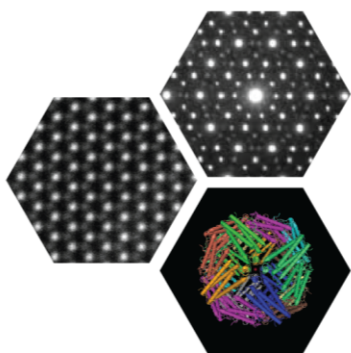
Prof. Tapas Laha
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EMSI 2026

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Electron Microscope Society of India



Message from the Chair

On behalf of the organizing committee, I am delighted to welcome all participants including the esteemed members of the Electron Microscope Society of India (EMSI) as well as the wider microscopy community to EMSI-2026, the International Conference on Electron Microscopy and the XLIV Annual Meeting of EMSI.

The Society has played an important role in promoting electron microscopy and allied techniques in India. Over the years, EMSI has helped create a national platform where scientists, engineers, students, technical professionals, instrument manufacturers, and application specialists can meet, exchange knowledge, and share ideas on the use of advanced microscopy in research and technology.

The 2026 meeting continues this tradition while reflecting the rapid expansion of the field. Electron microscopy now supports research across materials science, physical and chemical sciences, biology, medicine, earth sciences, energy, electronics, and manufacturing. Developments in aberration-corrected imaging, analytical microscopy, in situ studies, cryo-electron microscopy, electron tomography, spectroscopy, diffraction, and data-driven analysis are transforming the way we understand complex material systems and mechanisms.

EMSI-2026 has been designed to encourage both scientific depth and broad participation. The conference will feature plenary and invited lectures, contributory oral presentations, poster sessions, technical interactions, pre-conference workshops, and opportunities to showcase important developments in microscopy instrumentation and applications. Special attention has also been given to young researchers, for whom the EMSI provides an important forum to present their work and build professional networks.

I am confident that this meeting will strengthen the scientific community associated with electron microscopy and foster new collaborations across institutions and disciplines. I invite all participants to engage actively in the pre-conference workshops, technical sessions, discussions and informal interactions that make a society meeting truly valuable.

I extend my best wishes to the organizers, participants, exhibitors, and supporting organizations for a successful EMSI-2026.

Rahul Mitra

Prof. Rahul Mitra



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INSTITUTIONAL PROFILE

Host Institution - IIT Kharagpur

Indian Institute of Technology Kharagpur, formally inaugurated in 1951, was the first Indian Institute of Technology. Its history is closely linked with the Hijli Detention Camp, from which the campus developed into a major institution for higher education, research and technological innovation.

Established 1951 First IIT in India	Research environment Large multidisciplinary academic ecosystem Advanced central research facilities
Microscopy at IIT Kharagpur Recently expanded to three transmission electron microscopes Multiple SEM and EBSD facilities	EMSI-2026 role Host institution Pre-conference materials-science workshop at IIT Kharagpur

The expanded microscopy capability supports high-resolution imaging and spectroscopy of materials, interfaces, defects, phases and microstructural evolution, while creating opportunities for collaborative research, technology development and hands-on training.

Partner Institution - CSIR-CGCRI

CSIR-Central Glass & Ceramic Research Institute

Formally inaugurated in 1950, CSIR-CGCRI is one of the early national laboratories established under the Council of Scientific & Industrial Research and is dedicated to research in glass, ceramics and allied materials.



Research strengths

- Advanced ceramics and composites
- Glass and glass-ceramics
- Biomaterials and medical devices
- Energy materials and devices
- Fibre optics and photonics

Technology & applications

- Structural and functional ceramics
- Green-energy technologies
- Strategic-sector materials
- Water and sustainability
- Multiscale microstructure and mechanics

At EMSI-2026, CSIR-CGCRI contributes to the organizing partnership and to the wider Kolkata microscopy network represented in the committees, sessions and technical programme.

Venue & Host City

Conference venue

IIT Kharagpur Research Park, New Town, Kolkata, West Bengal, India. Conference dates: 2-4 October 2026. Pre-conference registration at the Research Park: 1 October, 3:00-6:00 PM.

New Town provides a modern urban setting with direct access to Kolkata's airport corridor, hotels and business district. The programme uses the Main Auditorium together with parallel-session rooms in Block A and Block C, dedicated poster space and exhibition areas.

Key conference spaces

- Main Auditorium - plenaries, memorial lectures, awards and EMSI AGB meeting
- Room 801, Block A (7th floor)
- Room 802, Block A (7th floor)
- Room 901, Block A (8th floor)
- Room 903, Block A (8th floor)

Biology / poster / hospitality

- Room 503, Block C (4th floor)
- Room 504, Block C (4th floor)
- A-103, Ground floor - poster sessions
- Top-floor cafeteria - selected industry session
- Exhibition and coffee-break areas

The final floor plan and wayfinding map are reserved on page 36 of this draft for insertion after the venue layout is frozen.

EMSI 2026

International Advisory Committee

Kamanio Chattopadhyay India	C. Barry Carter USA
Zheng Ze China	D. Banerjee IISc Bengaluru
G. K. Dey BARC, Mumbai	Paul Voyels University of Wisconsin Madison
Christian Kubel KIT Germany	Jordi Arbiol ICN2, Catalonia, Spain
Arnaud Demortière LRCS - Université de Picardie Jules Verne	Naoya Shibata The University of Tokyo
Dong Su Institute of Physics, Chinese Academy of Sciences	Hyun-Wook Lee UNIST South Korea
Joanne Etheridge Monash University, Australia	

National Advisory Committee

Partha Ghosal DMRL, Hyderabad	Indradev Samajdar IIT Bombay	N. K. Mukhopadhyay IIT BHU
Arup Dasgupta IGCAR, Kalpakkam	S. Sankaran IIT Madras	Sai Rama Krishna Malladi IIT Hyderabad
Sai Madhay M DMRL, Hyderabad	Raghvendra Tewari BARC, Mumbai	N. Ravishankar IISc, Bengaluru
P. V. Satyam IIT Bhubaneswar	Krishanu Biswas IIT Kanpur	Manidipa Banerjee IIT Delhi
Joysurya Basu IIT BHU	Arijit Laik BARC Mumbai	Sandip Bysakh CGCRI Kolkata
Rahul Mitra IIT Kharagpur	Subhash C Yadav AIIMS, New Delhi	Vinothkumar Kutti Ragunath NCBS, Bengaluru
Jai Prakash Gautam University of Hyderabad	Tapas Laha IIT Kharagpur	Chandra Sekhar Tiwary IIT Kharagpur
Satyam Suwas IISc Bangalore	Nithyanand Prabhu IIT Bombay	

Organizing Committee

Patrons Suman Chakraborty - Director, IIT Kharagpur Bikramjit Basu - Director, CSIR-CGCRI	Chair Rahul Mitra
Co-Chair Shiv Brat Singh	Convener Tapas Laha
Co-convenor Sandip Bysakh	Organizing Secretaries Chandra Sekhar Tiwary Ahin Roy
Joint Secretaries Soupitak Pal Tofayel Ahmed	Treasurer Koushik Biswas

The souvenir should use the final approved spelling, title and affiliation for every office bearer before release to print.

Local Organizing & Technical Teams

Local Organizing Committee - IIT Kharagpur

- Siddhartha Das
- Karabi Das
- Saibal Gupta
- Sujoy Ghosh
- Debabrata Pradhan
- Tapas Kumar Bandyopadhyay
- Mangal Roy
- Indrani Sen
- Gobinda Das Adhikary
- Koundinya NTBN
- Siddhartha Roy
- Chetan Singh
- Chaitali Sridhar Patil
- Subhabrata Chakraborty
- Pradeep Guha

Local Organizing Committee - Kolkata

- Mrinal Pal - CSIR-CGCRI
- Allu Amarnath Reddy - CSIR-CGCRI
- Vipin K. Singh - CSIR-CGCRI
- Arun K. Paul - SINP
- Amar Nath Ghosh - NICED
- Dhabaleswar Patra - IICB
- Tanaya Bose - IICB
- Barnali Ghosh - SNBNCBS
- Partha Pratim Datta - IISER Kolkata
- Gyathri N. Banerjee - VECC
- Prasanta Karmakar - VECC
- Achintya Singha - Bose Institute
- Smarajit Polley - Bose Institute
- Radhavallabh Bhar - MAKAUT
- Sayani Das - IEM Salt Lake

Technical Programme Coordinators

- Jyotsna Dutta Majumdar - IIT Kharagpur (Materials Science)
- Sumantra Mandal - IIT Kharagpur (Materials Science)
- Jayati Sengupta - CSIR-IICB (Biological Science)
- Pulak Sengupta - Jadavpur University (Earth Science)
- Biswarup Satpati - SINP (Advanced Techniques in Microscopy)

TURED SPEAKERS I

Distinguished Lectures & Plenaries

Day 1

N. N. Dasgupta Memorial Lecture Joachim Mayer Ernst Ruska-Centre, Forschungszentrum Jülich, Germany Approaching Atomic-Scale Analytical Tomography: Fully Functional Atom Probe in an Aberration Corrected TEM	Srikumar Banerjee Memorial Lecture Brian Cantor University of Oxford; Brunel University London Complexity in Multicomponent High-Entropy Cantor Alloys
Plenary 1 Naoya Shibata University of Tokyo, Japan Ultrahigh Resolution Electromagnetic Field Imaging in Functional Materials	Plenary 2 Laurence D. Marks Northwestern University, USA Follow the Science not the Electron
Plenary 3 [Bio] Kelly K. Lee University of Washington, USA Capturing Complex Biological 3-D Architecture and Transient, Dynamic Events Using Cryo-Electron Tomography	

Day 2

Plenary 4 Utkur Mirsaidov National University of Singapore How do crystals form? A glimpse at nonclassical nucleation with in situ TEM	Plenary 5 [Bio] Tanweer Hussain Indian Institute of Science Evolutionary conserved and plant-specific features of the translational apparatus and its regulation
Plenary 6 Philipp Haslinger TU Wien, Vienna Advancing Electron Microscopy with Entanglement and Spin-Resonance Spectroscopy	Plenary 7 [Bio] Venkata Dandey University of Connecticut, USA Minimizing AWI Artifacts through ~130-ms Blot-to-Plunge Vitrification and Acoustofluidic Cryo-EM Using VitriFlex

Industry plenaries - Day 2

- Tetsuo Oikawa, JEOL Ltd. - Development of Large Convergence-Angle Scanning Transmission Electron Microscope
- Amit Boora, HITACHI - Beyond Conventional SEM: Unlocking Nanoscale Insights with CFE-SEM
- Zino Leijten, Thermo Fisher Scientific - From Structure to Chemistry: Advanced Nanoscale Characterization with the Iliad 300 TEM
- Saleh Gorji, AMETEK - Advanced Analytical Electron Microscopy with the F1-GIF™ System

FROM IMAGING TO MECHANISM

Scientific Themes

Advanced imaging Atomic-resolution TEM/STEM Aberration correction, iDPC and advanced contrast	Spectroscopy & diffraction EELS / EDS / electron diffraction 4D-STEM, ACOM, EBSD and orientation mapping
In situ / operando Liquids, gases, fields and temperature Dynamic phase transformations and functional response	Materials design Alloys, ceramics and functional materials Defects, interfaces, precipitation and phase evolution
Energy & catalysis Catalysts, batteries, perovskites and energy materials Structure-chemistry-performance relationships	Biological microscopy Cryo-EM, cryo-ET and cellular ultrastructure Molecular structure, tomography and workflows
Data & computation Image interpretation, simulation and AI Automation, high-throughput analysis and quantitative microscopy	Earth & emerging materials Geological and planetary materials 2D materials, quantum materials and novel devices

FRIDAY, 2 OCTOBER 2026

Programme at a Glance - Day 1

Time	Programme
8:00-9:00	Registration
9:00-9:30	Inauguration Ceremony
9:30-10:10	N. N. Dasgupta Memorial Lecture - Joachim Mayer
10:10-10:50	Srikumar Banerjee Memorial Lecture - Brian Cantor
10:50-11:25	Plenary 1 - Naoya Shibata
11:25-11:45	Inauguration of Exhibition and Coffee Break
11:45-13:35	Parallel Sessions A-F
13:35-14:30	Lunch Break
14:30-15:05	Plenary 2 - Laurence D. Marks
15:05-15:40	Plenary 3 [Bio] - Kelly K. Lee
15:45-16:15	EMSI Awards
16:15-16:30	Tea Break
16:30-17:30	Poster Session
17:30-18:00	Travel to Fairfield by Marriott, New Town, Kolkata
18:15-19:15	Cultural Programme
19:30 onwards	Gala Dinner

SATURDAY, 3 OCTOBER 2026

Programme at a Glance - Day 2

Time	Programme
9:00-9:35	Plenary 4 - Utkur Mirsaidov
9:35-10:10	Plenary 5 [Bio] - Tanweer Hussain
10:20-10:50	High Tea
10:50-12:30	Parallel Sessions A-G
12:30-13:30	Lunch Break
13:30-13:50	Industry Plenary 1 - Tetsuo Oikawa, JEOL Ltd.
13:50-14:10	Industry Plenary 2 - Amit Boora, HITACHI
14:10-14:30	Industry Plenary 3 - Zino Leijten, Thermo Fisher Scientific
14:30-14:50	Industry Plenary 4 - Saleh Gorji, AMETEK
14:50-16:50	Parallel Sessions A-G
16:50-18:00	Poster Session and High Tea
18:00-18:45	EMSI AGB Meeting
19:15 onwards	JEOL Banquet Dinner at WESTIN, New Town, Kolkata

SUNDAY, 4 OCTOBER 2026

Programme at a Glance - Day 3

Time	Programme
9:00-9:35	Plenary 6 - Philipp Haslinger
9:35-10:10	Plenary 7 [Bio] - Venkata Dandey
10:20-11:00	Panel Discussion on Entrepreneurship in EM: The Indian Take on the Scope and Challenges
11:00-11:20	Coffee Break
11:20-13:20	Parallel Sessions A-G
13:20-14:15	Lunch Break
14:15-16:15	Parallel Sessions A-G
16:15-17:00	Student Awards and Valedictory

Detailed programme

The detailed track-by-track programme remains available in the EMSI-2026 programme booklet and conference website. Use the souvenir for the at-a-glance schedule and conference narrative; keep last-minute programme changes in the digital version.

30 SEPTEMBER - 1 OCTOBER 2026

Pre-Conference Workshops

Two focused workshop programmes precede EMSI-2026, combining expert lectures, demonstrations, facility exposure and hands-on technical exchange in materials-science and biological electron microscopy.

Materials Science - IIT Kharagpur

Advances in (S)TEM

EBSD

Venues: Gargi & Maitrayee Auditoria, Vikramshila

Biosciences - Bose Institute, Kolkata

Cryo-EM single-particle analysis

Cryo-electron tomography, grid preparation and data processing

Hands-on demonstrations with partner facilities

Workshop organizers

IIT Kharagpur workshop

- Sumantra Mandal - Convenor
- Shibayan Roy - Convenor
- Indranath Chakraborty - Co-Convenor

Bose Institute workshop

- Smarajit Polley - Convenor
- Jayati Sengupta - Co-Convenor
- Tofayel Ahmed - Co-Convenor

IIT KHARAGPUR

Workshop - Materials Science

Advances in (S)TEM - featured speakers

- Naoya Shibata - University of Tokyo
- Lewys Jones - Trinity College Dublin
- Syo Matsumura - Kyushu University
- Ali Ahmadian - KIT Germany
- Saleh Gorji - AMETEK
- Philipp Haslinger - TU Wien
- Nithyanand Prabhu - IIT Bombay
- Ahin Roy - IIT Kharagpur

EBSD - featured speakers

- Satyam Suwas - IISc Bangalore
- Indradev Samajdar - IIT Bombay
- V. Subramanya Sarma - IIT Madras
- K. G. Pradeep - IIT Madras
- René de Kloe - AMETEK

The materials workshop combines lectures on advanced STEM imaging, tomography, in situ experiments, diffraction-pattern analysis, EBSD methods and transmission Kikuchi diffraction with facility tours, alignment/basic imaging sessions and live EBSD demonstrations.

BOSE INSTITUTE, KOLKATA

Workshop - Biosciences

The biosciences workshop covers transmission electron microscopy fundamentals, cryo-EM single-particle analysis, MicroED, grid freezing and clipping, automated data collection, CryoSPARC processing, cryo-tomography and subtomogram averaging, cryo-CLEM and cryo-FIB milling.

Featured speakers - Day 1

- Partha Pratim Datta - IISER Kolkata
- Somnath Dutta - IISc
- Saikat Chowdhury - CCMB
- Dhabaleswar Patra - IICB
- Smarajit Polley - Bose Institute
- Sayani Das - IEM Kolkata
- Uddipan Das - AIIMS New Delhi

Featured speakers - Day 2

- Vidya Mangala Prasad - IISc
- Tofayel Ahmed - SINP
- Abhijith Kumar Radhakrishnan - IIT Madras
- Somnath Dutta - IISc
- Arpita Sarbajna - ICMR-NIRBI
- Raju Datla - Gatan Inc.

Hands-on emphasis

The programme includes demonstrations of grid preparation, automated data collection, tomogram reconstruction and data-processing workflows, alongside instrument and facility exposure.

Poster & Micrograph Programme

Poster sessions

- Day 1: 16:30-17:30
- Day 2: 16:50-18:00
- Poster venue: A-103, Ground floor
- Bring a printed A0 poster; on-site poster printing is not available
- Use clear figures, microscopy images, graphs and concise text
- Keep references brief; no more than two are recommended

Micrograph competition

- Physical, Chemical and Metallurgical Sciences
- Biological Sciences
- Open to registered EMSI-2026 participants
- Entries should combine scientific content with strong visual communication
- Final approved entries may be added to the souvenir gallery pages

ABSTRACTS

Physical & Chemical Sciences / Earth & Planetary Sciences

Presenter / Affiliation	Abstract Title
Abdur Rouf Research and Development Centre for Iron & Steel, Steel Authority of India Limited	Characterization of microstructural and fracture behaviour of spinel ceramics through FESEM image analysis
Abhinav Chandraker Indian Institute of Science, Bangalore	Plasticity and damage initiation in Zr-2.5%Nb: Slip trace analysis-based study
Abhishek Kumar Indian Institute of Science	Understanding structural phase transformation in Indium Selenide using operando-electron microscopy with heat as stimuli
Abhishek Kumar Grain IIT Kharagpur	Microstructural Evolution and Property Enhancement of Nanodiamond-Reinforced Ni-Based Nanocomposite Coatings
Aditi Halder Indian Institute Of Technology Mandi	Designing New Materials through Waste Valorization for Sustainable Energy Applications
Ajit Kumar Naik IIT Kharagpur	Effect of gradient composition on the structural, mechanical, thermal and ablation properties of spark plasma sintered ZrB ₂ -B ₄ C-SiC-LaB ₆ functionally graded material designed for ultrahigh temperature lightweight space applications
Ajoy Dinda IIT Kharagpur	Phase-dependent Recyclability of Nanostructured MnO ₂ catalyst towards CO Oxidation
Akankshya Rout IIT Kharagpur	Electrochemical response and passive film characteristics of plasma-sprayed Fe-based metallic glass coatings: Role of process parameters
Ali Ahmadian Karlsruhe Institute of Technology, Institute of Nanotechnology	Advanced Electron Microscopy of Batteries: Linking Defects and Interfaces to Ion Transport, Metal Deposition, and Degradation
Ambuj Mishra IUAC, New Delhi	High-energy electron beam irradiation-induced modifications in few layers WSe ₂
Aniruddha Biswas Bhabha Atomic Research Centre	Exploring the linkage between microstructure and magnetism
Apurba Mahapatra Leibniz Institute for Solid State and Materials Research Dresden (IFW Dresden)	Directly Deposited Self-Powered Near-Infrared Flexible Photodetector from Solution-Processed Ag ₂ S Nanocrystals
Arnab Sarkar National Institute of Technology Rourkela	From bimodal microstructure to enhanced TWIP and TRIP effect: Role of hot rolling temperature in governing the performance of Medium-Manganese Steel
Ashutosh Rath CSIR-IMMT, Bhubaneswar	Two-dimensional (2D) layered Materials for future smart electronic devices.
Ashutosh S. Gandhi Indian Institute of Technology Bombay	Probing the structure and properties of far-from-equilibrium oxide ceramics
Avanish Kumar Singh Indian Institute of Technology Madras, Chennai	Role of Retained Austenite Fraction and Crystallographic Texture in Local Deformation and Damage during Hole Expansion of Medium-Mn Steels
Ayan Bhowmik IIT Delhi	Microscopic modifications in precipitates in a laser shock peened depth of additively manufactured Scalmalloy®
Badri Vishal Indian Institute of Technology (BHU) Varanasi	Unveiling the Growth Mechanism of Graphene Nanowalls by Electron Energy-Loss Spectroscopy
Bethelehem Burju Bukate IIT Kharagpur	Sustainable Additive Fabrication of Recycled Printed Circuit Boards with Improved Mechanical, Electrical and Thermal properties
Bhaskar Majumdar Kalyani Centre for Technology and Innovation, Bharat Forge Limited, Pune	Electron Microscopy in Manufacturing Forged Components: from Steel Making to Finish Product
Bhavyavesh Sahu National Institute of Technology Raipur	Structural, Mechanical and Thermal Properties of polylactic acid/Polycaprolactone blend nanocomposites: Effect of magnesium oxide Nanoparticles
Bibhunanda Mohanty CSIR-IMMT	Diffusion-Controlled Growth of Sn-based sulfide heterostructures for Optoelectronic devices
Binayak Dutta Sri Sathya Sai Institute of Higher Learning	Visualizing the Structure-Property Relationship in Nanoscale LiNbO ₃ Glass-Ceramics for Nonlinear Optics and Integrated Photonic Applications
Biswarup Satpati Saha Institute of Nuclear Physics	Noble Metal-Based Electrocatalysts for Ethanol Oxidation Reaction
Bituraj Gogoi INDIAN INSTITUTE OF SCIENCE	Strain-gradient-driven evolution of polar textures in freestanding membranes
Chanchal Ghosh Indira Gandhi Centre for Atomic Research, Kalpakkam	Origin of Magnetic Textures in (Fe,Cr)2B: Insights from aberration-corrected STEM, Lorentz TEM, and Micromagnetic Simulations
Charu Dadwaria Thapar institute of engineering and technology	Formation of L21-Type Ordered Structure and Magnetic Behavior in Fe ₂ MnVSi

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Chiranjibi Padhee IIT Bhubaneswar	Microscopic Study of Surface Defects on 4H-SiC (0001) Using KOH Etching
Debabrata Pradhan IIT Kharagpur	Nanostructured Materials for Energy Conversion and Storage Applications
Debdipta Banik IIT Kharagpur	Microscopic insight into the corrosion behavior of harmonic-structured CoCrFeMnNi high-entropy alloy in acidic environments
Deodatta Shinde Bhabha Atomic Research Centre, Mumbai	Unveiling Magnetism in Bulk Ductile Permanent Magnets with Atom Probe Tomography: Insights from Fe–Cr–Co Alloys
Dileshwari Sahu IIT Kharagpur	Pt/CoMn ₂ O ₄ Nano-heterostructure Catalyst for CO-oxidation
Dipendu Sarkar CGCRI	CdS Quantum Dot/BiOI Nanosheet Z-Scheme Heterostructures with Defect-Engineered Electron-Phonon Coupling for Enhanced Solar Fuel Generation
Dipika Sarkar IIT Kharagpur	Enhanced mechanical and thermal properties of porous 3D-printed ceramics from granite waste, boehmite and clay
Dr. Abhay Goutam IIT Gandhinagar	Precipitation in Aluminium-Lithium-based ternary alloys
Dr. Abhijit Ghosh IIT Indore	Understanding the Anomalous Creep Behaviour of Alloy 617
Dr. Aloke Kanjilal Shiv Nadar Institution of Eminence	Electron Microscopy in Advanced Materials Research for Frontier Applications
Dr. Anish Karmakar Indian Institute of Technology Roorkee	Microscopy-Based Insights into the Microstructure–Fatigue Relationship in Tempered Cu-Modified Low-Carbon Steel
Dr. Ankur Chauhan Indian Institute of Science, Bengaluru	A strain hardenable BCC+B2 refractory alloy assisted by dislocation-mediated plasticity and twinning in the ZrRu B2 phase
Dr. Ankur Goswami IIT Delhi	Revealing the structural origins of divergent functionalities in VO ₂ thin film through growth-history dependent evolution
Dr. Asgar Yousuf Thapar Institute of Engineering and Technology Patiala Punjab	Synthesis, Exfoliation and Electrochemical Investigation of 2D Al-Co-Cu Quasicrystal Nanosheets for Oxygen Evolution Reaction
Dr. Chandan Srivastava Indian Institute of Science, Bangalore-560012, India	Hydrogen Permeation Resistant Coatings
Dr. Govind CSIR National Physical Laboratory	Unleashing the Potential of Metal Chalcogenides in Next-Generation Optoelectronic and Neuromorphic Devices
Dr. Indranath Chakraborty IIT Kharagpur	Thermally Stable Golden Plasmophores
Dr. Pavan Nukala Indian Institute of Science	Visualization of temperature and field induced phase transitions, piezoelectric effects and earthquakes in 2D ferroelectrics operando using in-situ electron microscopy
Dr. Rajesh Kumar Rai Malaviya National Institute of Technology Jaipur	A Novel γ - γ' High-Entropy Superalloy: Microstructure and Mechanical Properties
Dr. Roopali Shekhawat Indian Institute of Technology-Delhi	From Phase-Change Materials to Atomic-Scale Insights: Applications of Advanced Electron Microscopy
Dr. Roopchand Tandon IIT Gandhinagar	Heterostructure deformation-induced strength-ductility enhancement in the cold-rolled and peak-aged 7075Al alloy
Dr. Suman IIT Kharagpur	Microstructure Evolution and Magnetic Behaviour of Nanocrystalline AlFeCrMn Quaternary Alloy
Eiji Abe The University of Tokyo	Electron microscopy of unique microstructures of high-performance light alloys
Garima Kaura IISc Bangalore	Observation of room-temperature polar monopoles using STEM
Gautam Kumar Dey Formerly Of Bhabha Atomic Research Centre, Mumbai	Structure of Non-crystalline Solids
Hindoli Bose CGCRI	Promising multifunctional coating on low carbon steel based industrial components
Hyobin Yoo Seoul National University	Operando investigation of polar domain dynamics in van der Waals sliding ferroelectrics
Itishree Samantara Indian institute of science Bangalore,(student)	Effect of Mo and Ti on soft magnetic and mechanical properties of FeCoNi medium entropy alloy
Jagannath Barik IIT Bhubaneswar	Shape Dependent Structural and Optical Characterization of CVD Grown Monolayer WS ₂
Jatin Bhatt VNIT Nagpur	Investigation on crystal nucleation in metallic amorphous alloys
Jayeeta Lahiri Banaras Hindu University	Biopolymer based hydrogel for EMI shielding in the THz range

Presenter / Affiliation	Abstract Title
Joerg Jinschek Technical University of Denmark (DTU)	Functional Porous Framework Materials Under the Electron Beam: Imaging, Stability, and Structure-Function Insight
Jong Min Yuk KAIST	Graphene Liquid Cell Electron Microscopy for wet biological specimens
Joysurya Basu IIT BHU	Moiré superlattice formation by natural twistrionics in Ca ₂ MnO ₄ (n=1) Ruddlesden-Popper member
Jyotsna Dutta Majumder IIT Kharagpur	Laser-Assisted Microstructural Modification of Titanium-Based Alloy for Improved Corrosion Performance
Kalyan Indian Institute of Science	Immiscible solute Engineering for Suppressing Discontinuous precipitation and Enabling High-Strength and High-Conductivity Cu alloys
Karam Jeet Pal Indian Institute of Science Bengaluru	A PATHWAY TO SOLVE THE FUNDAMENTAL PROPERTY TRADE-OFF IN SOFT MAGNETIC MATERIALS THROUGH COHERENT NANOPRECIPITATION
Karthick Sundar Indian Institute of Science	Tailoring Segregation Hardening Behaviour in MP35N: Correlative study
Karthik Ponnanda IISc, Bangalore	In-Situ Formation of High-Entropy Alloy Nanoparticles Anchored on High-Entropy Oxide Nanosheets for Oxygen Evolution Reaction
Kingshuk Chakraborty CGCRI	Composition-Driven Structural and Microstructural Evolution of La Sr based High-Entropy Perovskites for Electrocatalytic Applications
Kshitiz Gupta Indian Institute of Science, Bengaluru	Atomistic Observation of Reduction-Dependent Defect Evolution within Sub-stoichiometric WO _{3-x}
Kumar Karuna Nidhi IIT Kharagpur	Optimization of the Strength–Ductility Balance in Ductile Iron through Intercritical Heat Treatment Followed by (a) Quenching and Partitioning and (b) Austempering
Kumari Neha IIT Bhubaneswar	Influence of a Thin Ge Interfacial Layer on the Structural Evolution of Ni Contacts on 4H-SiC (0001)
Laurence Marks Northwestern University	Follow the Science not the Electron
Manashi Sabat IIT Kharagpur	Mechanical response and microstructural evolution of an oxide dispersion strengthened Ni-rich high entropy alloy during high-temperature deformation
Manjot Kaur Indian Institute of Technology Jammu	First Principle Based Method to Understand Crystallographic Ordering in Co-Cu Based Immiscible Alloys: A Bridging Approach with Analytical TEM Investigation.
Manoj Kumar Mallick IIT Kharagpur	Synergistic integration of a high-entropy perovskite air cathode and Al ₂ O ₃ -reinforced gel electrolyte for durable flexible zinc-air batteries
Milan Heczko Institute of Physics of Materials, Czech Academy of Sciences	From Atoms to Alloys: Advancing Materials Science and Alloy Design Through Multi-Scale Scanning Transmission Electron Microscopy
Mohit Tanwani Indian Institute of Science, bengaluru	When topology melts: Electrically and thermally tunable liquid phase of polar skyrmions
Mr. Biswanath Das IIT Bhubaneswar	Atomic-Scale Mapping of Polarization-Driven Charge Confinement at the Ge/4H-SiC Interface by STEM-DPC and iDPC
N.K. Mukhopadhyay IIT (BHU) Varanasi	An insight on the structural characterization and thermal stability of multicomponent γ -brass type phase through mechanical alloying
Nadipudi Jahnvi Lakshmi Sivani Indian Institute of Technology Hyderabad	Understanding magnetoplasmonic effects in alloy thin films and applications
Niraj Mohan Chawake IIT Kanpur	Role of Ti Addition in Screw-Dislocation-Mediated Plasticity of W-Containing Refractory High-Entropy Alloys
Nitesh Kumar IIT Roorkee	Comparative Insights into the Processing, Microstructure, and Corrosion–Mechanical Performance of Al-TiO ₂ Composite Coatings
Omkar Jagadish Sahu IIT Kharagpur	The Kinetics of Martensitic Transformation in the Medium Mn Steel by the Application of Compression Loading
Pabitra Sahu Raja Ramanna Center for Advanced Technology (RRCAT), Indore	Coexistence of Twinning and Long-Range Ordered Oxygen Vacancies in CuO Nanowires
Pinaki Prasad Bhattacharjee Indian Institute of Technology Hyderabad	Critical Role of Electron Microscopy in Advancing Compositionally Complex Intermetallics and Alloys
Piyush Vishwakarma Indian Institute of Science (IISc) Bengaluru	Time-Dependent Electrochemical Degradation and Recovery of Hydrogen-Charged Inconel 600.
Pradyumna Kumar Parida IGCAR, Kalpakkam	Microstructure and microchemical analysis of liquid sodium exposed SS410 steel wire surface
Prem Felix Siril IIT Mandi	Continuous Flow Synthesis – A Strategy to Engineer the Properties of Porous Materials
Prita Pant IIT Bombay	Decoupling the effects of plastic yield and post-yield hardening on strain partitioning in ferrite and austenite phases in medium Mn steel
Priyadarshini Nayak IIT Kharagpur	Influence of Microstructures and Phase Evolution on Small-Scale Deformation and Biocompatibility of NiTi Alloys

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Prof. Narayan Pradhan IIT Kharagpur	Atomic-Resolution Imaging of Beam Sensitive Lead Halide Perovskites
Purnendu Nasker Indian Institute of Technology Roorkee	Microstructure-Dependent Hydrogen Embrittlement Behaviour of Cu-Modified Low-Carbon Steel
R.Mythili Indira Gandhi Centre for Atomic Research, Kalpakkam 603102	Understanding microstructural degradation due to sodium fire exposure of SS316LN
Raashid Firoz IIT Kharagpur	Unveiling Nanoscale Phase Complexity in Titanium Boride Precipitates of Nb-rich γ -TiAl through Atomic-Resolution Microscopy and APT
Raghunath Sahoo Chalmers University of Technology	Probing Edge Structures and Excitons in WS ₂ Nanoribbons through STEM-EELS
Raj Bahadur Singh National Institute of Technology Hamirpur Himachal Pradesh	Microstructural Evolution and High-Temperature Mechanical Response of Inconel 800 Processed by Equal Channel Angular Pressing
Rajarshi Banerjee University of North Texas	Coupling STEM-EDS and Atom Probe Tomography to Decipher Competing Entropy Versus Enthalpy Driven Formation of Intermetallic Phases in High Entropy Alloys
Rajasekar Saravanan CGCRI	Quantitative Microstructural Correlation of Triple-Phase Boundary Characteristics with Electrochemical Performance of CeO ₂ -Modified Ni-YSZ Fuel Electrodes for Solid Oxide Fuel Cells
Ram Sajeevan Maurya Indian Institute of Technology Indore	Developing Eutectic Multiprincipal Element Alloys: Microstructural and Mechanical Properties Characterisation
Rama Srinivas Varanasi IIT Hyderabad	Mitigating hydrogen embrittlement via grain boundary segregation engineering
Raman Singh Monash University	Alloy Microstructure and Protein in Physiological Fluid Collude to Cause Unique and Novel Fracture Features to Magnesium Alloys
Rinku Paul IIT Kharagpur	Layered 2D hBN based Flexible Triboelectric Nanogenerator for Harvesting Biomechanical Energy
S. Sankaran IIT MADRAS	Microstructure Evolution and Formation of Secondary Phases in Alloy 781Plus during Creep - Role of Bimodal γ' Distribution
Sagar Mallick CSIR-IMMT	Interfacial Structure Evolution in Layered MoO ₃ -MoS ₂ Heterostructures toward Efficient Visible-Light Photocatalysis
Saminderpreet Singh IIT Roorkee	Processing–Microstructure–Corrosion Relationship in Cu–TiO ₂ Composite Coatings Deposited by Different Thermal Spray Techniques
Saptarshi Mukherjee Indian Institute of Science, Bangalore	Chemical partitioning, phase formation and strain relaxation in Mg-Al-Ca-Mn-X (X: Ni/Co) alloys
Sarojini Sahu IIT Kharagpur	Process-microstructure-property in LPBF-fabricated AISI 4140 steel: demonstrating inherent compatibility of medium-carbon steels with additive manufacturing
Satyam Suwas Indian Institute of Science	Hierarchical Evolution of Microstructures in Additively Manufactured Titanium and Nickel Base Alloys
Sayali Suhas Dounde Indian Institute of Science (Student)	Design of High-Temperature Strength Aluminum Rare-Earth Eutectic Alloys
Shri. Gokul Krishna Indian Institute of Science	Unveiling the Environmental Instabilities of GeTe: Humidity, Oxidation, and Water-Induced Transformations
Sinorul Haque CGCRI	Probing Reactive Glass-Metal Interaction to Synthesize Multi-Element Gold Nano-Islands by Advanced Electron Microscopy
Souvik Banerjee Indian Association for the Cultivation of Science	Atomic-Resolution Imaging of Octahedral Tilting and Zone-Axis Orientations in Orthorhombic CsPbBr ₃ Nanocrystals
Sree Harsha Nandam Assistant Professor, IIT(BHU)	Influence of structural heterogeneities on mechanical properties of metallic glasses
Sri Harsha Molleti Indian Institute of Technology Hyderabad	Multi length-scale evaluation of magnetoelastic phase transformation in magnetocaloric (Mn,Fe) ₂ (P,Si)-type compounds
Sruti Muralikrishnan Indian Institute of Technology Hyderabad	Understanding process dependent nanoscale heterogeneity in high temperature layered perovskite Nd ₂ Ti ₂ O ₇ thin film
Suchithra Puliyaassery DST NPDF in Nano Science and Technology, CeNSE, IISc	Strain-Mediated Stabilization of Metastable bc(o,t) Lattices in Penta-Twinned Au Bipyramids
Sudakar Chandran IIT Madras	Electron Microscopy Insights into Ion Mixing and Degradation of Halide Perovskites
Sudeepta Mukherjee Indian Institute of Science, Bengaluru	Effect of Fe Substitution on Phase Stability, High-Temperature Strength and Oxidation Behaviour of Low-Density L ₁₂ -Strengthened Ni–Co–Cr–Al–Ti Superalloys
Sudhanshu Shekhar Singh IIT Kanpur	Development and Characterization of Additively Manufactured TiC Reinforced Stellite 6 Metal Matrix Composite Coatings
Sudhansu Maharana IIT Kharagpur	Deciphering the role of stacking fault energy on TWIP–TRIP interplay in Ni-rich high entropy alloy with tailored Ti content
Sudip Kumar Sarkar Bhabha Atomic Research Centre Mumbai	Temporal evolution of nano-scale phases in a thermally aged 17-4PH steel and its correlation with mechanical properties

Presenter / Affiliation	Abstract Title
Sujoy Kumar Kar IIT Kharagpur	Multiscale Perspectives on Deformation and Failure in High-Temperature γ -TiAl Alloys
Suman Sarkar Department of Materials and Metallurgical Engineering, Indian Institute of Technology Jammu, Jammu, India	An Analytical TEM Study to Re-Evaluate the Co-Cu Binary Phase Diagram and Associated Phase Transformation
Sunil Kumar Kashyap IIT Jammu	Oxidation Resistance and Evolution of Multi-layered Oxide Scale During Isothermal and Cyclic Exposure of ZrB ₂ -SiC-LaB ₆ Composites at 1300°C to 1500°C
Suprita Hati CGCRI	Electron Microscopic Insights into Bimetallic Exsolved Co-Fe Nanoparticles for Accelerated RWGS Catalysis
Swadhin Kumar Jena IIT Bhubaneswar	Influence of Post-Deposition Annealing Temperature on the Interfacial and Structural Properties of Al ₂ O ₃ /SiO ₂ /Si Stacks
Swarnabha Mallik CGCRI	Defect-Ordered γ -Fe ₂ O ₃ Activated by Pt Decoration for Ultrahigh-Performance Triethylamine Sensing for Fish Freshness Monitoring
Syo Matsumura Kyushu University	Self-regenerating catalyst through dealloying/alloying of In-Pd-Ru alloy nanoparticles supported on LaFeO ₃ under redox atmospheres
Tanuja Saha Institute of Nuclear Physics, HBNI	Thickness-Dependent Strain and Ligand Effects in Decahedral Au@Pd Core-Shell Nanoparticles for Enhanced Ethanol Electrooxidation
Thomas Lunkenbein University of Bayreuth	Multiscale Operando Electron Microscopy: Watching Catalysts at Work
Tripti Bera CGCRI	Effect of Morphological Variation in Conjugated Polymer-Modified MgFe ₂ O ₄ on Electrochemical Water-Splitting Performance toward HER and OER
Vidushi Gautam Indian Institute of Information Technology Allahabad	Thickness-Dependent Photocurrent Response in Topological Insulator Heterojunctions for Next-Generation Optoelectronic Devices
Vijay K Vasudevan University of North Texas	Advanced Electron Microscopy in the Design of Structural Materials for Extreme Environments
Viswanath Balakrishnan IIT Mandi	Defect Engineering in Functional Oxides and 2D Materials: From Electrical to Photo-Memristive Switching

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Presenter / Affiliation	Abstract Title
Rene De Kloe EDAX-Gatan	Advances in EBSD for geological materials: The impact of spherical indexing and experimental Kikuchi sphere simulation
Rohit Pandey Department of Geology, Institute of Science, Banaras Hindu University	Understanding the Mantle through Electron Microscopy: Textures, Mineral Chemistry and the Evolution of the Subcontinental Lithospheric Mantle

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ABSTRACTS

Advanced Techniques & Their Applications in Electron Microscopy

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Abhilipsa Jena IIT Kharagpur	Vacancy-Rich MoO ₃ -x/ZnIn ₂ S ₄ Heterostructure for Enhanced Photocatalytic H ₂ O ₂ Production
Abhisek Jena IIT Kharagpur	Unveiling the role of identical microstructures in governing both anodic corrosion and hydrogen embrittlement behaviour in low-Mn AHSS
Abhishek Kumar Indian Institute of Technology Kanpur	Nanoscale Heterogeneity and Hierarchical Phase Formation in Non-Equiatomic Co–Cr–Ni alloy
Adarsha Ranjan Mishra IIT Kharagpur	From 2D SEM to 3D X-ray Microscopy: Advanced Microstructural Characterization of Cf–ZrB ₂ –SiC Ultra-High Temperature Ceramic Matrix Composites
Ahin Roy IIT Kharagpur	Atomic-scale Spectrum Imaging for Catalyst Design in Energy Relevant Reactions
Akshay Kumar Chaturvedi IITM	Inter-dendritic liquid film formation in Directionally Solidified IN718 Alloy Manufactured by Laser Powder Bed Fusion
Aman Jyoti Shukla IIT Kharagpur	Unraveling Twinning-Mediated Deformation in Mg–Zn–Ca Alloy under Uniaxial Compression
Amir Hasan IIT Kharagpur	The enhanced γ' - γ'' precipitation in nickel-based superalloy with Si additions
Amit Kumar HBNI, IGCAR	Microstructural Investigation of Dispersoids in Model Fe ₂ Ta-added Intermetallic Dispersion-Strengthened (IDS) Steel
Anil Kumar Visvesvaraya National Institute of Technology, Nagpur	Unraveling Multiscale Heterogeneity in Fe-Based Amorphous/Nanocrystalline Coatings by SEM, TEM and SAED: Correlation with Mechanical and Corrosion Behaviour
Anindita Sarkar IIT Kharagpur	Engineering inter-phase interface of WO ₃ for Hydrogen Evolution Reaction
Anmol Bakshi IIT Kharagpur	Linking grain-scale deformation to microstructure-sensitive cleavage failure in polycrystalline ferritic steel using DIC and crystal plasticity simulations
Anyesha Chakraborty IIT Kharagpur	Deciphering the Biointerface Between Two-dimensional Aluminium Quasicrystals and Norepinephrine for Ultrasensitive Neurotransmitter Detection
Arun Kumar CSIR-NML, JAMSHEDPUR	Effect of Silicon Content, Temperature, and Crystallographic Loading Direction on Deformation and Defect Evolution in Fe-Si Alloys for Electrical Steels: An Atomistic Study
Arup Dasgupta Physical Metallurgy Division, Indira Gandhi Centre for Atomic Research	Understanding apparent anomalies iDPC-STEM Z Contrast in (Fe,Cr) ₂ B
Arup Ghoshal IIT Kharagpur	Compositional Spectrum Imaging of Oxides at Atomic-resolution using Energy-dispersive X-ray Spectroscopy
Ashutosh Vishwakarma IIT Indore	Influence of room and cryogenic temperature rolling on Texture evolution, DRX mechanism and Mechanical properties in Mg–0.4at.%Bi Alloy
Avanish Kumar Chandan CSIR-National Metallurgical Laboratory	Breakdown of stacking fault energy-deformation behavior relationship in multi-principal element alloys during severe plastic deformation
Avnish Singh Pal International Iberian Nanotechnology Laboratory, Portugal	Unraveling Microstructural Evolution of well-organised microstructures through advanced S/TEM techniques
Barkha Awasthi IIT Hyderabad	Inorganic Nanoparticle-Based Nano-medicines: High-Resolution Morphological Characterization Challenges and Future Perspectives
Bhagyashree Chalke Tata Institute Of Fundamental Research	Characterization and Applications of Epitaxial and Multilayer Graphene Grown by Rapid Thermal Chemical Vapor Deposition for Remote Epitaxy and Liquid-Cell Applications
Bibhu Prasad Sahu IIsc Bangalore	Revealing Localized and Metastable Phase Transformations through High-Resolution STEM
Bidipta Dam IIT Kharagpur	Microstructural Evolution in Dissimilar Multi-layer Laser Surface Cladding of Cr-rich Fe-based Alloy on Al 1100
Bidyapati Mishra Defence Metallurgical Research Laboratory, Hyderabad	Microstructure investigation to assess exceptional strain hardening in austenite based low density steel
Biplob Kumar Nandy MRC Laboratory of Molecular Biology, Cambridge, United Kingdom	Microsecond time-resolved cryoEM using 3 μ m pulsed laser revitrification in liquid ethane.
Brian Cantor Department of Materials, University of Oxford; and Brunel Centre for Advanced Solidification Technology, Brunel University London	Complexity in Multicomponent High-Entropy Cantor Alloys

Presenter / Affiliation	Abstract Title
Bushra Munir IIT Jammu	Mimicking Tetrataenite in Fe-Ni System: A Rare Earth Free Hard Cosmic Magnet
Chandan Mondal Defence Metallurgical Research Laboratory	Microstructural Attributes of Crept Nb- and Ta-rich Gamma-TiAl Alloys by Automated Crystal Orientation Mapping (ACOM) and Electron Back Scatter Diffraction: Contribution of Ti ₄ Al ₃ Ta (tau) intermetallic phase
Christian Liebscher Ruhr University Bochum	Direct Observation of Phase Transformations across Interfaces and Quantum Materials by Atomic-Scale and In Situ Electron Microscopy
Debasis Chaira Dept. of Metallurgical and Materials Engineering, NIT Rourkela, Odisha	Effect of metallic and ceramic addition into W-Ni-Fe and W-Ni-Co alloys on microstructure, densification and mechanical properties of tungsten heavy alloys fabricated by conventional powder metallurgy
Debjani Niyogi CGCRI	On the Low Temperature Metastability of Tetragonal Phase and Dual Phase Microstructure Driven Flexibility of Zirconia (ZrO ₂) Nanofiber
Devinder Singh University of Delhi	Quasicrystal approximants solved by Rotation Electron Diffraction (RED)
Dr. Abhisek Brata Ghosh Hari Shankar Singhania Elastomer and Tyre Research Institute (HASETRI)	Visualizing Preferential Filler Dispersion in Rubber Blend: An Insight through Electron Microscopy
Dr. Ankush Arun Kashiwar National Institute of Technology Rourkela	Grain Rotation and Grain Boundary-Mediated Plasticity in Nanostructured Metallic Thin Films: Insights from In Situ Transmission Electron Microscopy and Lab-on-Chip Nanomechanics
Dr. Diya Mukherjee Indian Institute of Technology, Hyderabad	Deformation Behaviour and Microstructural Evolution of a Novel P/M Ni-Based Superalloy using in-situ SEM tensile testing and X-ray microscopy
Dr. E. Hemaprabha Indian Institute of Technology Madras	'Seeing' What Is 'Missing': Exploring How Vacancies and Pores Govern Material Function through Advanced TEM Modes
Dr. Indrani Sen IIT Kharagpur	Correlating Microstructure with Service Condition Mechanical Performance of TiAl Intermetallic Alloy
Dr. Jhilmil Swapnalini Indira Gandhi Centre for Atomic Research (IGCAR)	Electron Microscopy Investigation of High-Temperature Ballooning and Rupture of D9 Clad tube
Dr. Piyush Kumar INDIAN INSTITUTE OF TECHNOLOGY KANPUR	Integrated Computational Design and High-Temperature Deformation of Lightweight γ/γ' High-Temperature Superalloys
Dr. Shibayan Roy IIT Kharagpur	Solute partitioning at α/β interface of titanium alloys
Dr. Sumantra Mandal IIT Kharagpur	Microscopy-Assisted Deciphering of Deformation and Damage in Thermomechanically Fatigued DS CM247LC
Fatema Hani A. Ali EXPRESSMED Diagnostics and Research	Effect of Annealing Temperature on the Structural, Morphological, and Antibacterial Properties of CuNiFe ₂ O ₄ and ZnMgFe ₂ O ₄ Spinel Ferrite Nanoparticles Synthesized by the Sol–Gel Method
Gaurav Rayal Shell India Markets Pvt. Ltd.	eDF: A New STEM Modality for Enhanced Phase Contrast and Particle Segmentation
Golu Gehlot IISc Bangalore	Tailoring Strength–Ductility Balance in a Cast Al–Mg–Mn–Sc–Zr Alloy through Multi-Route Rolling
Harsh Jain IIT Bhilai	Spark Plasma Sintered Fe-Enriched HEAs by Ni/Cr Variation: Balancing Strength, Wear, and Biocompatibility for Bioimplant Applications
Heena Khanchandani Indian Institute of Technology Kanpur	Atomic scale investigation of hydrogen embrittlement in metallic materials
Indradev Samajdar IIT Bombay	Multi-Scale Characterization of Deformation and Localized Damage in Hexagonal Titanium
Jaiprakash Gautam University of Hyderabad	Correlative Microscopy of Annealing-Induced Substructure and Local Mechanical Properties in C–Mn Automotive Sheet Steels
Joachim Mayer Ernst Ruska-Centre, Forschungszentrum Jülich, Germany	Approaching Atomic-Scale Analytical Tomography: Fully Functional Atom Probe in an Aberration Corrected TEM
Jonathan Peters Trinity College Dublin	Retrofittable STEM enhancements for faster scanning and individual electron sensitive detection
Kallol Mondal IIT Kanpur	Simple optical microscopic method for the determination of wear volume
Kaushal Saurabh Shridhar Indira Gandhi Centre for Atomic Research	Atomic-scale study of the γ - γ' coherent interface in nickel-based superalloy using Quantitative HRTEM
Kishan Bharti Indian Institute of Technology Jodhpur	Heterogeneous austenite stability activating the sequential SAMT and SIMT enabling an exceptional strength–ductility combination in Medium-Mn Steel
Kishore Sakthivel Student-Research Scholar	Thermal Stability of Retained Austenite Morphologies Observed Through In-Situ High Temperature HR-TEM
Krishanu Biswas IIT Kanpur	Application of AI in Analyses of Electron Microscopic Images
Kunal Debnath IIT Kharagpur	Thermal-Displacement-Mediated Reversal of Atomic-Number Contrast in CdFe ₂ O ₄ by HAADF-STEM

Presenter / Affiliation	Abstract Title
Kunwar Pratap Singh Yadav IIT Kanpur	Microstructure and Mechanical Property Correlation in High-Entropy Dual-Phase (Ti,Zr,Ta,Hf) Boride-Carbide-Based Ultra High Temperature Ceramic
Lewys Jones Trinity College Dublin	Centimeter-scale TEM: extreme parallelization, automation and imaging for volumeEM and beyond
Mahtab Alam IIT Kharagpur	Pseudo-Orientation Characterization for Titanium Alloys using Differential Interference Contrast (DIC) Assisted Polarized Light Microscopy (PLM)
Mayank Mishra IIT Indore	Progressive Evolution of Deformation Twinning and Texture in a Cryogenically Soaked Mg-Sn-Al Alloy: A Combined Quasi-in-situ EBSD and VPSC Modelling
Megha Chacko Kachappilly TRINITY COLLEGE DUBLIN	A NEW LOW-COST HIGH-SPEED ELECTRON DETECTOR FOR 4D STEM MEASUREMENTS
Mishel Rajesh Sherly ICMN, CNRS, UMR7374, 1 av. de la Recherche Scientifique, 45071 Orléans Cedex 2, France	Electron-Driven Growth of Freestanding MnO Nanometallene Oxides Confined Within Graphene Pores
Mitsutaka Haruta Kyoto University	Atomic-Resolution Near-Edge EELS Imaging Beyond the Conventional Delocalization Limit Using Momentum-Selective Detection
Mr. Keisuke Okayama JEOL	Development of Large Convergence-Angle Scanning Transmission Electron Microscope
Mr. Muruganantham R IIT MADRAS	Unravelling the Evolution of NiAl-type B2 Nanoprecipitates in High-Ni alloyed FeMnAlNiC UltraHigh Specific-Strength Steels using 3D Atom Probe Tomography
Nairik Kumar Roy Choudhury Saha Institute of Nuclear Physics, HBNI	Probing Dirac Electrons on the surface of Bismuth Telluride Nanoplates
Naoya Shibata The University of Tokyo	Ultrahigh Resolution Electromagnetic Field Imaging in Functional Materials
Navanit Kumar IIT Kharagpur	Influence of Relative Content of Ni and Mn on Microstructure-Property Correlation in Medium-Mn Steel
Nidhi Shukla iit jammu	Probing the Phase Transformation Sequence in Co-Cu Based Immiscible Alloy System: A TEM Study
Nithin B IIT Bhilai	Revisiting Discontinuous Precipitation in Alloys: A Multi-Scale Microscopy Study
Om Puri Gosain IIT Kharagpur	Linking Multiscale Electron Microscopy with Thermodynamic Modelling to Understand the Origin of the As-Cast Microstructure of the Nickel-Based Superalloy BZL-12Y
P.Dhanalakshmi Indian Institute of Science	Role of micro-twins on the domain structure of magnetic materials
Partha Ghoshal DMRL	Advanced Microscopy using Electrons, X-rays, Ions and Laser
Partha Pratim Das NanoMEGAS SRL	Revealing Nanoscale Structural Variations in Amorphous Materials Using ePDF Mapping of 4D-STEM Data
Parvej Raut Indian Institute of Technology Bombay	Biaxial Yield Behaviour of AA2219 Aluminium Alloy in Solutionized and Aged Condition
Prasadinee Maharana IISc, Bangalore	Deformation mechanism of crept additively manufactured Ti-6242 alloy
Philipp Haslinger Technische Universität Wien - Atominstitut - USTEM	Advancing Electron Microscopy with Entanglement and Spin-Resonance Spectroscopy
Prafull Pandey IIT gandhinagar	Less is More: Role of boron (B) on designing of low mass density CoNiCr-based multicomponent alloy with superior mechanical properties
Prikshat Dadhwal Hummingbird Scientific	Multi-modal in-situ gas cell electron microscopy and spectroscopy at pressures above 10 bar
Prof. Kamanio Chattopadhyay National Science Chair, Department of Materials Engineering, Indian Institute of Science, Bangalore 560 012	Transformation within Eutectics: An area less explored
Prosenjit Das Indian Institute of Science	Effect of Processing, Alloying Additions, and Heat Treatment on the Microstructural Evolution and Mechanical Properties of a Novel In-Situ Al–15Mg2Si–4.5Si Composite
Ps Manoranjan Jena Indian institute of science	Nanoscale L21 Interfacial Phase at BCC A2/C14 Laves Interfaces in a Multiphase Refractory Compositionally Complex Alloy
Raghvendra Tewari BARC, DAE	Formation and Transformation Mechanisms of Niobium Carbides in BCC (Nb-1Zr-0.1C) and FCC (20Cr25NiNb austenitic stainless steel) matrix
Rajagopal A LABINDIA INSTRUMENTS PRIVATE LIMITED	Diffraction in the FIB-SEM: In-Situ 4D-STEM for TEM Lamella Quality Control and Ar? Broad-Beam Removal of Ga?-Affected Layers
Rajani Jaiswal IIT Kharagpur	Effect of pearlite alignment on hydrogen embrittlement
Rajdeep Sarkar DMRL, Hyderabad	Application of Election Microscopy for Characterization of a W-Ni-Co Alloy
Rajib Sahu Saha Institute of Nuclear Physics	Investigation of shock-induced Diamond to Graphite transformation by aberration corrected STEM and 4D-STEM

Presenter / Affiliation	Abstract Title
Rajneesh Yadav IIT Jodhpur	Effect of twin-related coincident site lattice boundaries on the high-temperature tensile performance of 316L stainless steel under different strain rates
Rajnikant Patel IIT Bhilai	Electron Microscopy-Guided Microstructural Engineering of WAAMFabricated 316L Austenitic Stainless Steel
Ramesh Shilavant Hari Shankar Singhania Elastomer and Tyre Research Institute (HASETRI)	Application of Microscopic Techniques in Tyre Forensic Analysis
Ravi Sankar Kottada IIT Madras	Decoding the influence of segregation on the anisotropic creep behaviour of additively manufactured Ni-base superalloys
Rishabh Dwivedi PhD scholar	Designing a Zr-Modified Al-Co Hypoeutectic Alloy with Enhanced Thermal Stability and High Temperature Strength
Sai Rama Krishna Malladi IIT Hyderabad	In-situ TEM Studies to Visualise Nanoscale Processes in Liquids
Saleh Gorji Gatan/Ametek	Inspiring a New Era of Materials Research Without Compromise: Advanced Analytical Electron Microscopy with the F1-GIF™ System
Sandhya Susarla Arizona State University	Watching Quasiparticles by Electron Microscopy
Sanjib Mondal CGCRI	Role of in-situ TiB Network in Microstructural Evolution and Mechanical Performance of Ti-6Al-4V/hBN composites
Sankalp Biswal IIT Kharagpur	Decoding Ageing in W-Containing Maraging Steel: From Elemental Partitioning to Precipitate Evolution and Strengthening
Saurabh Suman IIT Bombay	Effect of Multiaxial Deformation on Microstructure and Precipitate Evolution in IN718 Alloy
Shankamitra T P Indian Institute of Technology - Madras (IIT-M)	Spatially decoupling oxygen vacancies and porosity in electroactive CuO nanostructures: STEM-EELS-EDS studies.
Shashidhar Gangavarapu Indian Institute of Science Bengaluru	Imaging hydrogen to understand exact role of it in embrittlement of CMSX 4
Shibabrata Basak IET-1, Forschungszentrum Jülich GmbH, Jülich, Germany	From Fundamental Mechanisms to Device Performance: Cross-Scale Electron Microscopy in Energy Research
Shubham Sisodia IISc Bangalore	Superior fatigue response of CoCrNi-based multi-principal element alloy with Mo addition
Sourav Maity HBNI, BARC	Structural Insights into the Partitioning and Clustering of Rare-Earth Cations in peralkaline Borosilicate glass for nuclear waste vitrification
Sreedhara M B IISc Bangalore	Atomic-Scale Imaging and Chemical Mapping of Complex Misfit Nanotubes
Subramanya Sarma V IIT Madras	Critical Comparison of Hough, Spherical, and NPAR Indexing Analysis of Misorientation Metrics in a Medium Mn Steel
Sumit Katiyar Indian Institute of Technology Madras	Unravelling the Influence of Heat Treatment on Microstructure Evolution and Mechanical Performance of Additively Manufactured H13 Tool Steel
Supriya Kalindi NIT JSR	Effect of pre-straining sequence on the ageing kinetics, hardness, and corrosion behaviour of Al6101 alloy
Suraj Shukla PhD	Tailoring the Microstructure and Mechanical Properties of Disintegrate Melt Deposition Processed Mg-10Y Alloy Through Cryogenic Treatment
Surendra Kumar Indian Institute of Science	Evaluation of the phases in oxide layer to understand H diffusion pathways into Zr-Nb alloy
Suresh Neelakantan Indian Institute of Technology Delhi	Microstructure – Mechanical Property Correlation Studies of Additively Manufactured NiTi Shape Memory Alloys
Susanta Manna Indian Institute of Science	Probing Structural Chirality in Misfit Layered Compounds Nanotubes by Electron Diffraction Study
Tukai Singha National University of Singapore	In Situ Structural Dynamics of Intermetallic Nanoparticles Under Electrocatalytic Conditions
Tushar Rai IIT Madras	Combined EBSD-STEM-TKD-APT study of microstructure and phase evolution in Si-alloyed Fe-Mn-Al-Ni-C light weight steel
Utkur Mirsaidov National University of Singapore	How do crystals form? A glimpse at nonclassical nucleation with in situ TEM
Vinit Kumar Singh IIT Kharagpur	Failure Analysis of Al-Containing Ferritic Low-Density Steel under Low-Cycle Fatigue Loading
Vishaal Harikrishna Kumar Indian Institute of Technology Madras	Correlative Electron-Microscopic Characterisation of a Novel High-Carbon Tool Steel Processed by Laser Powder Bed Fusion
Vivek Kumar Singh IIT Kanpur	In-Situ Characterisation of High Manganese Steel
Vivekanand Jakhar Materials Engineering	Fine Tuning the Magnetic Domain Switching Capabilities via Microstructural Engineering: An Investigation Using Lorentz Microscopy

Presenter / Affiliation	Abstract Title
Voona Srikanth Bhabha Atomic Research Centre, Homi Bhabha National Institute	Multicomponent Interdiffusion Behavior of the Ni-Cr-Mo System at Elevated Temperatures
Yagnesh Shadangi Indian Institute of Technology Bhilai	Structural Characterization and Interfaces of Al-Cu-Fe Quasicrystals Reinforced Al Matrix Nanocomposites
Yagnesh Shadangi Assistant Professor	Structural Characterisation of Al-QC Nanocomposite by Mechanical Milling and High-Pressure SPS

End of Advanced Techniques & Their Applications in Electron Microscopy

ABSTRACTS

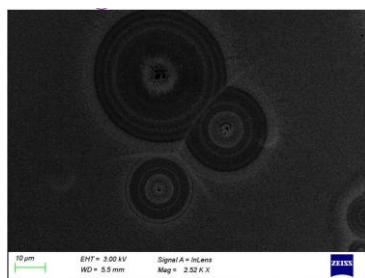
Biological Sciences

Presenter / Affiliation	Abstract Title
Abhijith Kumar R. P. S. IIT Madras	Unveiling the molecular landscape of synaptic transmission through cryo-electron tomography
Adarsh Singh Indian Institute of Technology Bombay	Structural study of Mycobacteriophage infection mechanism: Implication for development of phage therapy
Aekagra Singh AIIMS, New Delhi	Cryo-EM structure of Mycobacterial tuberculosis Pyruvate Carboxylase
Amit Kumar Baidya Indian Institute of Science	Regulation of bacterial nanotube mediated intercellular interaction
Anurag Bahadur Centre for Cellular & Molecular Biology, Hyderabad	Mechanistic and functional characterization of fatty acyl-AMP ligase-like domain containing proteins across life forms
Anuska Das IIT Kharagpur	Structural and Biochemical characterization of a novel methylation sensitive Cas9
Avisekh Pal Indian Institute of Science, Bangalore	Probing Molecular and Cellular Translocation Dynamics using Plasmonic Nanopore and Micropore Platforms
Ayushi Saini IIT Kharagpur	Structural basis of Ku-mediated DNA synapsis and repair in Mycobacterium tuberculosis
Bhaskar Bhattacharyya CSIR IICB	Novel Oligomeric Assemblies of YsaN: Cryo-EM Structural Insights into the Type III Secretion ATPase
Clayton Fernando Rencilin Indian Institute of Science	Capturing the Dynamic Substrate Extrusion Mechanism of the MdtF Efflux Pump
Debasish Das TAKI GOVT. COLLEGE, TAKI, NORTH 24 PARAGANAS, WB	Skin surface specializations in the suckermouth armoured catfish, <i>Pterygoplichthys disjunctivus</i> (Weber, 1991) (Teleostei: Siluriformes: Loricariidae)
Dileep Vasudevan BRIC-Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram	High-resolution cryo-EM structure of a 55 kDa nucleoplasmin domain
Dilip Kumar Ashoka University	Prolyl Hydroxylases: Decoding an Intriguing PTM Machinery for Therapeutic Interventions
Dipanjana Bandyopadhyay Molecular Biophysics Unit, IISc	Glial isoform of GABA transporter (GAT3): Architecture, mechanism and binder design
Dipanwita Mandal IISc Bangalore	Understanding the role of EspB in promoting Mitochondrial membrane damage
Dr Celin Acharya Bhabha Atomic Research Centre, Mumbai	Ultrastructural Insights into Distinctive Microbial Interactions with Uranium
Dr. Angshuman Ray Chowdhuri National Centre for Biological Sciences	Electron Microscopy Facility: Advancing High-Resolution Imaging for Biomedical Research
Dr. Awadh Bihari Yadav Allahabad University	Deciphering Ultrastructural Biofilm Disruption by Peptide Nanotherapeutics: Electron Microscopy of <i>S. aureus</i> and <i>P. aeruginosa</i>
Dr. Baig Mirza Saleem ExpressMed Laboratories, Bahrain	The Invisible Truth: Four Decades of Electron Microscopy in Diagnostic Pathology
Dr. Dhableswar Patra CSIR-IICB	Structural characterization of oligomeric YsaN ATPase assemblies in the <i>Yersinia enterocolitica</i> T3SS
Dr. Kiran Lata Indian Institute of Science, Bangalore	Epitope Mapping of a Pan-Flavivirus Neutralizing Antibody by Cryo-Electron Microscopy
Dr. Payel Mondal IIT Kharagpur	Understanding the World of Bacteriophages Through the Lens of Electron Microscopy
Dr. Puja Majumder IIT Kharagpur	A lipid fenestration-gated membrane depolarization mechanism expands the repertoire of CRISPR-mediated anti-phage defence strategies
Dr. Saikat Chowdhury CSIR-Centre for Cellular and Molecular Biology (CSIR-CCMB)	Cryo-EM reveals the states of a molecular switch that regulates endosomal actin nucleation
Dr. Sandip Lxman Kaledhonkar Department of Biosciences and Bioengineering, Indian Institute of Technology Bombay, Mumbai 400076	Cryo-electron microscopy reveals potential mechanisms of translation reinitiation by the <i>Plasmodium falciparum</i> translation-enhancing factor Ilamathy Pandiarajan, Virajith Boddapati, Swati Patankar, Sandip Kaledhonkar
Dr. Sourav Ghosh INTER-UNIVERSITY ACCELERATOR CENTRE	Morphological Characterization of Green-Synthesized Glucose-Capped Silver Nanoparticles by Electron Microscopy with Evaluation of Their Anticancer Activity
Dr. Tanaya Bose CSIR-Indian Institute of Chemical Biology	The Protoribosome: Structural Insights into an Ancestral Peptide Bond-Forming RNA Machine
Dr. Tanweer Hussain Indian Institute of Science	Evolutionary conserved and plant-specific features of the translational apparatus and its regulation

Presenter / Affiliation	Abstract Title
Gouri K Huchhannavar CSIR National Chemical Laboratory	Structural and Mechanistic Insights into Neu5Ac Transport by the SiaP-SiaQM TRAP Transporter in <i>Fusobacterium nucleatum</i>
Gudimetla Seetha Rama Sastry CSIR National Chemical Laboratory	Structural Characterization and Catalytic Architecture of the Fused TPS–TPP Enzyme in <i>Helicoverpa armigera</i>
Gustavo Santos JEOL	Strengthening cryo-EM research with enhanced hardware and optimized workflows
Kelly K. Lee University of Washington, Seattle, WA, USA	Capturing complex biological 3-D architecture and transient, dynamic events using cryo-electron tomography
Khushboo Kushwaha CMP Degree College University of Allahabad	Isolation and Identification of Floriculture Soil Fungi, Followed by the Green Synthesis and Characterization of Bio Nanoparticles.
Manidipa Banerjee Indian Institute of Technology Delhi	The role of viroporins in enveloped virus propagation
Md Khabeer Azhar IIIT Delhi	Computational Dissection of Entropic Landscapes in Chaperone-Mediated Protein Folding: Roles of Electrostatics and Water Dynamics
Mitali Mishra IIT Kharagpur	Revisiting Traditional Mineral Processing of Seashells: Microscopic Investigation of Bioactive Powder Synthesis
Mousumi Poddar Sarkar Department of Life Sciences, Presidency University, Kolkata 700073	How the SEM images Tell the story of “Romance” in Big cats?
Mr. Surajit Gandhi Institute of Life Sciences	Structural characterization of <i>Entamoeba histolytica</i> nucleosome core particles
Ms. Antara Saha SAHA INSTITUTE OF NUCLEAR PHYSICS	Structural Characterization of a Plant Cytosolic Ribosome by Cryo-Electron Microscopy
Peijun Zhang University of Oxford	In Situ Chromatin Dynamics, HIV-1 Nuclear Transport, and Pol II Mechanism
Poonam Nagar International Centre for Genetic Engineering and Biotechnology	<i>Plasmodium falciparum</i> cysteine protease Falcipain 3: A potential enzyme for proteolytic processing of histone acetyltransferase PfGCN5
Poushali Mitra IIT Roorkee	Telokin-Dependent Regulation of Myosin Filaments by Transmission Electron Microscopy
Prem Singh Kaushal Regional Centre for Biotechnology, Faridabad	Understanding the role of EngA in 50S ribosome assembly
Prof. Amit Kumar Das IIT Kharagpur	Structural Landscapes of <i>Mycobacterium tuberculosis</i> Machineries, NHEJ and BVMO, Revealed by Cryo-EM
Ram Prakash SRM Institute of Science and Technology	Targeting the Aggregation-Prone Residues in Amyloidogenic Proteins Using Piperine-Functionalized Gold Nanoparticles
Rohit Sen IISER BERHAMPUR	Deciphering the Structural Organization and Functional Regulation of the Afc3, a Multimodular GH95 α -L-fucosidase from <i>Clostridium perfringens</i> .
Sachin Kumar IIT Kharagpur	Unveiling the Architecture of Natural and Bioengineered TPS–TPP Fusions: Implications for Industrial Trehalose Biosynthesis
Saeedur Rahman Indian Institute of Technology Bombay	Cryo-EM Reveals a Transient Helix 44 Conformation during 30S Ribosome Recognition by EfmM
Samrah Zaki Ansari IISER, Pune	Cryo-EM structure of the ATP-Dependent Type IV Restriction Nuclease SauUSI
Saurabh Chakraborti BIDHANNAGAR COLLEGE, KOLKATA	Skin surface specializations in the suckermouth armoured catfish, <i>Pterygoplichthys disjunctivus</i> (Weber, 1991) (Teleostei: Siluriformes: Loricariidae)
Shyamalendu Medda Associate Professor, Anatomy, IPGME&R, Kolkata, West Bengal, India	Exploring the role of tungsten-source STEM in SEM in the diagnosis of restrictive cardiomyopathy
Somnath Dutta IISc Bangalore	Comparative Structural Analysis of <i>Mycobacterial</i> and Human Cystathionine β -Synthases for Structure-Guided Inhibitor Design
Soumen Ta Regional Centre For Biotechnology	Understanding the molecular mechanism of ribosome hibernation in cellular stresses.
Soumya Sarathi Ganguly IIT Kharagpur	First Cryo-EM structure of the <i>Mycobacterial</i> Baeyer–Villiger monooxygenase, EthA at 2.8 Å resolution
Subhajit Mahanty Molecular Biophysics Unit, Indian Institute of Science	Cryo-EM Studies of the <i>Clostridium perfringens</i> Epsilon Pore Forming Toxin
Subhash Chandra Yadav AIIMS, New Delhi	Plasma FIB-SEM 3D topography of HPV virion based targeted cisplatin delivery vehicle in advance stage cervical cancer patients
Suman Tapryal University of Delhi, South Campus	A Human Herpesvirus-7 Peptide Exhibiting Anti-Amyloid-Aggregation Potential
T.C. Nag Retired Professor	Oxidative damage of organelles as a sign of cellular stress and death: a case study with aging human retina
Uddipan Das All India Institute of Medical Sciences, New Delhi	Cryo-EM structures of <i>Mycobacterium tuberculosis</i> pyruvate carboxylase reveal acetyl-CoA-mediated tetramer stabilization and carrier-domain coordination

Presenter / Affiliation	Abstract Title
Victor Vasanth Singh Indian Institute of Science <i>End of Biological Sciences</i>	Electron Microscopy-Based Characterization of Morphological Changes in Escherichia coli Associated with AcrB and MdtF Efflux Pumps

Micrographs:

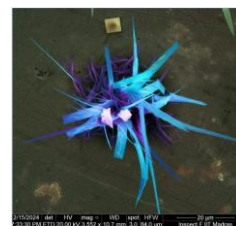


Echoes of Nucleation [26IS0349]

Frozen ripples of self-organized oxidation, each ring a heartbeat of reaction-diffusion chemistry writing itself into an amorphous film.

Participant: Shri. Gokul Krishna

Affiliation: Indian Institute of Science

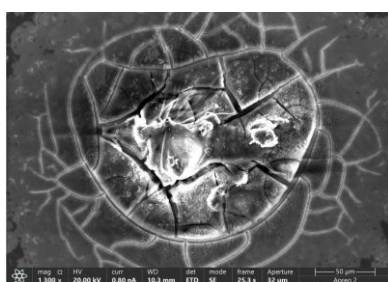


The Electro-Weeds [26FPD868]

The image shows the formation of carbon electrode dendrites in a potassium-ion battery after charge-discharge cycling.

Participant: Raghunath Sahoo

Affiliation: Chalmers University of Technology

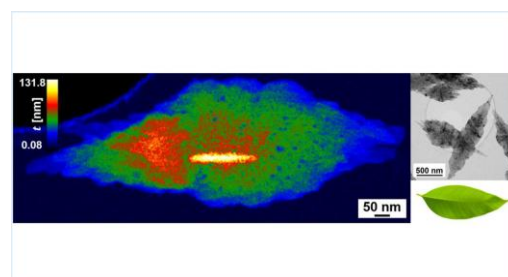


The Micro-Womb: Echoes of Origin [26IS0889]

Micro-scale stress fractures mimic an embryonic sac, where a developing fetus oriented dynamically toward a pulsing core—a bridge of art and science.

Participant: Avisekh Pal

Affiliation: Indian Institute of Science, Bangalore

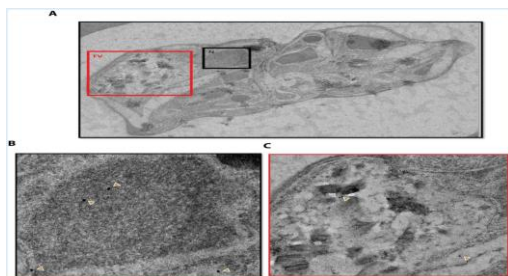


The 3D thickness profile of nano-leaf CuO [26IS0368]

The thickness colour mapping of CuO nano-leaf obtained from the low-loss STEM-EELS spectrum with TEM-HAADF image resembling the leaf.

Participant: Shankamitra T P

Affiliation: Indian Institute of Technology - Madras (IIT-M)

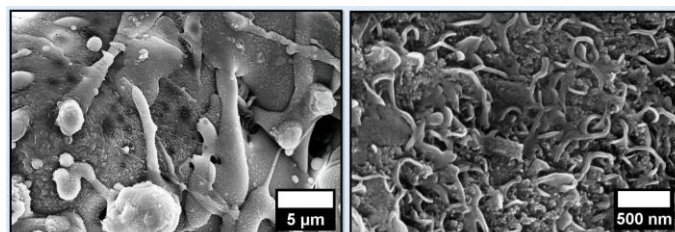


Immuno-Electron Microscopy shows Nuclear & Food Vacuolar localization of PfGCN5 in Plasmodium falciparum. [26IPD830]

Immuno-EM shows PfGCN5 localization in GFP-PfGCN5 parasites. Gold particles (18 nm) are seen in the nucleus (N) and food vacuole (FV; yellow arrows).

Participant: Poonam Nagar

Affiliation: International Centre for Genetic Engineering and Biotechnology

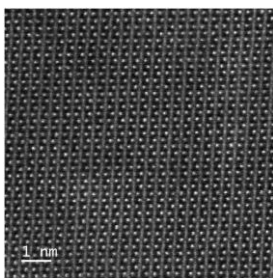


Nanoscale Architecture of CNT (Carbon Nanotubes)-Reinforced Baghdadite Coating [26IPD573]

FESEM captures the hierarchical microstructure and nanoscale CNT network within a plasma-sprayed Baghdadite coating.

Participant: Saminderpreet Singh

Affiliation: IIT Roorkee

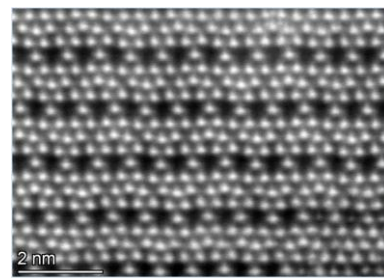


Order within complexity: atomic harmony in a Cr-rich sigma phase [26IS0089]

Atomic-resolution HAADF-STEM image of Cr-rich σ phase along [110] zone axis using HRTEM at 300kV, revealing the intricate ordered lattice structure

Participant: Sudhansu Maharana

Affiliation: IIT Kharagpur

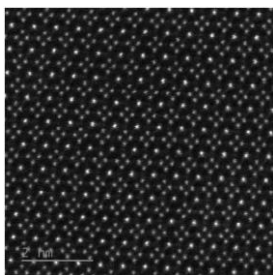


Sub-Stoichiometric WO_3 [26IS0045]

HAADF-STEM image depicting how non-stoichiometry driven by oxygen deficiency is accommodated within the WO_3 matrix through local atomic rearrangement

Participant: Kshitiz Gupta

Affiliation: Indian Institute of Science, Bengaluru



Architecture of the invisible: No pixels, just atoms- a 2nm window into the atomic world [26IS0542]

HAADF-STEM micrograph of nanoscale Y-Al-O complex oxide particle in Y_2O_3 containing ODS Ni-rich HEA displaying the atomic scale resolution

Participant: Manashi Sabat

Affiliation: IIT Kharagpur

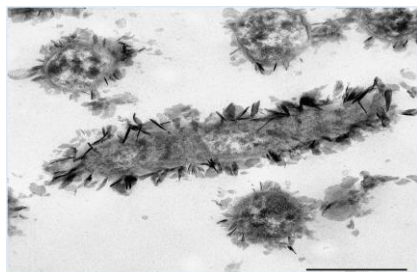


Micrograph of ZnO through controlled growth - A Nanorose [26IF0648]

The picture has a photo of a rose (left) and our originally made ZnO nanoroses which are grown using a controlled synthesis on a silicon wafer.

Participant: Dr. Indranath Chakraborty

Affiliation: IIT Kharagpur

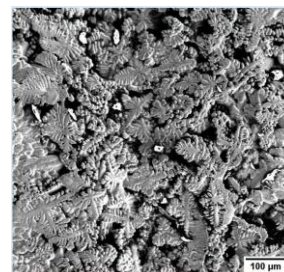


Uranium biomineralization by *Chryseobacterium* sp. strain PMSZPI [26IF0266]

Crystalline needle-like structures of uranyl phosphate minerals deposited on cell membranes as result of phosphatase mediated uranyl precipitation

Participant: Dr Celin Acharya

Affiliation: Bhabha Atomic Research Centre, Mumbai

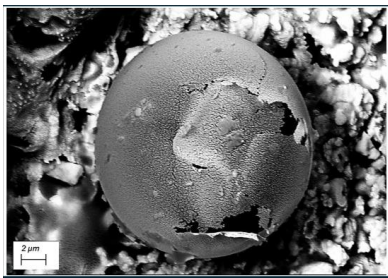


Touch-Me-Not Microstructure (Dendrites of as cast Fe-Cr based alloy). [26IS0854]

SEM secondary-electron (SE) micrograph, showing dendritic/complex solidification morphology with fine and highly textured dendritic structure.

Participant: Amit Kumar

Affiliation: HBNI, IGCAR

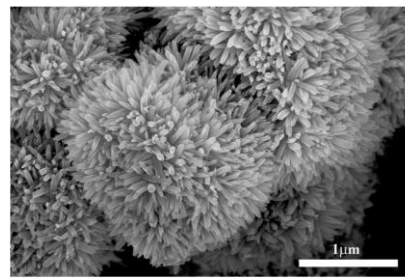


The Hatching Egg [26IS0780]

A SiO₂ bubble ruptures through the surrounding ZrO₂ matrix, creating an egg-like morphology frozen in the microstructure after the ablation test.

Participant: Adarsha Ranjan Mishra

Affiliation: IIT Kharagpur

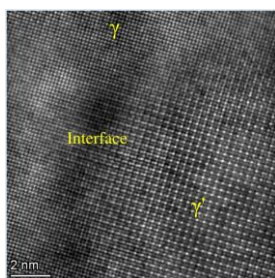


Risen from scrap: ZnO nano-dandelions in full bloom [26IPD315]

FESEM micrograph of dandelion-like ZnO nanorods grown from ball-milled Zn powder and Fe-oxide scrap via selective leaching in NaOH solution

Participant: Debdipta Banik

Affiliation: IIT Kharagpur

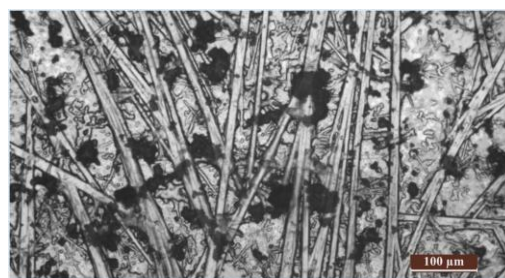


Atomic Resolution Imaging of Coherent Interface using HRTEM [26IF0939]

The micrograph shows γ matrix, γ' precipitate and the coherent interface between them in a solution annealed and aged Ni-based superalloy.

Participant: Kaushal Saurabh Shridhar

Affiliation: Indira Gandhi Centre for Atomic Research

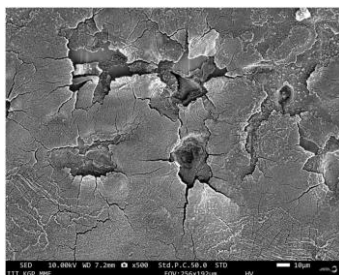


Bamboo Forest at the Microscale: Ciprofloxacin Meets Magnesiochromite microflakes [26IPD910]

At 20× magnification, ciprofloxacin crystals rise like bamboo among leaf-like magnesiochromite microflakes, revealing their interaction chemistry.

Participant: Anyesha Chakraborty

Affiliation: IIT Kharagpur

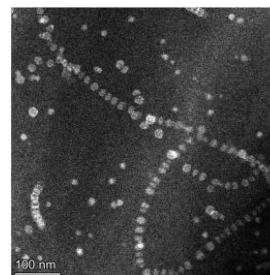


When oxide layers fail: wear leaves dendritic signature [26IS0658]

The worn surface of coating exhibited delaminated oxide layer containing several cracks with dendritic-like morphology formed during tribocorrosion.

Participant: Akankshya Rout

Affiliation: IIT Kharagpur

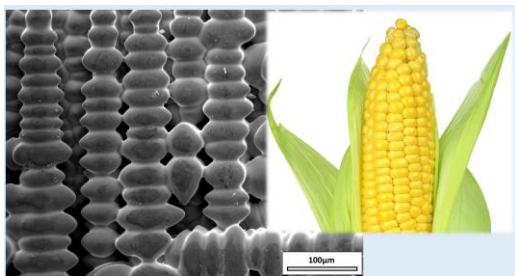


: Snake-Game-Inspired Microstructure: A Serpentine Precipitate Chain Mimicking the Snake, with Dispersed Precipitates as the Fruits [26IS0320]

The sample was taken from the Peel-Aged Al-based rare-earth alloy. Serpentine chain of precipitates is formed along with other dispersed precipitates.

Participant: Sayali Suhas Dounde

Affiliation: Indian Institute of Science (Student)

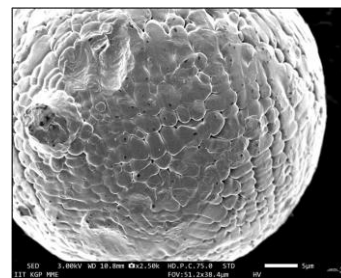


The Micro Corn Field [26IPD676]

Dendritic microstructure of a Ni-based alloy, synthesised via vacuum arc melting.

Participant: Vivek Kumar Singh

Affiliation: IIT Kanpur

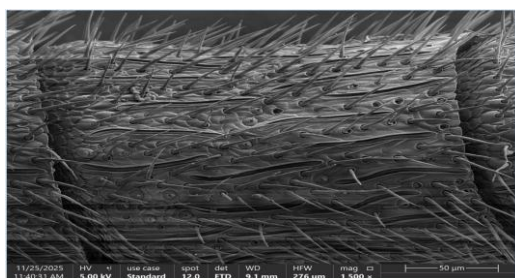


The iron moon: a jewel in the microverse [26IS0149]

Cellular solidification landscape of a gas-atomised AISI 4140 powder particle, frozen during its rapid journey from molten droplet to solid feedstock.

Participant: Sarojini Sahu

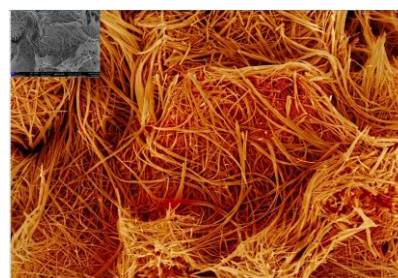
Affiliation: IIT Kharagpur

Antenna of *Xanthopimpla pedator* [26IS0060]

Architecture highlights remarkable structural specialization of parasitoid antennal system for environment perception & host associated communication.

Participant: Ritik Balde

Affiliation: CSIR-National Chemical Laboratory

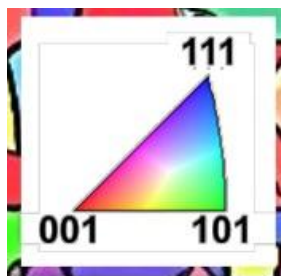


The Nano-Noodles [26IS0333]

False coloured SEM image (SE2 detector) of MnO₂ nanowires

Participant: AJOY DINDA

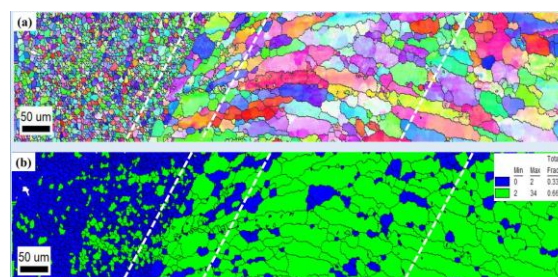
Affiliation: IIT Kharagpur

EBSD-Inspired Cosmic κ -Carbide Planets [26IS0114]

k-carbides enhance yield and tensile strength, while fine ferrite grains improve toughness and ductility, providing balanced mechanical properties.

Participant: Vinit Kumar Singh

Affiliation: IIT Kharagpur

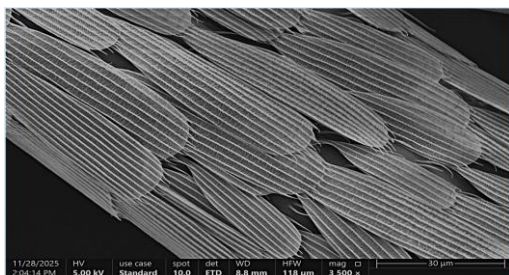


Microstructure evolution at the stir zone interfacial region of Friction stir welded AA7075-T6 joints [26IPD211]

FSWed AA7075-T6 alloy: EBSD IPF and GOS maps reveal grain orientation, deformation, material flow, and recrystallization across SZ, TMAZ, HAZ, and BM.

Participant: Kishor Kumar Jha

Affiliation: IIT Kharagpur

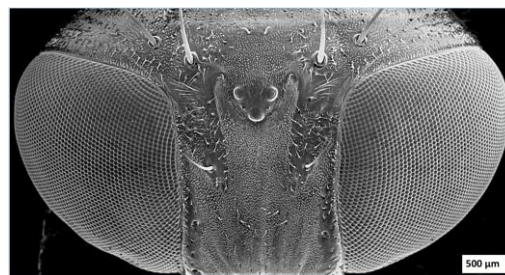


Microscopic view of Nature's Engineering: Mosquito wing [26IS0300]

Microscopy reveals architecture of mosquito wing, the fine veins & delicate surface features demonstrate remarkable complexity of nature at microscale

Participant: Shreya Patil

Affiliation: CSIR-National Chemical Laboratory

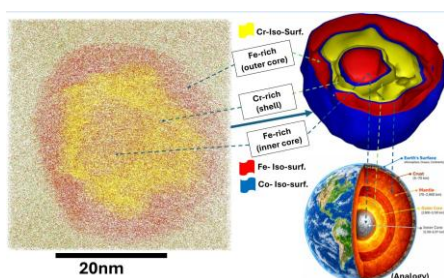


Through a Thousand Windows: Melon Fly Eye [26IS0285]

Microscopy reveals fascinating honeycomb-like structure of the melon fly's compound eye, example of nature's precision, symmetry & structural beauty

Participant: Chetan Barhate

Affiliation: CSIR-National Chemical Laboratory

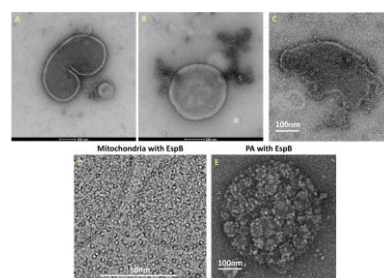


"A tiny planetary world hidden within the alloy, with a chemically distinct core wrapped in successive shells, mirroring Earth's journey from core to surface." [26IF0001]

Confined spinodal decomposition producing multi-layer Fe/Cr-rich core-shell particles embedded in a (Ni, Al, Co)-rich matrix in AlCoCrFeNi HEAs.

Participant: Sudip Kumar Sarkar

Affiliation: Bhabha Atomic Research Centre Mumbai

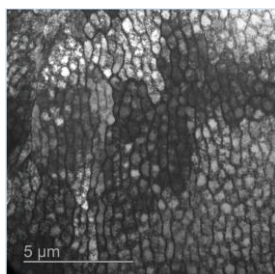


EspB: A Mitochondrial Membrane Disruptor [26IS0873]

EspB interacts with mitochondrial outer membrane lipid and receptor proteins and promote its damage

Participant: Dipanwita Mandal

Affiliation: IISc Bangalore

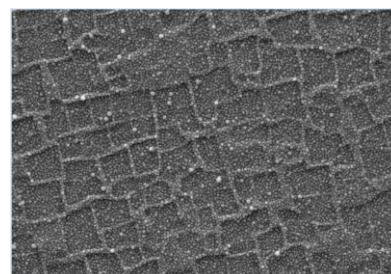


Snake skin [26IF0608]

TEM BF image of additively manufactured SS 316L showing cells oriented along <100> in a grain.

Participant: Mr. Navajeevan Sagar Akepogu

Affiliation: Participant



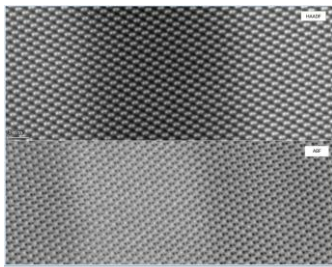
Pearl farming [26IF0949]

SE image of CMSX4 alloy, showing presence of homogenously distributed fine gamma prime precipitates after quenching.

Captured at 5kV. (Mag: 50,000X)

Participant: Rajdeep Sarkar

Affiliation: DMRL, Hyderabad

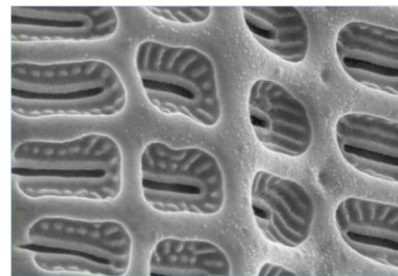


Quantum bots in well [26IF0949]

HRSTEM images (HAADF and ABF) of In-Ga-As-Al quantum well showing enrichment of Ga and In alternate layers .

Participant: Rajdeep Sarkar

Affiliation: DMRL, Hyderabad

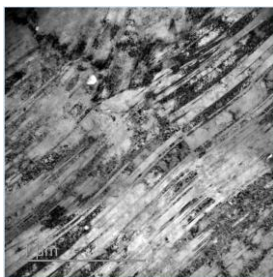


Nature's nanotechnology [26IF0546]

SE image of silica fossil showing nano pores. (Magnification: 1,00,000X)

Participant: SWAPAN KUMAR GHOSH

Affiliation: DMRL-DRDO

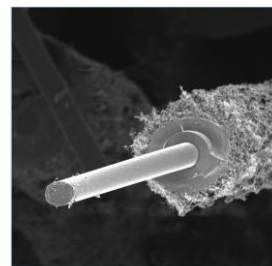


Deformation lanes [26IF0546]

TEM BF image of additively manufactured and deformed SS 316L showing slip bands and twins.

Participant: SWAPAN KUMAR GHOSH

Affiliation: DMRL-DRDO

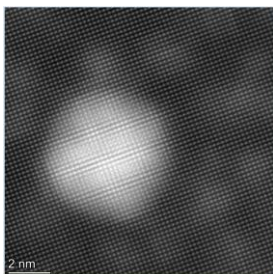


SE image of carbon fibre in He Ion Microscope [26IF0852]

SE image of carbon fibre in He Ion Microscope

Participant: M Sai Madhav

Affiliation: DEFENCE METALLURGICAL RESEARCH LABORATORY, HYDERABAD

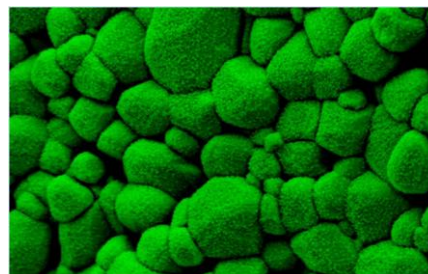


Cloud Seeding [26IF0852]

HRSTEM image of Ag-In rich precipitate in Al-Cu-Mg-Ag-In alloy

Participant: M Sai Madhav

Affiliation: DEFENCE METALLURGICAL RESEARCH LABORATORY, HYDERABAD

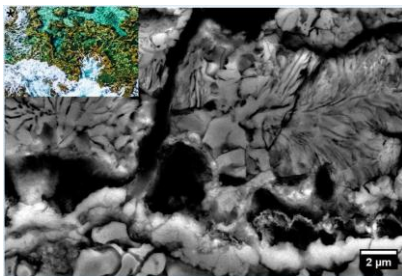


Broccoli clusters [26IF0852]

SE image of CoAl powder surface morphology captured at 5kV. (Magnification: 1,00,000X)

Participant: M Sai Madhav

Affiliation: DEFENCE METALLURGICAL RESEARCH LABORATORY, HYDERABAD

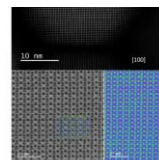


STORM AT STEEL [26IPD357]

Alloy D9 steel, ruptured under extreme high-temperature and pressure, reveals a microscopic seascape resembling a coral reef caught in a storm.

Participant: Dr. Jhilmil Swapnalin

Affiliation: Indira Gandhi Centre for Atomic Research (IGCAR)



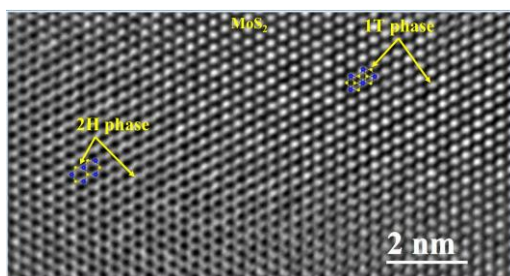
Title of the microstructure: The Atomic Tapestry: Weaving the Hidden Structure of CsPbBr₃ nanocrystals.
Description/Significance: Br-sensitive imaging unveils octahedral tilt
Three keywords: CsPbBr₃ rhombic-dodecahedral nanocrystal, Atom ARM300F2 (300 kV)

The Atomic Tapestry: Weaving the Hidden Structure of CsPbBr₃ [26IS0501]

Br-sensitive imaging unveils octahedral tilting and resolves crystallographic ambiguity in orthorhombic CsPbBr₃ nanocrystals.

Participant: Souvik Banerjee

Affiliation: Indian Association for the Cultivation of Science

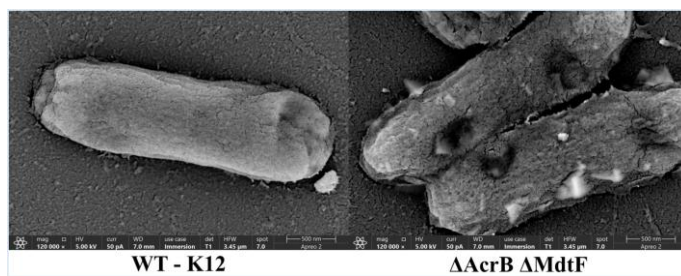


High-Resolution TEM Imaging of Mixed 1T-2H Phase MoS₂. [26IS0598]

2H-MoS₂ shows hexagonal lattice contrast, while laterally shifted S atoms in 1T-MoS₂ reveal distinct Mo atomic spots along the c-axis.

Participant: SAGAR MALLICK

Affiliation: CSIR-IMMT

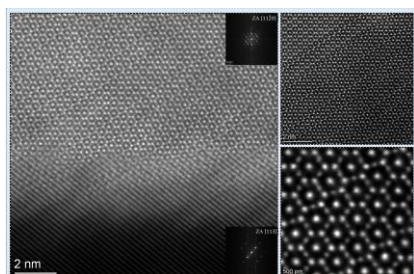


Surface Architecture of E. coli in the Absence of AcrB and MdtF Efflux Pumps [26IS0809]

SEM reveals distinct surface morphological features in ΔAcrB ΔMdtF E. coli compared with wild-type cells

Participant: VICTOR VASANTH SINGH

Affiliation: Indian Institute of Science

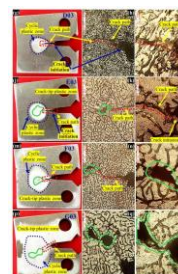


Atomic Frontier - The Interface of Order [26IS0192]

STEM micrograph capturing the crisp atomic boundary where two distinct crystal zone axes meet at a flawless structural interface.

Participant: Karam Jeet Pal

Affiliation: Indian Institute of Science Bengaluru

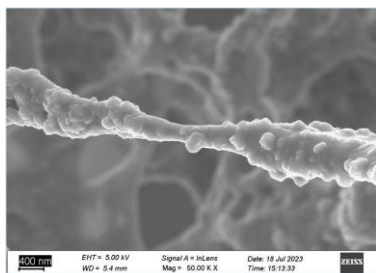


Optical Microstructural Characterization of Fatigue Crack Initiation, Crack-Tip Plastic Zone, and Crack Propagation in Aluminium Matrix Composites Reinforced with Hollow Glass Micr [26IPD085]

Fatigue crack initiation, crack-tip plastic zone, and crack-path evolution in HGM-reinforced aluminium matrix composites.

Participant: Karthick G

Affiliation: IIT Kharagpur

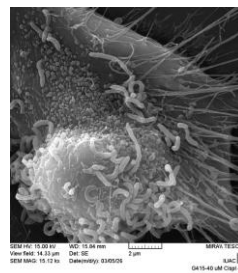


A Combustion-Crafted Nanoscale Necklace: High-Entropy Spinel under SEM [26IS0478]

This SEM micrograph shows the hierarchical beaded nanofibre morphology of the CoCuFeNiMn high-entropy spinel synthesised by solution-combustion synthe

Participant: Kingshuk Chakraborty

Affiliation: CGCRI

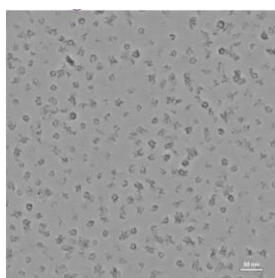


Fine Dining [26IPD022]

Swarm of Bacillus bacteria over G415 cell surface

Participant: Dr. SOURAV GHOSH

Affiliation: INTER-UNIVERSITY ACCELERATOR CENTRE

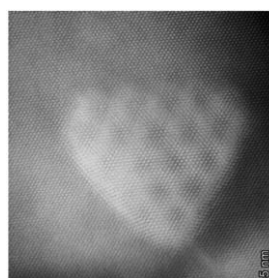


Cryo-EM micrograph of a type III secretion system ATPase [26IF0710]

Denoised cryo-EM micrograph of a type III secretion system ATPase: ring-shaped (top view) and dumbbell-shaped (side view)

Participant: Dr. Dhableswar Patra

Affiliation: CSIR-IICB

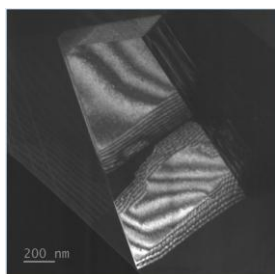


The Silver Heart [26IS0529]

Heart-shaped Ag-rich precipitate in Cu matrix showing distinct moiré fringes, revealed by atomic-resolution HAADF STEM.

Participant: Kalyan

Affiliation: Indian Institute of Science



Stripped shadows [26IF0155]

TEM Dark field image of an intermetallic precipitate in W-Ni-Co alloy

Participant: Chandan Mondal

Affiliation: Defence Metallurgical Research Laboratory

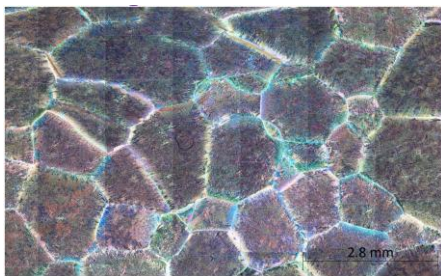


Oyster shell [26IF0155]

SE image of silica fossil structures. (Magnification: 10,000X)

Participant: Chandan Mondal

Affiliation: Defence Metallurgical Research Laboratory

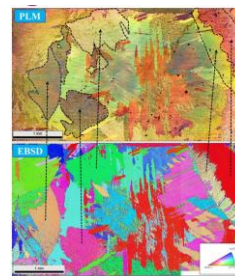


Echoes of The Prior Beta: A Chromatic Archive of SP700 [26IS0759]

Understanding orientation perspective using DIC-PLM as a primary, and low cost method.

Participant: Mahtab Alam

Affiliation: IIT Kharagpur

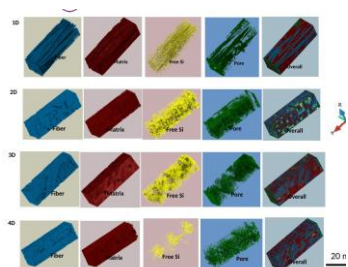


Unveiling the Hidden Crystallographic Landscape: Polarized Light Artistry to Precise EBSD Orientation Mapping [26IS0414]

Understanding the direct visual correlation between DIC-PLM and EBSD in Ti alloy.

Participant: Arjun Mahato

Affiliation: IIT Kharagpur

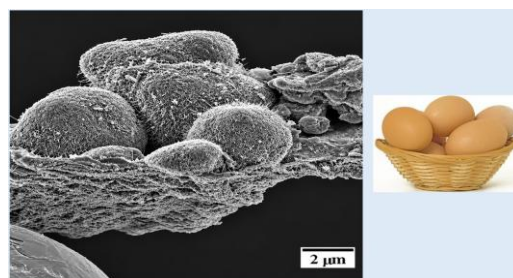


Strands of Life [26IS0630]

X-ray μ -Computed Tomography of C-SiC Composite with different fibre orientations signifying homogeneity of the matrix and the fibres.

Participant: Saumya Gupta

Affiliation: IIT Kharagpur

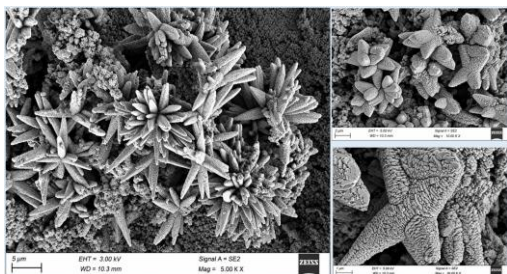


Eggs in the basket [26IS0097]

SEM morphology showing the formation of ZnO nanoneedles on the Zn surface in the presence of Fe in the matrix.

Participant: Aman Jyoti Shukla

Affiliation: IIT Kharagpur



Crystals in Bloom [26IS0209]

Calcite mineralisation in phosphate-buffered saline forms intricate, flower-like architectures, revealing the unexpected artistry of crystal growth.

Participant: Mitali Mishra

Affiliation: IIT Kharagpur



Microstructural Landscape: Heusler Alloy [26IS0769]

Optical micrograph, the image appears to show a polycrystalline microstructure with clearly visible grain boundaries.

Participant: Charu Dadwaria

Affiliation: Thapar institute of engineering and technology

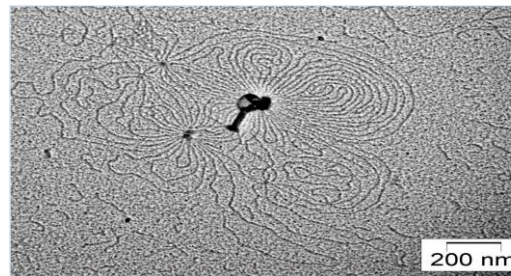


Whispers of Strain: Rise of the Twins [26IS0097]

This micrograph captures the prominent development of deformation twins in ZX10 alloy during uniaxial compression at room temperature.

Participant: Aman Jyoti Shukla

Affiliation: IIT Kharagpur

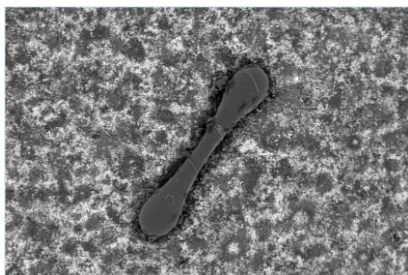


Phage Blossom [26IF0606]

A phage releases its genomic DNA after osmotic shock, revealing the delicate transition from an encapsulated genome to free DNA.

Participant: Dr. Payel Mondal

Affiliation: IIT Kharagpur

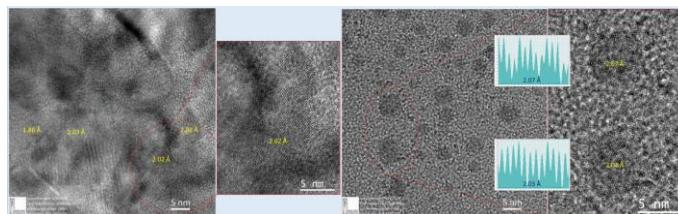


Dog Bone [26IF0105]

SE image showing aluminium silicate impurity on ZrB₂-SiC matrix-magnification 250X

Participant: Bidyapati Mishra

Affiliation: Defence Metallurgical Research Laboratory, Hyderabad

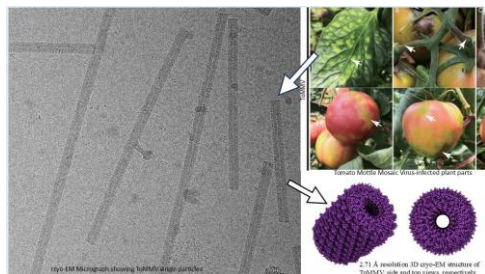


High-energy (3.2 MeV) electron beam-assisted exfoliation of few layers WSe₂ [26IF0602]

HRTEM images demonstrate high-energy (3.2 MeV) electron beam-assisted exfoliation of a few layers WSe₂.

Participant: Ambuj Mishra

Affiliation: IUAC, New Delhi

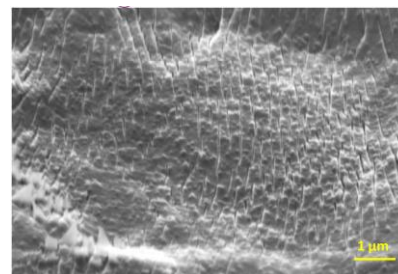


A cryo-EM Micrograph showing unstained, flash-frozen ToMMV single particles [26IF0494]

A cryo-EM micrograph showing Tomato Mottle Mosaic Virus isolated from infected plants, from which a 3D cryo-EM structure was reconstructed at 2.71 Å

Participant: Partha Pratim Datta

Affiliation: IISER Kolkata

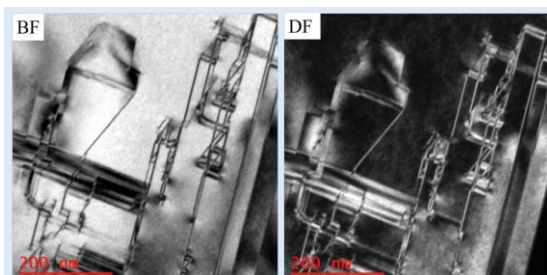


Crystal Currents [26IPD740]

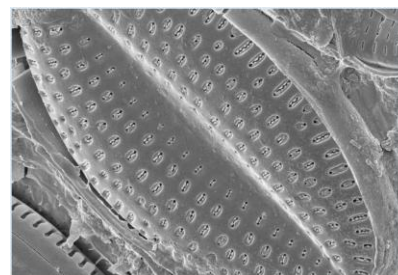
Parallel slip traces reveal intense, localized plastic deformation, resembling flowing rivers across the microstructure.

Participant: Dr. Diya Mukherjee

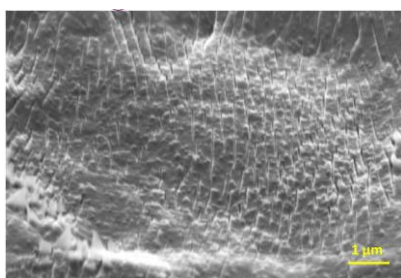
Affiliation: Indian Institute of Technology, Hyderabad



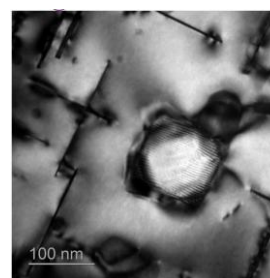
A Nanoscopic Cityscape: The crystal stands still, yet its faults whisper stories of a hidden past [26IS0228]
The bright-field image (left) and the dark-field image (right) show stacking faults in the C14 Laves phase
Participant: PRASADINEE MAHARANA
Affiliation: IISc, Bangalore



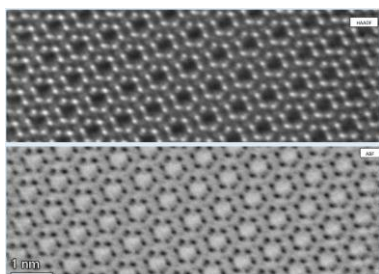
Stomata colony [26IF0608]
SE image of silica fossil showing pores. (Magnification: 20,000X)
Participant: Mr. Navajeevan Sagar Akepogu
Affiliation: Participant



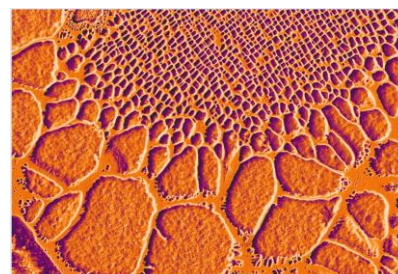
Crystal Currents [26IPD740]
Parallel slip traces reveal intense, localized plastic deformation, resembling flowing rivers across the microstructure.
Participant: Dr. Diya Mukherjee
Affiliation: Indian Institute of Technology, Hyderabad



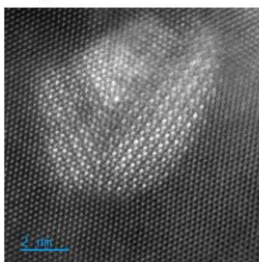
A River Around a Rock [26IPD740]
Dislocation lines curve around a precipitate like flowing water around a rock, revealing nanoscale deformation pathways.
Participant: Dr. Diya Mukherjee
Affiliation: Indian Institute of Technology, Hyderabad



Honey comb [26IF0495]
STEM HAADF and ABF images of β Si₃N₄.
Participant: R.Chandana
Affiliation: DMRL Hyderabad



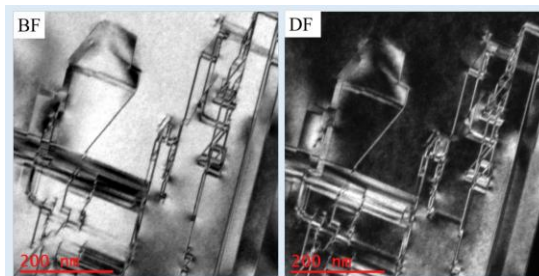
Egyptian necklace [26IF0495]
SE image of electrolytically etched Ni based superalloy showing gamma matrix. (Magnification: 10000X)
Participant: R.Chandana
Affiliation: DMRL Hyderabad



Crystallographic Mosaic of η -Ni₃Ti Variants [26IPD733]
Atomic-resolution HAADF-STEM reveals differently oriented η -Ni₃Ti variants in an aged W-containing maraging steel.

Participant: Sankalp Biswal

Affiliation: IIT Kharagpur



A Nanoscopic Cityscape: The crystal stands still, yet its faults whisper stories of a hidden past. [26IS0228]
The bright-field image (left) and the dark-field image (right) show stacking faults in the C14 Laves phase.

Participant: PRASADINEE MAHARANA

Affiliation: IISc, Bangalore

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A 200 kV general-purpose TEM designed for reliable routine microscopy, the JEM-2100Plus supports high-quality bright-field and dark-field imaging, diffraction and automated workflows. It is suited to materials characterization, nanostructure studies and educational or multi-user microscopy facilities.



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JEOL Ltd.

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JEM-120i

The 120 kV JEM-120i is designed for accessible transmission electron microscopy across biological, polymeric, soft-material and general research applications. Its operational simplicity supports routine imaging, diffraction and specimen screening while maintaining the versatility expected from a laboratory TEM.



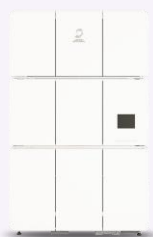
CRYO ARM™ 300S

JEOL's 300 kV cold field-emission cryo-TEM combines automated workflows with single-particle analysis, cryo-electron tomography and 3DED/MicroED. The platform is designed for high-throughput structural biology and beam-sensitive specimens, supporting consistent data acquisition with reduced operator intervention.



CRYO ARM™ 200S

The 200 kV CRYO ARM 200S extends automated cryo-electron microscopy to laboratories requiring SPA, cryo-ET and 3DED/MicroED workflows. It combines a cold field-emission source, cryogenic stability and automated acquisition to support efficient structural studies.



JEM-Z200MF

The JEM-Z200MF is a 200 kV magnetic-field-free TEM designed for experiments where the specimen's magnetic state can be disturbed by the objective-lens field. It enables imaging and analysis of magnetic and field-sensitive materials under low-field conditions.



JIB-PS500i

This FIB-SEM system integrates focused-ion-beam milling with electron imaging and STEM-based checking. Its workflow supports efficient TEM lamella preparation, cross-sectioning and analytical studies, with automated preparation options for semiconductor and advanced-material specimens.



JIB-4700F

JEOL's JIB-4700F MultiBeam platform combines high-resolution electron imaging with focused-ion-beam processing. It is intended for nanoscale milling, cross-section analysis, specimen preparation and advanced materials workflows where precise material removal and imaging are required.



AMETEK / Gatan [Platinum Sponsor]

AMETEK's Gatan business develops technologies that extend the capabilities of electron microscopes through imaging, spectroscopy, sample preparation, in-situ holders and software. Its 2026 portfolio emphasizes EELS, direct detection, 4D-STEM, ion milling, cryogenic experimentation and quantitative microscopy workflows.

Featured Equipment & Technology —

F1-GIF™ System

The new F1-GIF is a next-generation energy-filtered TEM and EELS platform designed to combine broad energy coverage with fine spectral detail. Direct detection, dose fractionation and multidimensional analysis support chemical, structural, orientation and strain measurements from 30–300 kV.



PECS™ III System

PECS III is a broad-beam argon ion milling, etching and coating system for consistent specimen preparation. It targets complex multi-material samples, including semiconductors and batteries, while reducing preparation artifacts and improving reproducibility for advanced microscopy workflows.



Ilion® III System

Ilion III is a tabletop broad-beam argon ion milling system designed for high-quality cross-section preparation. It supports diverse and fragile materials while preserving microstructural detail, making it useful for semiconductor devices, advanced materials and failure-analysis workflows.



K3® Direct Detection Camera

The K3 camera family uses direct electron detection for high-speed, high-sensitivity TEM imaging. It supports low-dose imaging, diffraction and dynamic experiments, providing researchers with efficient acquisition for cryo-EM, materials science and demanding beam-sensitive specimens.



OneView® Camera

OneView is a versatile TEM camera designed for fast, high-quality imaging and diffraction. Its combination of speed, sensitivity and broad application support makes it suitable for routine microscopy, dynamic experiments and quantitative imaging across materials and biological research.



Continuum™ K3 IS

The Continuum K3 IS combines a Gatan imaging filter with direct detection for in-situ EELS and energy-filtered imaging. It supports chemical mapping and dynamic experiments where spectral information must be collected rapidly while controlling electron dose and specimen damage.



AMETEK / Gatan

Featured Equipment & Technology —

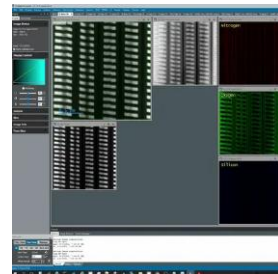
ClearView™ Camera

ClearView is a high-performance scintillator-based TEM camera designed for everyday transmission electron microscopy. It provides responsive imaging for alignment, diffraction, morphology and dynamic studies, offering a practical detector option for laboratories requiring reliable routine acquisition.



DigitalMicrograph®

DigitalMicrograph is Gatan's core electron-microscopy acquisition and analysis environment. It integrates imaging, diffraction, EELS and 4D-STEM workflows, with tools for processing, quantitative analysis, scripting and advanced microscopy experiments within a common software environment.



STEMx® System

STEMx extends DigitalMicrograph for advanced STEM acquisition and analysis. It supports spectrum imaging, diffraction, 4D-STEM and synchronized experimental workflows, allowing researchers to connect spatial information with chemical, structural and crystallographic measurements.



STEMx OIM

STEMx OIM integrates orientation analysis with STEM-based data workflows. It helps researchers extract crystallographic information from diffraction datasets and correlate orientation, phase and microstructural information with high-resolution STEM observations.

APEX™ Particle

APEX Particle provides automated particle characterization through recipe-based analysis. It is designed for repeatable, high-throughput microanalysis, enabling laboratories to classify and quantify particles efficiently while reducing manual processing and improving consistency across large datasets.

EDAX OIM Analysis™

OIM Analysis provides crystallographic orientation and EBSD data analysis, with capabilities including mapping, phase identification and strain-related measurements. The platform supports materials characterization where microstructure, texture, deformation and phase relationships must be quantified.



HITACHI High-Tech [Platinum Sponsor]

Hitachi High-Tech provides electron microscopes, focused-ion-beam systems and specimen-preparation technologies for materials, semiconductor and industrial research. Its current microscopy portfolio spans FE-SEM, TEM/STEM, FIB-SEM, tabletop SEM and ion-milling systems, with emphasis on automation and analytical productivity.

Featured Equipment & Technology —

SU8700

The SU8700 is a high-resolution Schottky field-emission SEM designed for advanced imaging and analytical work. High probe current, multiple detector options and workflow automation support nanoscale materials characterization, semiconductor analysis and applications requiring both resolution and rapid microanalysis.



SU8600

The SU8600 is a cold-field-emission SEM platform combining high-resolution imaging with automation and stable long-duration analysis. Its high-brightness source supports strong signal-to-noise at low accelerating voltages and demanding analytical workflows across advanced materials and semiconductor research.



SU7000

The SU7000 is a high-resolution Schottky FE-SEM supporting simultaneous acquisition of multiple secondary and backscattered signals. Its large chamber, flexible vacuum conditions and high probe current make it suitable for diverse materials, semiconductor and analytical microscopy applications.

SU5000

The SU5000 combines a Schottky field-emission source with an out-lens objective for high-resolution imaging and analytical flexibility. A drawer-type stage accommodates specialized heating and tensile stages, while EM Wizard assists users in selecting suitable imaging conditions.



SU3800 / SU3900

These modular SEM platforms provide high-brightness imaging at low accelerating voltages with selectable chamber configurations. They are designed for broad materials applications, combining automated observation functions with flexibility for larger specimens and different analytical requirements.



FlexSEM 1000 II

FlexSEM 1000 II is a compact SEM designed for practical materials observation and 3D morphology studies. Its low-vacuum capability allows examination of less-conductive specimens with reduced charging, while optional detectors extend surface-sensitive imaging.



HITACHI High-Tech

Featured Equipment & Technology —

HF5000

The HF5000 is a 200 kV aberration-corrected TEM/STEM combining sub-ångström imaging with analytical performance. High specimen tilt, large-solid-angle EDX and automated aberration correction support demanding studies of nanomaterials, interfaces, defects, catalysts and functional materials.



HT7800 Series

The HT7800 family comprises 120 kV digital TEM systems designed for efficient, reproducible observation. High-quality digital imaging, image navigation and user-oriented operation support routine TEM workflows across materials and biological specimens.



NX9000

NX9000 is a real-time 3D analytical FIB-SEM with orthogonal SEM and FIB columns. It supports high-resolution milling, 3D-EDS and 3D-EBSD, while micro-sampling and triple-beam capabilities enable preparation for TEM and atom-probe analysis.

Ethos NX5000

Ethos NX5000 is a high-performance FIB-SEM combining a modern FE-SEM with focused-ion-beam processing. It is designed for nanoscale machining, cross-sectioning and specimen preparation, providing high-resolution imaging at low voltages for advanced analytical workflows.



NX2000

The NX2000 is a triple-beam FIB platform targeted at semiconductor and advanced materials applications. Its architecture supports ion milling, electron imaging and additional beam-based processing, enabling precise cross-sectioning, device analysis and high-quality sample preparation.



ArBlade 5000

ArBlade 5000 is an ion-milling system supporting both cross-section and flat milling. It can prepare broad, clean surfaces for electron microscopy and is especially useful for electronic components and materials where mechanical preparation would introduce deformation or artifacts.



Thermo Fisher Scientific [Platinum Sponsor]

Thermo Fisher Scientific develops integrated electron microscopy platforms for materials and life-science research, combining microscopes, detectors, spectroscopy, sample preparation and software. Its 2026 materials portfolio includes the Iliad family alongside established high-resolution TEM/STEM and FIB workflows.

Featured Equipment & Technology —

Iliad™ 300 (S)TEM

Iliad 300 is an aberration-corrected analytical (S)TEM operating from 30–300 kV. Integrated EELS and EDX, NanoPulser beam blanking and Velox software support high-resolution imaging, spectroscopy, dose optimization and time-resolved materials experiments.



Iliad™ Ultra (S)TEM

Iliad Ultra is Thermo Fisher's advanced Iliad platform for demanding analytical STEM/TEM research. It combines high-resolution electron optics with integrated EELS/EDX and flexible detector configurations, targeting quantitative materials characterization, spectroscopy and nanoscale structure–chemistry studies.



Spectra™ 300 (S)TEM

Spectra 300 is a high-resolution analytical STEM/TEM platform designed for advanced materials characterization. Aberration correction, spectroscopy and flexible detector configurations support atomic-resolution imaging, chemical mapping, diffraction and studies of interfaces, defects and functional materials.



Spectra™ Ultra (S)TEM

Spectra Ultra provides an advanced platform for high-resolution analytical electron microscopy, combining probe correction, spectroscopy and high-performance STEM capabilities. It is suited to atomic-scale imaging and chemical analysis where quantitative structure–property relationships are required.



Talos™ F200i (S)TEM

Talos F200i is an integrated in-situ TEM/STEM investigate dynamic structural and chemical changes upon heating, biasing and other experimental environments can be combined with imaging and analytical detectors.



Talos™ F200X G2

Talos F200X G2 is a 200 kV analytical (S)TEM configured for materials research, with STEM imaging and spectroscopy capabilities. It supports high-quality EDX/EELS analysis and is particularly suited to composition, structure and interface studies.



Thermo Fisher Scientific

Featured Equipment & Technology —

Helios™ 5 DualBeam

Helios 5 DualBeam combines focused ion-beam processing with high-resolution electron imaging. It supports cross-sectioning, site-specific sample preparation and 3D analysis, making it useful for semiconductor devices, materials research and preparation of TEM specimens.



Helios™ 5 Laser PFIB

Helios 5 Laser PFIB adds laser-assisted material removal to a plasma-FIB platform, enabling rapid large-volume milling alongside precision ion-beam processing and SEM imaging. It is useful for battery, semiconductor and industrial failure-analysis workflows.



Scios™ 2 DualBeam

Scios 2 combines SEM imaging with focused-ion-beam milling for precise nanoscale sample preparation and analysis. It supports cross-sectioning, TEM lamella preparation and 3D characterization across semiconductor, materials and industrial research applications.



Verios™ 5 UC

Verios 5 UC is an ultrahigh-resolution SEM platform designed for demanding nanoscale imaging. Its high-resolution electron optics and analytical flexibility support semiconductor, materials and nanotechnology applications requiring detailed morphology and surface characterization.



Ceta™ Camera

Ceta cameras provide digital TEM/STEM imaging for high-quality bright-field, dark-field and diffraction workflows. They are designed for responsive acquisition and can be configured for demanding applications including 4D-STEM, strain measurement and analytical electron microscopy.



EMPAD

EMPAD is an electron microscope pixel-array detector designed for high-dynamic-range diffraction and 4D-STEM acquisition. It enables quantitative measurements of diffraction patterns, strain, electric fields and other reciprocal-space information across advanced materials studies.



Oxford Instruments: Nano Analysis [Gold Sponsor]

Oxford Instruments NanoAnalysis develops analytical detectors and software for electron microscopy, with a strong focus on EDS, EBSD and correlated chemical imaging. Its current portfolio combines high-sensitivity X-ray detection, crystallographic analysis and real-time software workflows for SEM, TEM and FIB systems.

Featured Equipment & Technology

AZtecLive

AZtecLive provides real-time chemical imaging and EDS analysis workflows. It connects detector data with live sample navigation, qualitative and quantitative analysis, X-ray mapping and linescans, helping users move from locating features to interpreting composition efficiently.



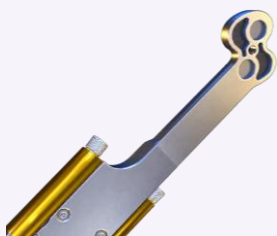
Ultim® Extreme Infinity

Ultim Extreme Infinity is optimized for challenging EDS applications involving nanostructures, thin surface layers, low beam energies and short working distances. Its windowless detector geometry and low-energy performance extend analytical sensitivity for high-resolution FE-SEM studies.



Unity™ BEX Detector

Unity combines backscattered-electron and X-ray signals in a single SEM imaging detector. It provides rapid colour images enriched with elemental information, allowing users to navigate specimens visually while simultaneously accessing chemical contrast for faster materials characterization.

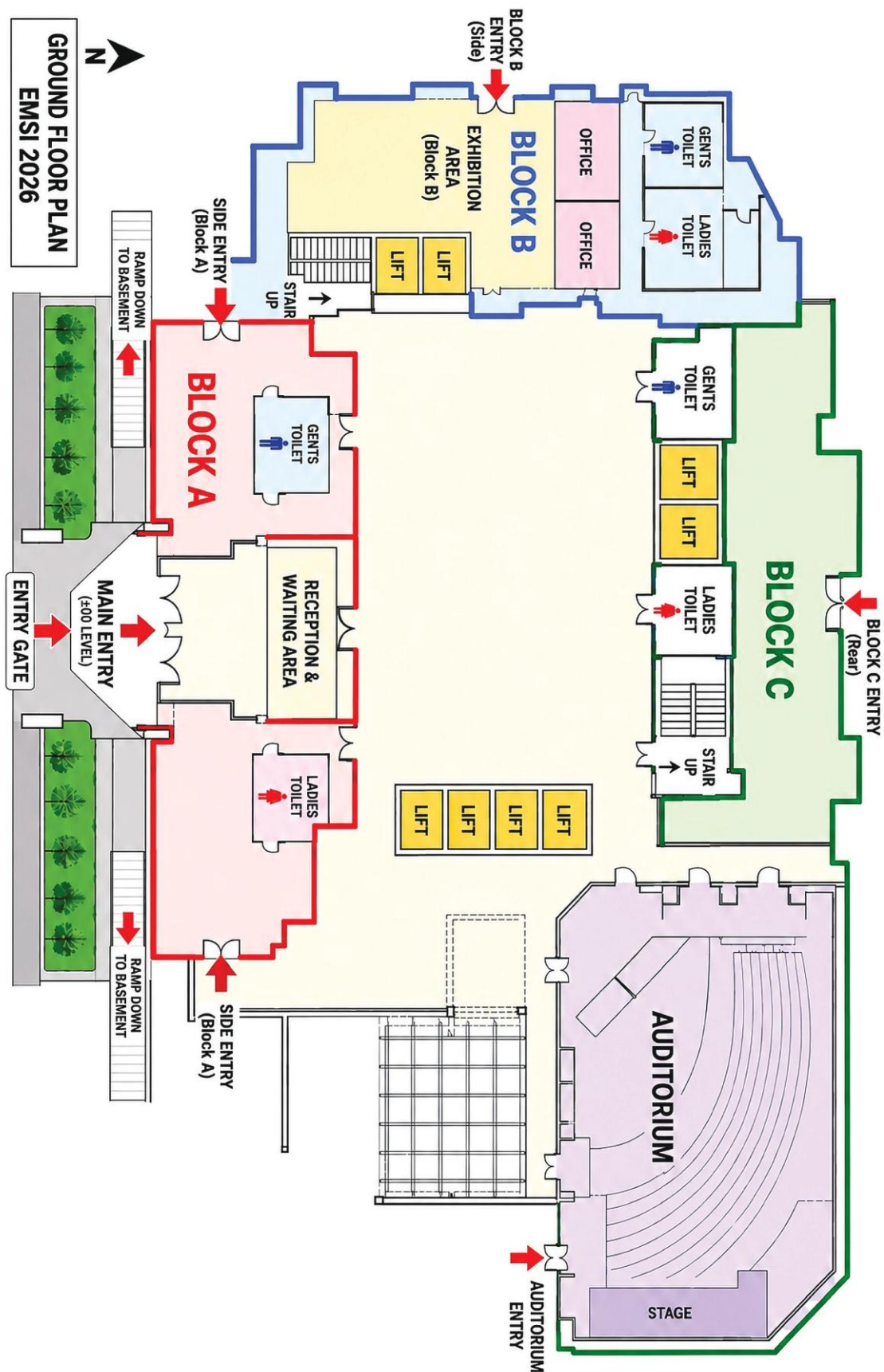


Symmetry S3 EBSD

Symmetry S3 is an advanced EBSD detector designed for high-speed crystallographic mapping. It supports high-throughput orientation analysis and high-resolution datasets, enabling quantitative studies of grain structure, texture, phase distribution, deformation and microstructural evolution.



Conference Floor Plan & Wayfinding



Delegate Information & Contacts

General / registration

- General: 2026.emsi@gmail.com
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EMSI-2026 website



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Suggested final additions before release: approved remaining messages • final floor plan • company biographies/advertisements • selected microscopy images with captions and permissions • final awardees • print-quality sponsor logos • ISBN/publication details if applicable.

EMSI 2026

Thank You

For your participation

**IIT Kharagpur-Research Park, Newtown, Kolkata
Oct 2-4,2026**

