Hands-on Training Program on Atomic Force Microscopy: From Topography to Advanced Electrical Modes (EFM, SKPM & PFM)

12 - 13 February 2026

Organized by

Sophisticated Instrumentation Centre
Indian Institute of Technology Indore in collaboration with SAKSHAM ANRF-PAIR

Patron

Prof. Suhas S. Joshi
(Director, IIT Indore)

Chairperson

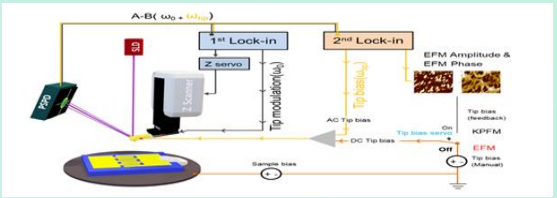
Prof. Abhirup Datta
(Dean, R&D)
Prof. Suman Mukhopadhyay
(Dean, ACR)

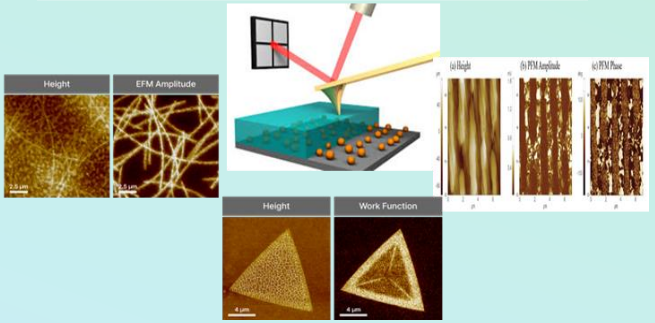
Organizing Committee

Prof. Apurba K Das
(Convener)
Prof. Krushna R. Mavani
(Co-Convener)
Dr. Ravinder (JTS, SIC)
SIC Team

Park SYSTEMS NX10

Electrostatic Force Microscopy (EFM), Scanning Kelvin Probe Microscopy (SKPM), and Piezoelectric Force Microscopy (PFM) are important electrical modes of Atomic Force Microscopy that extend surface characterization beyond topography to probe functional properties at the nanoscale.





Electrostatic Force Microscopy (EFM) is widely applied in the study of semiconductors, polymers, thin films, nanocomposites, and to analyze failures in microelectronic devices.

Scanning Kelvin Probe Microscopy (SKPM) is utilized to investigate electronic properties, band alignment, charge transport, and junction behavior in materials such as solar cells, perovskites, 2D materials, and nanoelectronics devices.

Piezoelectric Force Microscopy (PFM) is extensively used in the development and analysis of sensors, actuators, ferroelectric memories, functional oxides, and bio-piezoelectric materials.

Workshop Relevance

The Workshop and Hands-on training program on Atomic Force Microscopy is highly relevant as it bridges the gap between fundamental AFM topographical imaging and advanced electrical characterization techniques. This workshop provides participants with both theoretical understanding and practical, hands-on experience in operating advanced electrical AFM modes. Through this training, participants will gain insight into nanoscale electrical, surface potential, and electromechanical properties of materials, which are crucial in fields such as nanotechnology, materials science, semiconductor research, energy devices, and biomaterials.

Workshop Objectives

- To understand the fundamentals of AFM and topographical imaging
- To gain knowledge of advanced electrical AFM modes (EFM, SKPM, and PFM)
- To acquire hands-on experience in operating AFM in electrical modes
- To learn data acquisition, analysis, and interpretation techniques
- To apply advanced AFM methods to real research and industrial problems

Indian Institute of Technology Indore

Indian Institute of Technology Indore (IITI) is a premier institution of national importance for higher education and research in India, established in 2009 at Indore. The institute has developed robust and state-of-the-art infrastructure to support research and development across diverse disciplines in engineering and science. IITI actively encourages interdisciplinary research in both fundamental and applied areas, fostering technology development and innovation, enabling excellence in science, engineering, as well as the humanities and social sciences. To further enhance the optimal utilization and efficient management of advanced, high-end research facilities, IIT Indore established a Sophisticated Instrumentation Centre (SIC) that is accessible to the wider research community.

Sophisticated Instrumentation Centre

Sophisticated Instrumentation Centre (SIC) is a national-level facility established to strengthen and accelerate research programs at IIT Indore. It provides advanced analytical services and technical expertise to researchers from academic institutions and industries across India, including some international research centers.

Our Mission

To advance and support the research ecosystem across all branches of science and engineering at the Indian Institute of Technology Indore (IITI) by providing: Access to state-of-the-art instrumentation and ancillary equipment, along with specialized expertise for their effective use and application. Comprehensive support under a single platform to deliver the highest quality data analysis for both research and teaching purposes. Collaboration with local industries to address critical gaps, thereby enhancing the quality and global competitiveness of Indian industrial products.

Important Dates

Registration deadline	Feb 5, 2026
Confirmation by mail	Feb 6, 2026
Commencement of Program	Feb 12, 2026

Target Participants

Open to students (B.Sc., M.Sc., B.Pharm., M.Pharm., B.Tech., M.Tech., Ph.D.), Post Doc, Technical staff, Industry Personnel and Faculty. Participants will gain hands-on experience and an in-depth understanding of the fascinating nanoscopic world of AFM. **Seats are limited**, so early application is recommended to secure your spot. A certificate will be awarded upon successful completion of the course.

Registration details

The registration fee inclusive of GST (non-refundable) for participants attending the workshop is given below:

Registration type	Fee (Rs.)
Academia (Students)	1200
Staff and Post -Doc	2400
Academia (Faculty)	3000
Industry	4000

Bank Account Details:

The registration fee is to be deposited through the following link:
https://payu.in/web/EB3AF4CBC22FB4C90B5ABC9A52E5CAC3

Registration form:

To complete the online registration, the participants needs to fill the following google form:
https://forms.gle/fNMvrpYZmc1VGxWb6

Accommodation

Hostel accommodation will be provided to the participants attending this workshop for an additional charge of Rs 1050/- and Rs 575/- per night for single and double occupancy, respectively. Participants can apply for accommodation here:
https://forms.gle/Fv8gw1CfhA6jwysAA

Scan the below QR codes to reach IIT Indore

Indore Airport | Railway station | Sarvate Bus stand | AiCTSL Bus stand

Queries

For any questions or clarifications, please contact:

Dr. Ravinder (9713375057) } Facilitation

Mr. Kinny Pandey (9713954703)
Mr. Amit Patel (9713116924) } Accommodation

Mr. Ghanashyam Bhavsar (8085679173)
Mr. Ranjeet Raghuvanshi (9754957327)
Mr. Kunal Bhadra (8013785065) } Hospitality

Er. Atul Singh (8889311535)
Mr. Sagar Patail (6261423810) } Logistics

Contact Details

Email: ravinderk@iiti.ac.in, sic@iiti.ac.in
managersic@iiti.ac.in
Phone: +91 (731) 6603311 / 3543 / 3541

Venue

Sophisticated Instrumentation Centre (SIC), IIT Indore, Simrol, Khandwa Road, Indore – 453552, Madhya Pradesh

Financial support

SAKSHAM

Park SYSTEMS