



Module PMRF-ISSS072/II/2024

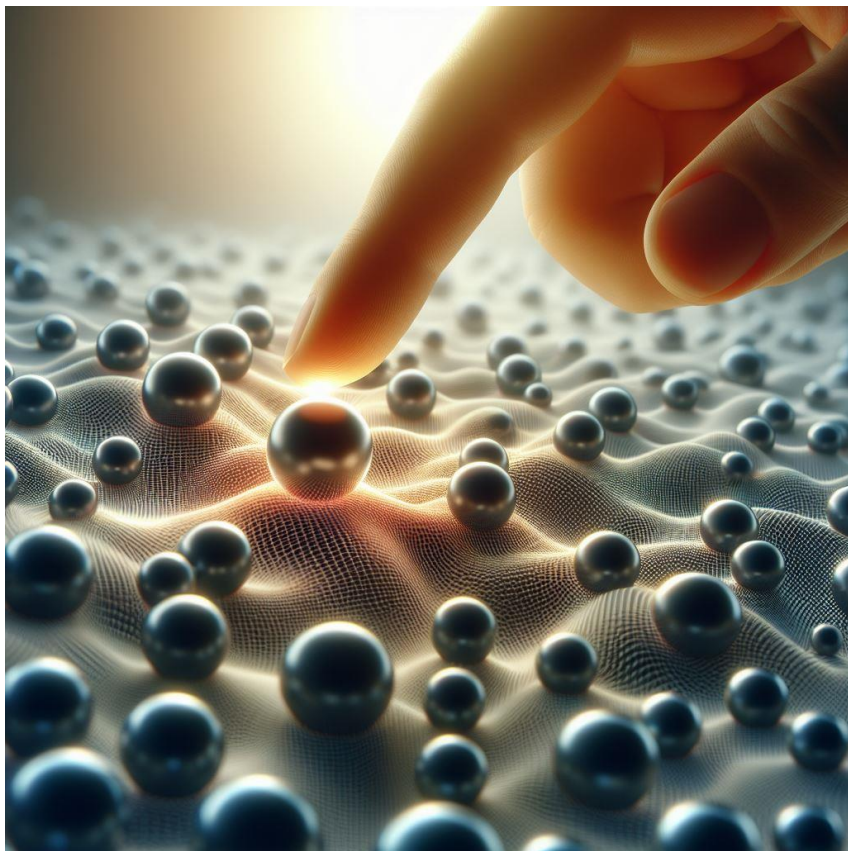
Atomic Force Microscopy

Name of the PMRF student

Sanket Jugade

Required background of the students taught

Basic and Applied sciences domains of Physics, Chemistry, Biology, Nanoscience/Nanotechnology. Engineering disciplines of Mechanical/Electronics/Materials/Chemical/Instrumentation/Biomedical Engineering.



Details of the content of the module

This course intends to provide a comprehensive overview of Scanning Probe Microscopy (SPM) with more emphasis on Atomic Force Microscopy (AFM). Students will gain a strong understanding of the basic physics, working principles, instrumentation and diverse areas of application of AFM and also learn about the current state-of-the-art AFM systems in the market and their capabilities. This course learnings will enable students to work with SPM techniques and also perform their research effectively. The course contents are as follows:

Tip-Surface Interactions: Intermolecular and surface forces, non-contact and contact interactions

Basics of AFM: Static and Dynamic Modes, Instrumentation, Imaging, Phase imaging, Force Spectroscopy, Probe details and selection, Resolution, Noise, Artifacts, Practical aspects

Advanced AFM: AFM in fluid, Nanomechanical, Electrical, Electrostatic, Magnetic modes, Nanolithography, Multifrequency AFM, High-speed AFM

AFM & related techniques: SNOM, SICM, SThM, TERS, PIFM

Schedule of the module

Start Date: May 2, 2024

End Date: May 12, 2024

Schedule: Live online lectures every Th,Fr,Sa,Su for two weeks i.e. on May 2,3,4,5 and 9,10,11,12

Time: 6:15 PM - 8:15 PM

Meeting link : Will be shared later

[Link](#)

Contact email ID: issf.forum@gmail.com

Registration link:

<https://forms.gle/w1CBZGDsgBuJzV496>