MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

DEPARTMENT OF PHYSICS

"TEQIP-III Sponsored Online Workshop on AFM and STM"

Dates: 01-05th June, 2020

Online Mode: Through Google classroom

Who can participate? Ph. D. students and Post-graduate students of MNIT Jaipur **only**, who are interested in learning about AFM and STM techniques used in the broad areas of physics, materials chemistry, materials science, and engineering.

Aim and scope of the workshop: Scanning Probe Microscopy (SPM) method which involves the local interactions of a probe with the surface of the specimen, is widely used in experimental research in various streams of science and engineering. The most commonly used methods in this category are scanning tunneling electron microscopy (STM) and atomic force microscopy (AFM). SPM started with the invention of the STM in 1981 while, AFM was invented in 1986. With atomic scale structural and spectroscopic imaging capabilities, Scanning Tunneling Microscopy and Spectroscopy (STM/S) has become a very important tool to study the surface structure, growth patterns and local electronic properties down to atomic scales. This workshop will deal with basic of these tools, different modes of operation, data acquisition, image processing, data analysis and instrumentation. Further information will be provided before/during the training sessions.

This workshop is an attempt to provide answers for queries of the scholars and make their research work easier, more scientific, need-based, and genuine.

The workshop will include 2 hours' online lectures and 2-3 hours of home exercise/assignments (as needed) each day on the related topics. Tentative time schedule of the workshop is as follows:

Date/Time	Title/Topic
01. 06. 2020 (3:00-5:00pm)	Instrumentation and Modes of AFM, Operation and Applications STM: "Stairway to Heaven" to touch atoms and molecules
02. 06. 2020 (3:00-5:00pm)	AFM: Sample preparation, Data Acquisition, AFM Image Processing
03. 06. 2020 (3:00-5:00pm)	How to Gain the Best Performance from Your AFM Data: Data Treatment and Analysis
04. 06. 2020 (3:00-5:00pm)	STM Imaging: Imaging Crystalline Surfaces and Atomic States Spectroscopy: AC modulation Technique, Conductance Map and Data Analysis
05. 06. 2020 (3:00-5:00pm)	To Design a STM: Coarse and Fine Positioner, Piezoelectric Scanner and Walker, Vibration Isolation, Electronics and Control

There is no participation fees. The participants will be selected based upon their statement-of-purpose filled in the registration form. **The shortlisted participants will be notified to join the Google Classroom for online lectures.** A performance report/certificate will be issued to the successful candidates.

Register Here

Before 30-05-2020

Contact: mnit.phy@gmail.com

Co-ordinators: Dr. Kamlendra Awasthi, Dr. Anirban Dutta, Dr. Manoj Kumar, Prof. Kanupriya Sachdev, Dr. Subhayan Mandal, Dr. Srinivasa Rao N., and Dr. Debasish Sarkar