

# Nano Characterization Laboratory

## 4IR Advanced Research and Innovation Park

### Department of EEE, BUET

#### Introduction:

The Nano Characterization Laboratory is being established to advance research and innovation in nanotechnology and materials science. This state-of-the-art facility will provide cutting-edge tools for surface, structural, electronic, optical, photonic, magnetic, and thermal characterization of nanomaterials, nanostructured materials, biomaterials, and devices, supporting both academic research and industrial applications.

#### Vision:

To become a leading center for nano characterization, fostering innovation and excellence in nanotechnology research and education.

#### Missions:

- To provide cutting-edge characterization tools and facilities for researchers and students.
- To contribute to the advancement of knowledge in nanoscience and nanotechnology.
- To enhance practical skills and expertise of students and researchers in nano characterization.



SEM



TEM



XRD



PLS Spectrometer

#### Key Characterization Equipment and Facilities:

- **Surface and Structural:** SEM, AFM, STM, TEM, XRD, XPS, and Raman Spectroscopy
- **Electronic:** Four-point probe station, Hall-effect measurement system, *I-V* characterization, *C-V* Profiling, EIS, Pulse Test Analyzer, and Oscilloscope
- **Optical and Photonic:** Confocal microscopy, PLS, FTIR, Ellipsometry, SNOM, and UV-Vis Spectroscopy
- **Magnetic and Thermal:** Vibrating Sample Magnetometer, Superconducting Quantum Interference Device (SQUID) Magnetometer, Magnetic Force Microscopy, and ESR Spectroscopy
- **Cleanroom:** ISO Class 5 (USA Federal Class 100) cleanroom



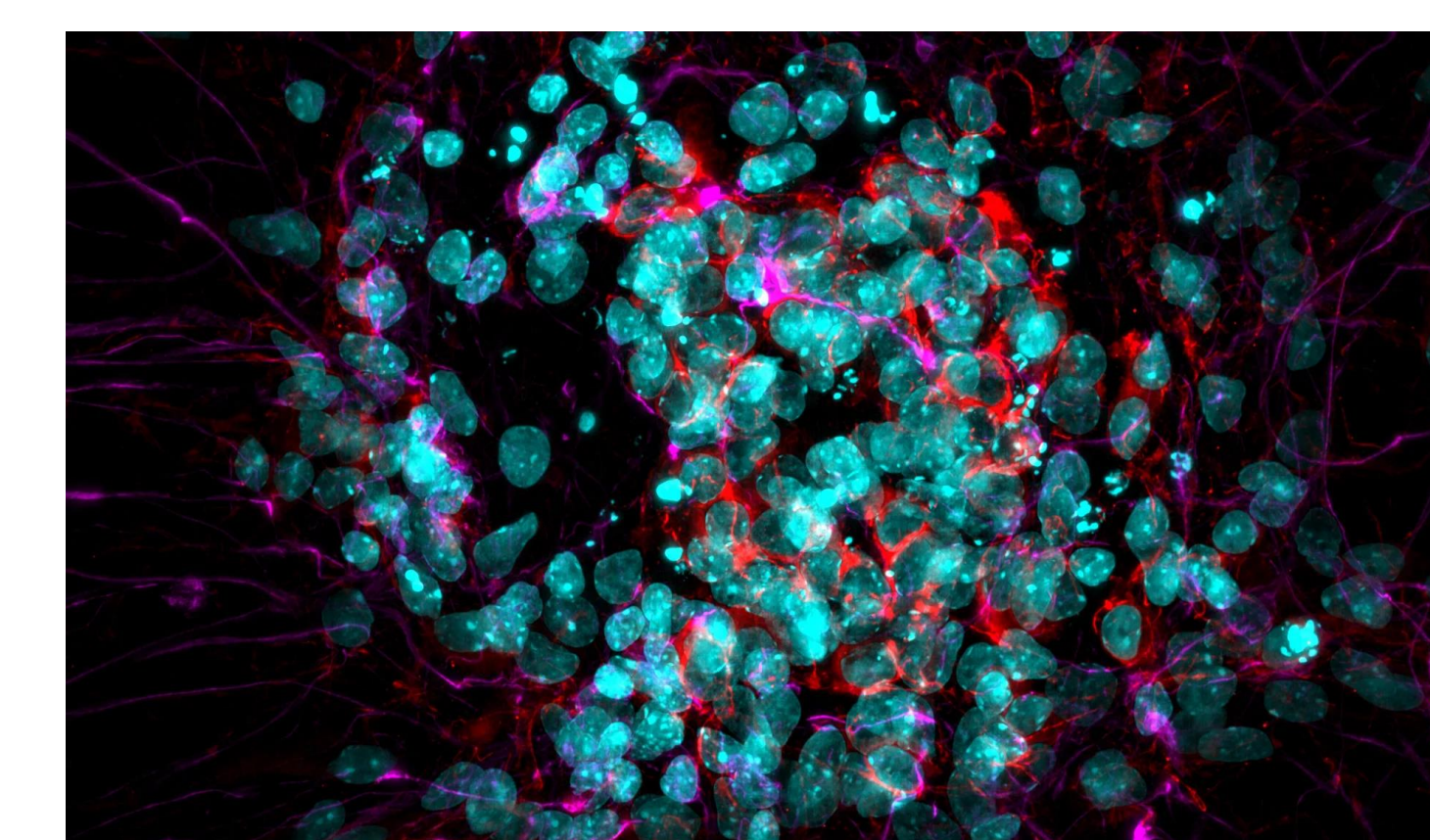
A four-point probe station



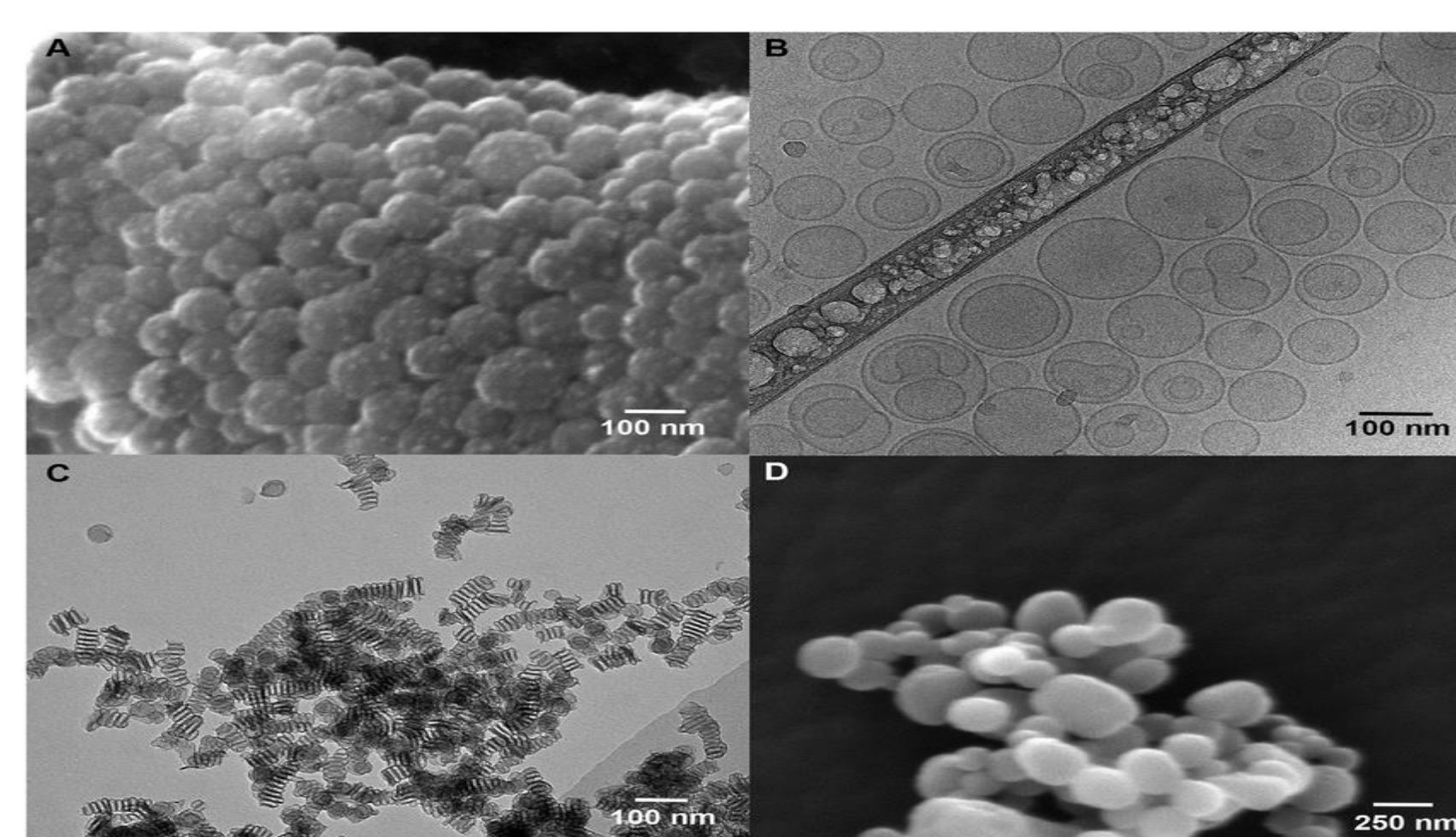
FTIR



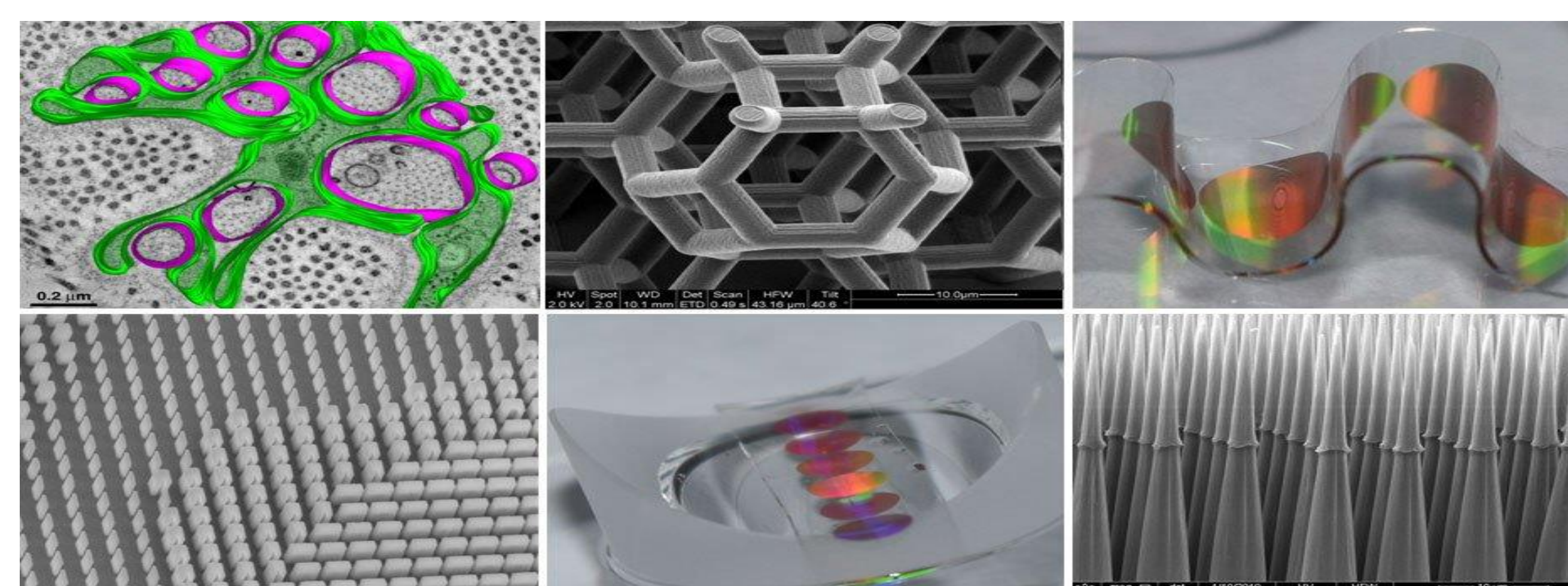
ESR Spectrometer



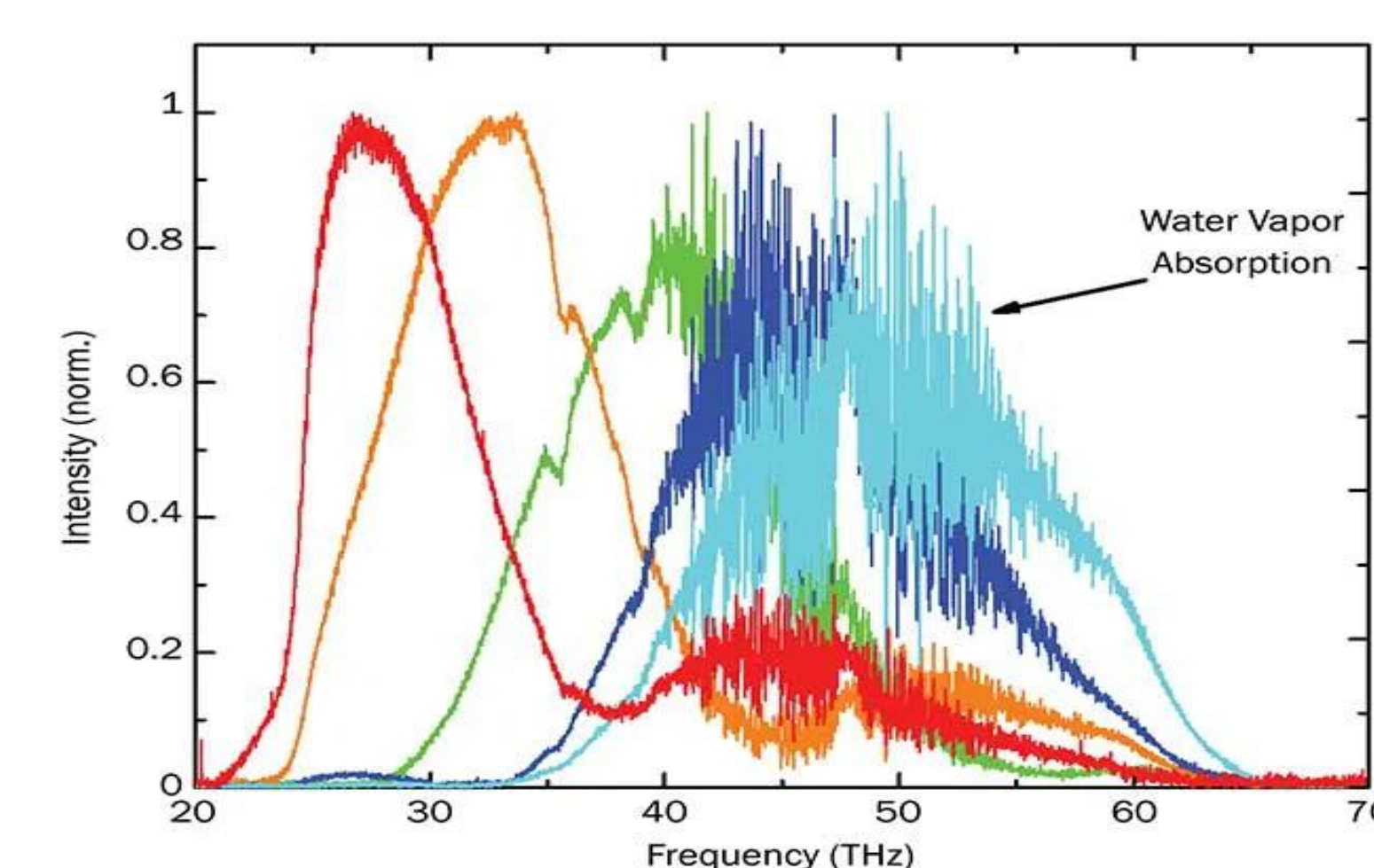
Cells through confocal microscope



Nanomaterials under SEM



Surface and structural visualization



FTIR characterization

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