Multiscale Characterization Laboratory

The advancement in 21st century technology are highly impacted by the new R&D in areas of materials and devices exhibiting multifunctionality arising due to their complex structures from atomic to macroscopic length scale operating at ultrafast time scales. Identification of right kind of materials, from amongst the millions of materials being synthesized world over, for given applications is one of the major challenges in the area of Material Science. This warrants a careful investigation of structural, electrical, magnetic, optical, mechanical and thermal properties at length scales ranging from atoms/molecules to nano, meso, micro and beyond. Such investigations provide deep insight into the genesis of various properties, scope to tune them and also to design and develop new materials with desired set of properties for given applications. Such studies also enhance the understanding of impact of various process steps involved in the development of the technology and manufacturing. Therefore, Material Characterization is an important aspect in Research and Technology development. Keeping this in mind, the department has established the Thematic laboratory, "Multiscale Characterization Laboratory", which is equipped with several state-of-the art characterization facilities viz. Scanning Tunneling Microscope, Physical Property Measurement System, SQUID Magnetometer, Multferroic measurement systems, etc. The department has also access to a wide range of other analytical equipment available at the Centre for Advanced Scientific Equipment (CASE) being managed at the institute level.

LT-Scanning Tunneling Microscope

Physical Property Measurement System