Measurement of: Structure and microstructure

Equipment: High Resolution Transmission Electron Microscope (Make: Tecnai G2 F30 STWIN)

Property Measured: Crystal structure and microstructure at high magnifications

Photograph (small size)

Basic Principle:

It produces magnified images or diffraction patterns of the sample by an electron beam which passes through the sample and interacts with it.

Capabilities: It is an excellent tool for the microstructural characterization of materials at high magnification and high resolution, even at lattice scale. The material may also be interpreted in reciprocal space. It is very useful for determination of crystallographic structures by selected area electron diffraction, identification of various phases and phase transformation in the material. In case of nano materials it is an indispensable characterization tool. Spectroscopy attachment to main microscope is useful for the elemental analysis at nano scale.

Sample Requirement: Electron beam transparent solid samples with thickness less than 50 nm.