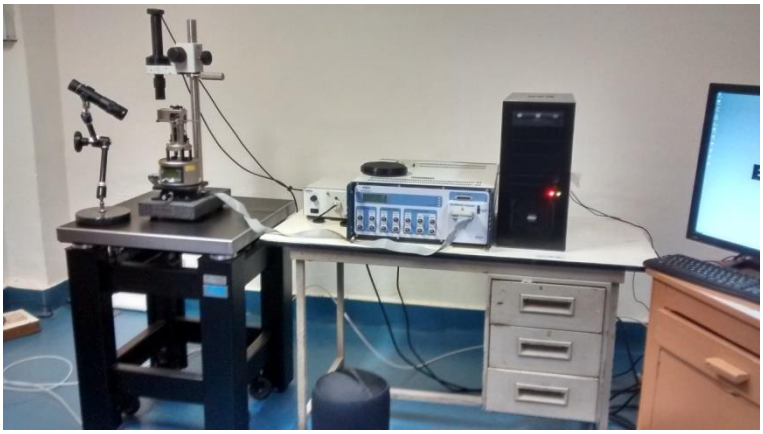
Measurement of: Surface morphology and topography of the thin film

Equipment: Atomic Force Microscope

Property Measured: Surface morphology and Roughness analysis

Photograph (small size)



Basic Principle: Atomic-force microscopy (AFM) or scanning-force microscopy (SFM) is a type of scanning probe microscopy (SPM), with demonstrated resolution on the order of fractions of a nanometer, more than 1000 times better than the optical diffraction limit. The information is gathered by "feeling" or "touching" the surface with a mechanical probe. Piezoelectric elements that facilitate tiny but accurate and precise movements on (electronic) command enable very precise scanning.

Capabilities:

(i) Available modes: Contact AFM, Semi contact mode and Kelvin probe force microscopy

(ii) Replaceable scanner: X,Y,Z 10x10x2μm(+/-10%)

(iii)Sample base which includes

- Sample-to-tip automatic approach system
- Adjustable viewing mirror,
- Scanner connector
- Bias voltage and heating stage connectors
- Manual X,Y positioning stage
- Range of sample positioning 5x5 mm
- Positioning resolution 5μm

(iv) Vibration and acoustic isolation systems, vibration isolation system, Protective cover for electric shielding and acoustic isolation

(v) Electronics SPM controller

Sample Requirement: Thin film on substrate, sample size should be less then 1cmX1cm