

X-Ray Photoelectron Spectroscopy (XPS) Facility

- XPS, also known as Electron Spectroscopy for Chemical Analysis (ESCA) is a surface sensitive technique. This technique analyses the near surface region (few nanometer thick) of the sample kept under ultra high vacuum ($<10^{-8}$ mbar) conditions.
- XPS is capable of
 - Compositional analysis.
 - Identification of oxidation states of elements.
 - With sputter etching, depth profiling of elements in the sample.
- The system at NAL consists of
 - Twin Anode X-ray source : Al K α with energy 1486.6 eV
Mg K α with energy 1253.6 eV
 - Electron energy analyser: 100mm radius hemispherical analyser with single detector.
 - Ion Gun for surface cleaning: 3kV, 10mA.
 - Flood Gun for charge neutralisation for analysing insulating samples.
 - Pumping system: Turbomolecular and Scroll pumps.
 - Load Lock Chamber.



XPS System at SED-NAL