

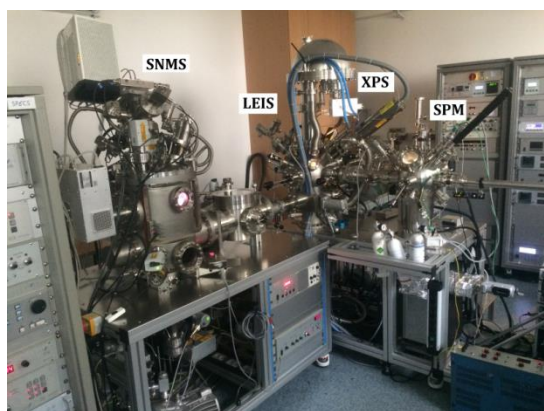
Determination of chemical state of the elements



Preface

X-ray Photoelectron Spectroscopy (XPS) is one of the most powerful, non-destructive surface analytical method. XPS measurement provides qualitative elemental analysis, quantitative composition and determination of chemical state. The information is originated from the topmost 6-10 nm slab of the sample. Sample is illuminated by X-ray source, thus excited photoelectrons are detected by an energy analyzer. The achievable lateral resolution is about a few square millimeters.

Infrastructure



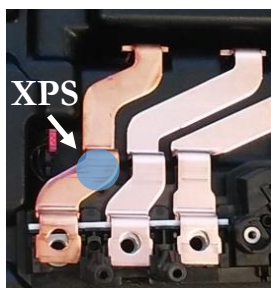
The unique equipment for the complex sample composition and surface analysis

XPS is connected to the Secondary Neutral Mass Spectrometer (SNMS) and Scanning Probe Microscope (SPM) through the common vacuum system. All the measurements are carried out in ultra-high vacuum (UHV, $p > 10^{-8}$ mbar), thus the measured samples must be UHV compatible.

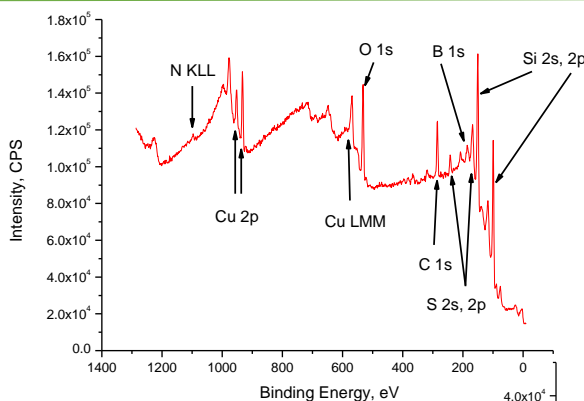


Heatable-coolable sample holder in 70-900 K temperature range

Example



Investigation of a sample surface contamination used under industrial circumstances. The marked area of the copper electrical contact was measured to determine the chemical state of the elements and origin of contamination.



Survey spectra from the marked area

Deconvolution of Cu $2p_{3/2}$ peak

