

Electron Spectroscopy Laboratory

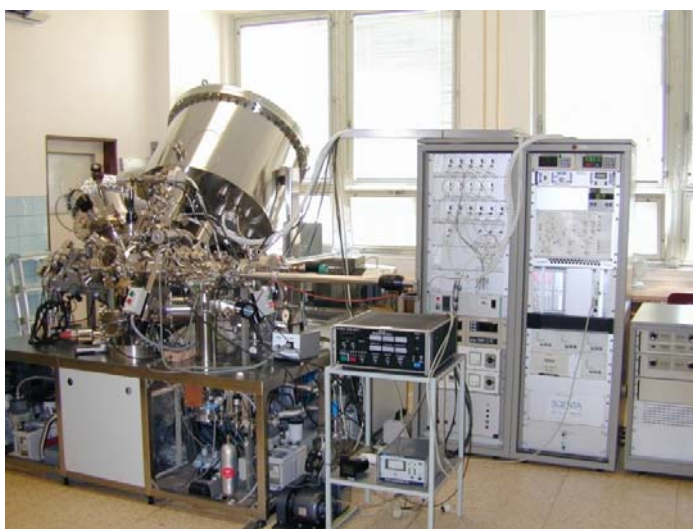
Photoelectron, Auger Electron and Ion Scattering Spectroscopy methods are used to study chemical composition and electronic structure of nanoscale materials (surfaces, interfaces, nanoparticles on surfaces, thin films) and correlate these properties with their physico-chemical behaviour.

Currently, the work focuses on investigations of :

1. Metallic nanoparticle assemblies on single crystal surfaces, their formation and stability (Au, Ni, Pt/(0001)HOPG, (111)Au)
2. Bimetallic surfaces and surface alloys, their formation, stability and adsorption properties (Pd/Nb, V, W; Al/Au)
3. Biomaterial surfaces, their functionalization and interactions with collagen.

Equipment

Laboratory is equipped with electron spectrometer **ESCA 310** (Gammadata Scienta, Sweden, *figure right*). It features high resolution and intensity of monochromatized Al K α X-rays by using a rotating anode of special UHV design, unique crystal monochromator consisting of seven 80 mm diameter toroidally bent quartz crystals (Rowland circle diameter 650 mm), 60 cm diameter hemispherical electron analyzer and sensitive two-dimensional multidetector. It has angle independent resolution and enhanced sensitivity at low detection angles. The spectrometer can be operated in transmission, spatial and angular mode.



In addition, a conventional ESCA 3 Mk II electron spectrometer (VG Scientific, England) is installed in the Laboratory equipped with XPS, UPS, AES and QMS techniques.

Staff

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