

THE NEW RESEARCH EQUIPMENT FOR SURFACE CHARACTERIZATION OF MATERIALS AT THE INSTITUTE OF METALS AND TECHNOLOGY, LJUBLJANA

NOVA RAZISKOVALNA OPREMA ZA RAZISKAVE POVRŠIN
TRDNIH SNOVI NA IMT, LJUBLJANA

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At the INSTITUTE OF METALS AND TECHNOLOGY, LJUBLJANA is installed a field emission scanning Auger microprobe MICROLAB 310-F of VG Scientific from UK for research of solid surfaces, grain boundaries and phases, micro analysis of materials as well as research of physical phenomena on the free surfaces of metals and inorganic materials: adsorption, segregation of surface active elements, oxidation, corrosion, characterization of thin films, recrystallization, catalysis etc.

The new instruments allows the following methods:

- Auger Electron Spectroscopy - AES
- Scanning Auger Electron Spectroscopy - SAM
- Secondary Electron Microscopy - SEM
- Reflected Electron Energy Loss Spectroscopy - REELS

• X-Ray Photoelectron Spectroscopy - XPS

One of the most important features of Microlab 310-F is its high spatial resolution in both SEM and SAM. It has field emission electron source with very high brightness, high performance electron column, very low drift stage simultaneous peak and background acquisition when mapping and image registration software.

Microlab 310-F has a spherical sector analyser which can be operated with high energy resolution. Adding a dual anode X-ray source therefore allows the instrument to perform high quality XPS analysis. The instrument is fitted with high quality ion gun, which allows the ability to perform high quality, rapid depth profiles.

The instrument is additionally equipped with fracture stage. This device allows the fracturing of specially

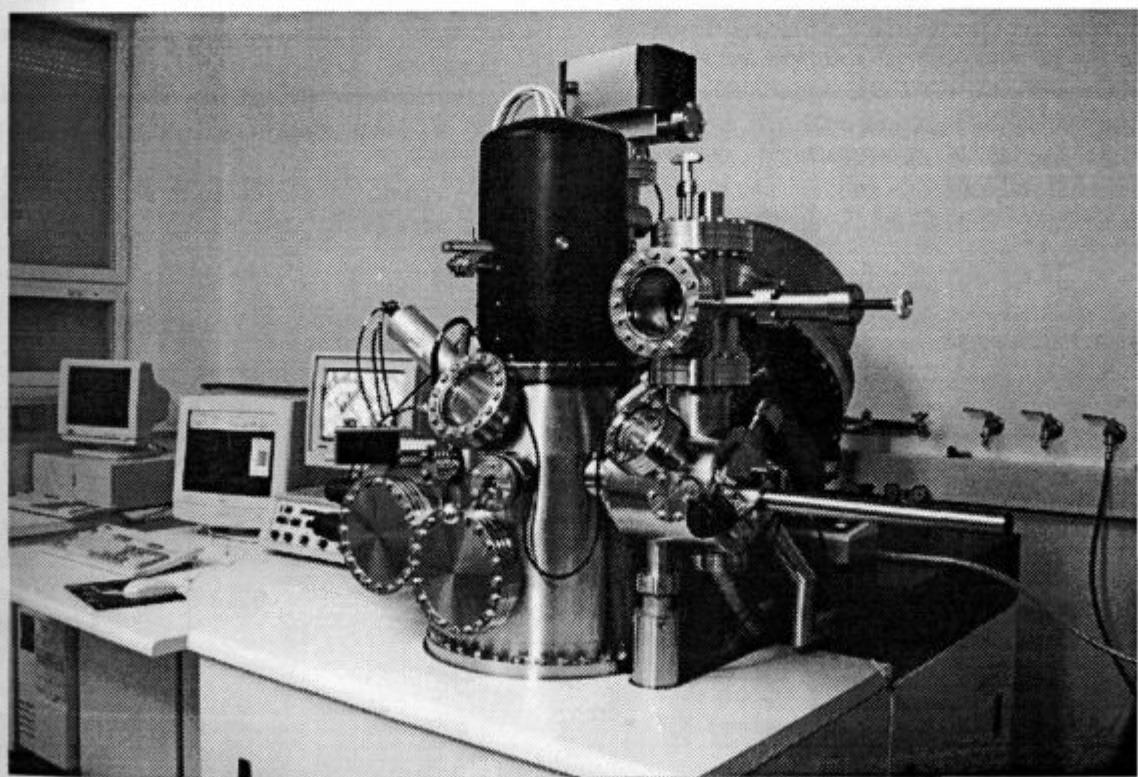


Figure 1: Microlab 310-F, AES/XPS instrument installed at the Institute of Metals and Technology Ljubljana

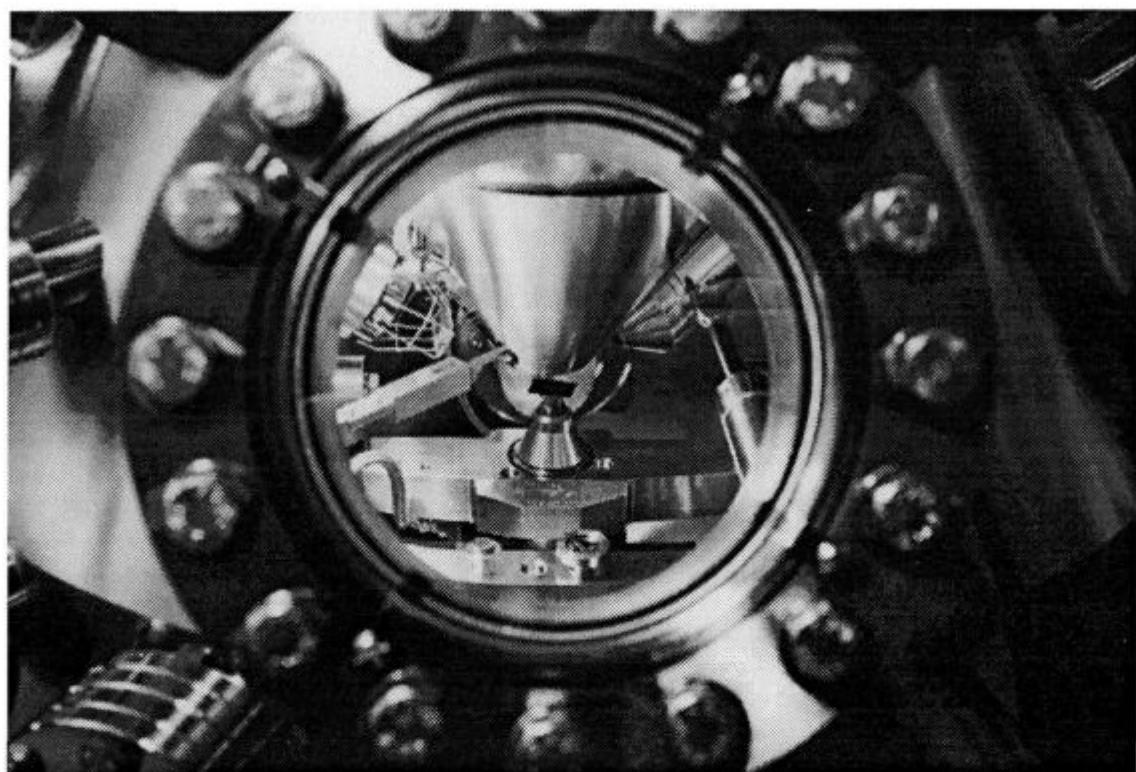


Figure 2: A view through the monitoring window into the UHV analysis chamber on the sample, electron gun, ion gun and X-Ray source (see cover)

shaped brittle samples in UHV; the stage allows that both halves of the fractured samples can be collected for analysis.

The purchase of instrument was financially supported by industrial partners, research institutes and university:

- Institute of Metals and Technology, Ljubljana
- Institute Jožef Stefan, Ljubljana
- National Institute of Chemistry, Ljubljana
- Concern Slovenian Steelworks, Ljubljana
- Nuclear Power Plant Krško

- Kolektor, Idrija
- Talam Kidričeve, Bistrica
- Impol, Slovenska Bistrica
- Department for Materials and Metallurgy, University of Ljubljana
- Centre for Tribology and Technical Diagnostic, Faculty of Mechanical Engineering, University of Ljubljana

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