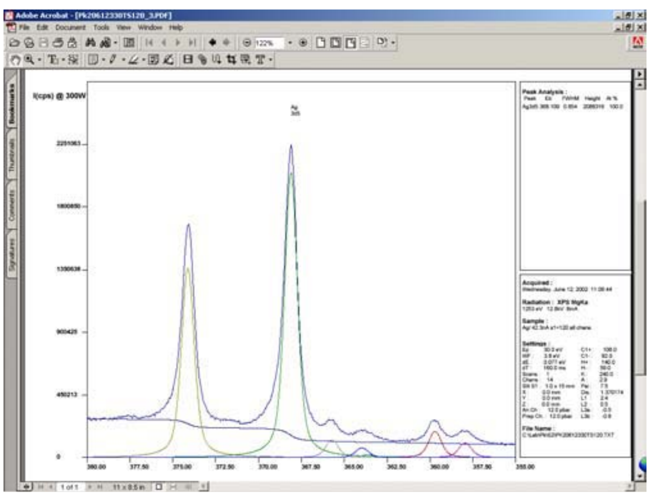
High Resolution XPS

vsμanalysis

Removal of the instrument background and substantial reduction of the second order analyser aberrations made it possible to achieve the best energy resolution spectrometer for its size

Fine resolution on standards

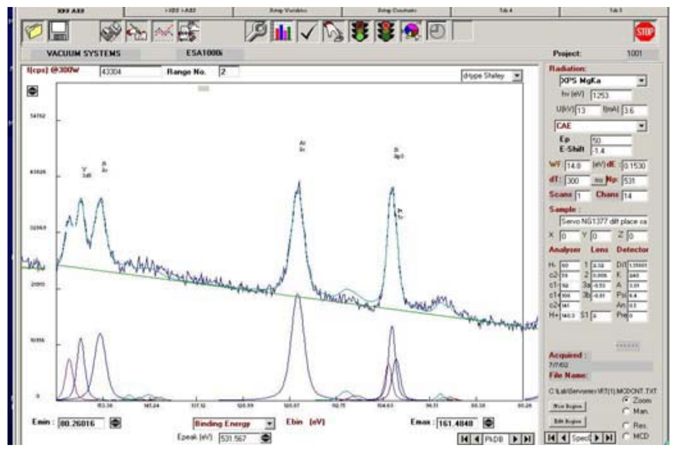
The optimum is high transmission, minimum background and line width at the peak bottom



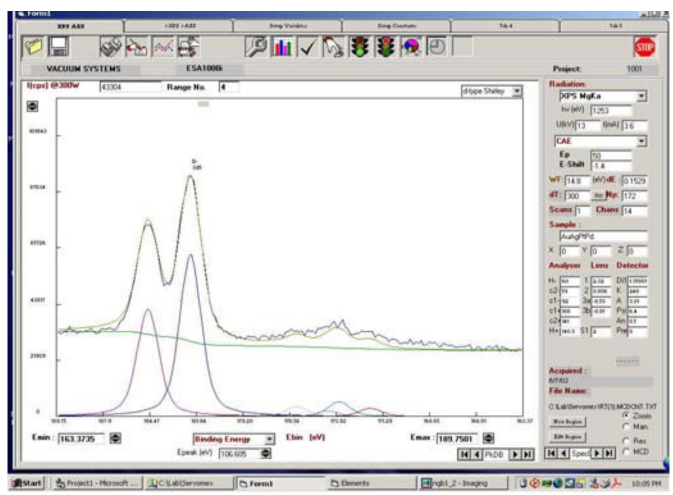
Fine energy resolution and high transmission XPS MgKa of Ag 3d at 300W on standard metallic sample. The background is calculated according to Shirley definition gives dE=0.85 eV at FWHM and dE=1.0 eV at the 10% base line (FWBL10) Some manufacturers define an unrealistic background as the line connecting points at +- 2 eV either side of the Ag3d5 peak in order to show "better" FWHM.. For our case this would give dE=0.795 eV.

Application to catalysis

The real test of an XPS spectrometer is in catalysis applications. These require high energy peak resolution to distinguish different chemical states and high spectrometer sensitivity as most of the samples under go charge compensation problems or change surface conditions with time.



XPS MgKa of Yttria Alumina Silica glass. It shows a structure of Y 3d from Y2O3.



A real power of this spectrometer to resolve neighboring peaks at FWBL10 is shown by a well resolved structure of Zr 3d of ZrO2 glass.

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