UNIVERSIDAD
DE MÁLAGA

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Advanced course on Photoelectronic X-Ray Spectroscopy (XPS).

Universidade Federal do Santa Catarina, Florianópolis, Brasil

Prof. Dr. Enrique Rodríguez Castellón
Universidad de Málaga

Duration: 8 hours + 4 hours tutorials (in English and/or "Portuñol")

29-30/10/2018

Program

1- Concept of surface. Surface analyses
2- Introduction to XPS. Historic background. Basis and interpretation of the physical process. Photoelectric effect. Conceptual schemes of XPS.
3- X-Ray sources. Synchrotron radiation. Type of spectrometers. Detectors. High Vacuum systems.
4- Fundamentals of XPS. Koopman theorem. Photoelectronic and Auger signals. Spectroscopic terms. Surface sensitivity. Concept of mean free path.
5- Elemental chemical analysis. Spectral interpretation. Panoramic spectra. Multiregion spectra. Correction for the effect of surface charge. Type of signal. Loss plasmons. Analysis of background signal.
6- Chemical shift. Examples. Interpretation of spectra. Fitting of signals. Satellite signals. Examples. Modified Auger parameter. Wagner diagrams.
7- Quantitative analysis. Examples. Most common errors.
8- Depth profiles. ARXPS (angle resolved XPS). Depth profiles with plasma bombardment.
9- Image analysis. Examples
10- Applications of XPS. Study of catalysts. Study of adsorbents. Studies of corrosion. Studies of adhesion. Studies of interfaces. Studies of membranes.
11- Spectral analysis by Multipak software. Introduction to this software. Study cases provided by participants in the course.
12- XPS databases. Utilization of databases. Software for conversion.