Ben-Gurion University of the Negev
Blaustein Institutes for Desert Research
The Swiss Institute for Dryland Environmental and Energy Research
Alexandre Yersin Department of Solar Energy and Environmental Physics

Title:

X-Ray Photoelectron Spectroscopy (XPS), a Chemical Analysis Tool for Electrical Characterization of Materials and Devices

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Abstract:

XPS has been a very successful analytical tool for chemical and surface analysis of numerous materials for more than 6 decades. In this technique, all the information is derived from kinetic energy measurements of the emitted photoelectrons upon exposure to monochromatic and focused X-rays, and using the Einstein's equation (hv = K.E. + B.E.). Such analysis brings out a wealth of information about the materials with reasonable conductivities. In analysis of non-conducting or poorly conducting materials additional electrical potentials develop due to charging, and alter the kinetic energy of the emitted electrons, thus severely hampering the analysis. On the other hand, additional important electrical information related with dielectric properties of materials can be harvested from these electrical potentials developed, in a non-contact and non-invasive fashion, using XPS. This variant of XPS brings out vital information especially on device performances. Details of the technique and applications to various materials and devices will be presented.

Date & Location:
Tuesday, December 12, 2017, 11:00
Lecture room, Physics Building (ground floor)