THE CHINESE UNIVERSITY OF HONG KONG

Department of Physics

SEMINAR

Fundamentals of X-ray Photoelectron Spectroscopy (XPS): Principles, Instrumentation, and Applications

by

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Date: June 28, 2024 (Friday)
Time: 10:00 a.m. - 12:00 n.n.
Place: Rm G25, Science Centre North Block, CUHK

ALL INTERESTED ARE WELCOME
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Abstract

Surface analysis techniques play a pivotal role in understanding material properties at nanoscale dimensions, crucial for various fields such as materials science, nanotechnology, and catalysis. This seminar focuses on elucidating the principles and applications of advanced surface analysis techniques, including X-ray Photoelectron Spectroscopy (XPS), Argon Cluster Depth Profiling, Ultraviolet Photoelectron Spectroscopy (UPS), and Silver Hard X-ray Photoelectron Spectroscopy (Ag HAXPES).

Through a series of comprehensive discussions and case studies, participants will delve into the theoretical foundations, instrumentation, data interpretation methodologies, and practical applications of these cutting-edge techniques. Special emphasis will be placed on their capabilities in characterizing surface composition, chemical states, electronic structures, and depths of various materials.

Key Topics:

1. Fundamentals of X-ray Photoelectron Spectroscopy (XPS): Principles, Instrumentation, and Applications.
2. Argon Cluster Depth Profiling: Probing Material Interfaces and Layer Structures.
3. Insights into Electronic Structure and Band Alignment with Ultraviolet Photoelectron Spectroscopy (UPS).
4. Advancements in Surface Sensitivity and Depth Profiling with Silver Hard X-ray Photoelectron Spectroscopy (Ag HAXPES).
5. Case Studies and Applications: From Semiconductor Interfaces to Catalytic Surfaces.
6. Future Directions and Emerging Trends in Surface Analysis Techniques.

This seminar aims to provide participants with a comprehensive understanding of state-of-the-art surface analysis methodologies, fostering collaborations and advancements in interdisciplinary research endeavours.

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