



西安交通大学
XI'AN JIAOTONG UNIVERSITY



学术报告

报告题目: Total and Partial Photoelectron Yield

Spectroscopy as a Tool to Examine Electronic Structures

报告人: Prof. Hisao Ishii, Chiba University

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西安交通大学站 (创科大厦9楼) 多功能厅



报告人简介:

Prof. Hisao Ishii received his MS and Ph.D. degrees in chemistry from the University of Tokyo, in 1988 and 1991, respectively. His thesis research focused on the metastable atom electron spectroscopy of clean and adsorbate-covered silicon surfaces. In 1991, he started to investigate the film and interface electronic structure of organic semiconductors at Nagoya University as an assistant professor. In 2002, he was promoted to associate professor in Research Institute of Electrical Communication, Tohoku University, to extend his research to organic device physics. Now, he has been working for Chiba University since 2006 as a professor. His current research interests include photoelectron spectroscopy of functional organic materials, electronic structure of organic/inorganic interfaces, and molecular orientation of thin organic films. His efforts are also focusing on developing new techniques such as photoelectron yield spectroscopy, high-sensitivity photoelectron spectroscopy and rotary Kelvin probe, etc.

报告简介:

Photoelectron yield spectroscopy (PYS), in which total photoelectron yield is recorded as a function of incident photon energy, has been widely applied to determine the ionization energy and work function of various electronic materials. Such information on electronic structure is indispensable for device development, and PYS has been used by both basic scientists and device researchers. PYS has some advantage complimentary to conventional photoelectron spectroscopy; (i) measurement environment is not limited to vacuum, (ii) sample charge-up problem is practically negligible, (iii) high sensitivity is available in vacuum, and so on. Thus, PYS is a powerful method to explore the electronic structures of organic materials and interfaces in practical situation. In this lecture, first we describe the basic principle and experimental setup of PYS. Then the applications to various organic materials and interfaces are described with the results of combined application of PYS and high sensitivity photoemission spectroscopy. In addition, operando PYS measurement using organic transistor device is also reported in relation to anion state. Finally, constant final state photoelectron yield spectroscopy (CFS-YS), in which the partial photoelectron yield for a fixed kinetic energy is recorded as a function of photon energy, is introduced as a tool to examine the density of states of semiconductors in high sensitivity.

主办单位: 西安交通大学电气工程学院/电工材料电气绝缘全国重点实验室

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