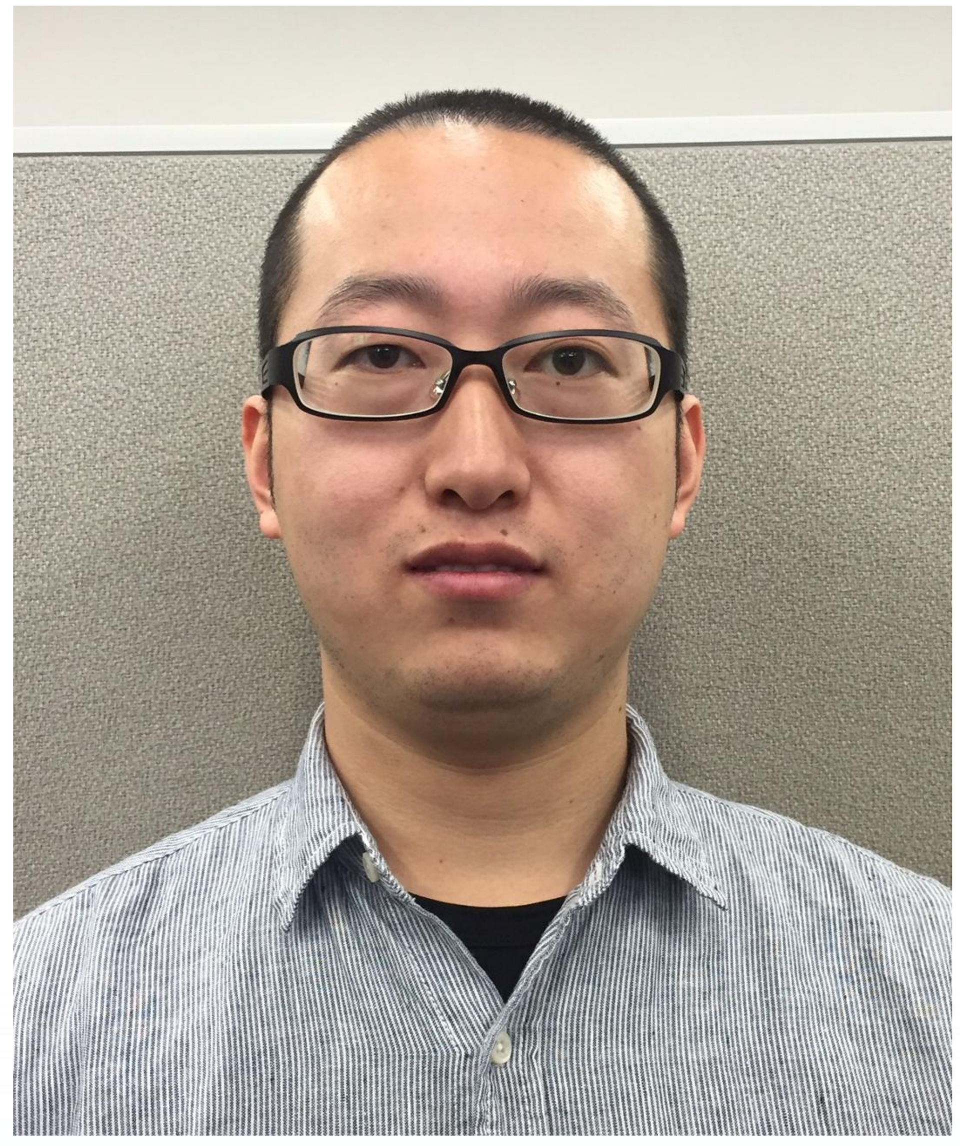
学术报告

题　目：Data-driven spectral analysis for nanomaterial information embed in the secondary electron background



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地　点：固体所大楼221报告厅

报告摘要： In most spectroscopic data analyses, the background signal are regarded as noise and only signal data are analyzed. However, such background signal may reflect various background processes and hold some useful information for comprehensive materials characterization. The main reason of such a situation is due to the widely used physics-driven analysis method in which the analysis is based on the modeling of the individual physical mechanism. Herein, we present a new heuristic data-driven analysis method [1] to extract meaningful information from the background signal and to propose an important breakthrough for the next generation surface analysis. The basic idea of the proposal is to use not only physically-defined descriptors but also analytically-defined ones obtained through the data analysis of many slightly different conditions. Interestingly, the inspiration of this idea comes from the design idea of intermediate band solar cells.

报告人简介： In 2008 Dr Bo Da obtained a BS in Physics from University of Science and Technology of China (USTC) and in 2013 a PhD in physics from the same university. In November 2013 he moved to the National Institute for Materials Science (NIMS) (Tsukuba, Japan) as a Postdoctoral Research Fellow, becoming in January 2015 an ICYS Researcher at their International Center for Young Scientists (ICYS), and finally in December 2016 becoming a Researcher in the Center for Materials Research by Information Integration (CMI2). He has been engaged in developing novel measurement-analysis methods to extract more information from measured spectra by surface analysis techniques. For instance, he developed the reverse Monte Carlo method to extract optical constant of bulk material from measured surface electron spectra, and the extended Mermin method to determine low energy electron mean free path of bulk material. Most recently, Da’s research focus has been largely related to development of new measurement-analysis method for nanomaterial samples. The virtual substrate method developed by him represents a benchmark for surface analysis to provide “free-standing” information about supported nanomaterials, and brought him President’s Prize awarded by NIMS. He has had ten first-author papers related to these new methods published in various journals, including Nature Communications, Physical Review Letters and Journal of Applied Physics, among others.