

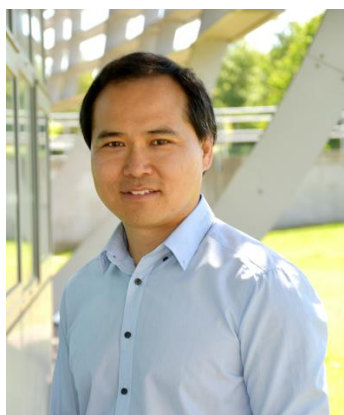


Seminar

A glimpse of RIXS and its applications in quantum materials

Ke-Jin Zhou

Diamond Light Source, Harwell Campus, Didcot, OX11 0DE, United Kingdom



Time: 3:00pm, Mar. 9, 2023 (Thursday)

时间: 2023年3月9日 (周四) 下午3:00

Venue: Room w563, Physics building, Peking University

地点: 北京大学物理楼, 西563会议室

Abstract

Resonant inelastic X-ray scattering (RIXS) is a photon-in photon-out spectroscopic technique utilising highly intense and monochromatized X-rays to probe the excitations in materials of interest. By selectively working at the resonant thresholds of an element, collective excitations or ordered states, such as magnons, orbitons, plasmons, phonons, charge-density waves, can be probed in the energy-momentum space. Owing to its high cross-section and focused X-ray beam, RIXS is advantageous in measuring micron-size samples and nanometre-thick films.

Over the last decade, RIXS has flourished because of an order of magnitude increase in its energy resolving power. At Diamond Light Source in the UK, the I21-RIXS beamline delivers an energy resolution of 35 meV at Cu L-edge (930 eV) and 15 meV at Oxygen K-edge (532 eV) with high photon throughput. In this talk, I will briefly introduce the principle of the technique and the recent science cases in quantum materials particularly unconventional high-temperature superconductors.

About the speaker

Dr. Ke-Jin Zhou is the Principal Beamline Scientist of the I21 Resonant Inelastic soft X-ray Scattering (RIXS) beamline, Diamond Light Source, United Kingdom. He obtained Ph.D degree in the Institute of High Energy Physics (IHEP), Chinese Academy of Sciences in 2007. From October 2007 to April 2012, Dr. Zhou was a research fellow at University Pierre and Marie Curie, France, and Swiss Light Source, Paul Scherrer Institute, Switzerland. In 2012, Dr. Ke-Jin Zhou took upon the post of Principal Beamline Scientist at Diamond Light Source, UK, and built up the Beamline of the ultra-high energy resolution RIXS. Since September 2017, I21 has become one of the most sought-after RIXS facilities in the world and produced many ground-breaking results and publications in high profile journals.

Dr. Zhou's scientific focus lies at the core of quantum complex matter including unconventional high T_c superconductors (cuprates, iron-based, and nickelates), artificial oxide heterostructures, as well as low-dimensional quantum materials.