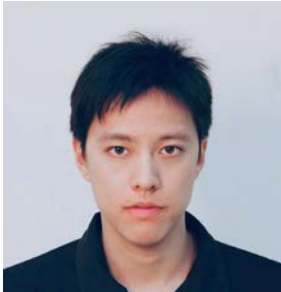




THE CHINESE UNIVERSITY OF HONG KONG
Department of Physics
COLLOQUIUM

Interactions behind High-temperature Superconductivity Probed by X-ray and Neutron Scattering

by



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Date: June 20, 2022 (Monday)

Time: 3:30 - 4:30 p.m.

Join ZOOM Meeting: <https://bit.ly/38QBU8i>



ALL INTERESTED ARE WELCOME

Abstract

The microscopic mechanism of high-transition temperature (high- T_c) superconductivity in cuprate and iron-based materials remains an outstanding question. Competing interactions lead to a complex phase diagram where superconductivity often emerges in vicinity to spin, charge, and orbital ordered phases. Understanding these interactions is crucial for establishing the superconductivity mechanism. In this talk, I will present our recent progress using neutron and resonant inelastic x-ray scattering (RIXS) techniques to explore the magnetic and electronic interactions in high- T_c superconductors. I will first briefly introduce the applications of neutron scattering and RIXS in strongly correlated electron systems. Then I will present our results on the cuprate charge order problem, where new insights are gained by combining uniaxial strain tuning with different scattering experiments. Next, I will present our studies of the spin excitations in the cuprate, iron-based and the newly discovered nickelate superconductors. Similarities and distinctions of these systems will be discussed to help pinpoint the key characteristics of high- T_c superconductivity.

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