

# 2023 IBS-CALDES Seminar

- ✓ **Date & Time** 10:30AM, November 2 (Thu), 2023
- ✓ **Venue:** Room #104 (Auditorium), IBS POSTECH campus bldg.
- ✓ **Speaker & Title**  
10:30AM~ Prof. Shaowei Li (University of California, San Diego)  
“Visualization of Strongly Correlated Electrons with STM”

Organized by: Dr. Ungdon HAM (uham@ibs.re.kr, 054-260-9015)



■ 10:30AM~

# Visualization of Strongly Correlated Electrons with STM

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Atomically thin transition metal dichalcogenides provide an exciting new platform to design and fabricate novel electronic and optical devices. Through the precise control of the stacking order and the twist angle between two adjacent layers, the moiré superlattice can lead to tunable narrow electronic minibands, where long-range Coulomb interactions play a critical role in determining strongly correlated electron states. This has led to the observation of the Mott insulating state at half filling, as well as the generalized Wigner crystal states at fractional fillings. However, the direct microscopic understanding of these emerging quantum phases has long been hindered by many experimental challenges. In this talk, I will present a series of technical advancements in scanning tunneling microscopy which allow us to directly visualize the correlated phases in the closely aligned WS<sub>2</sub>/WSe<sub>2</sub> moiré superlattices.