ECHE
SCHOOL OF ENERGY AND CHEMICAL ENGINEERING

Seminar Series

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Direct Observation and Control of Atomic-Scale Defects in Energy Materials

The importance of direct physical imaging and chemical probing has been widely noted, as both can provide crucial and unexpectedly invaluable information in a variety of scientific fields, including not only materials science and condensed-matter physics but also brain science, photonics, biology, astronomy, and even research for historic materials. In particular, recent advances in spherical aberration correction in scanning transmission electron microscopy (STEM) have enabled the observation of a crystal lattice at a real atomic scale, making it possible to visualize the atomic columns of even light elements in angstrom resolution. In this talk, through exemplifying oxide-based energy-conversion materials for electrocatalytic activities, the beauty of combination of atomic-scale imaging based on STEM and theoretical calculations will be covered to provide a better insight into the correlation between physics, chemistry, and atomic-level imaging.