



UNIVERSITY OF CALIFORNIA, IRVINE

Department of Materials Science and Engineering

Batteries Beyond Lithium-Ion: New Insights from In Situ Electron Microscopy



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Zoom: <https://uci.zoom.us/j/98283794389?pwd=RlpiSXg4RHBQZzNRN0pLSzIrc2tkUT09>

Meeting ID 982 8379 4389 — Passcode 380564

Abstract: Energy storage has become an essential enabling technology for climate neutrality due to its capacity to integrate renewable energy systems into viable power grids. Lithium-ion batteries have achieved tremendous success in applications of portable electronics and electric vehicles, but they are still insufficient to meet the ever-growing energy demand, calling for alternative beyond-Li technologies. In this seminar, I will show our recent efforts in developing in situ electron microscopy methods to retrieve new insights into understanding the electrochemical reaction mechanisms and kinetic pathways and provide design principles for advancing beyond Li-ion batteries.

Bio: Kai He is an assistant professor of materials science and engineering at UCI. He received his Ph.D. in Arizona State University followed by postdoctoral training at University of Maryland and Brookhaven National Laboratory. Before joining UCI, he was an assistant professor at Clemson University. He's research focuses on advanced electron microscopy and spectroscopy and their applications in energy and quantum materials. He is the recipient of the DOE Early Career Award, American Chemical Society PRF Doctoral New Investigator Award, and NSF EPSCoR Track-4 Fellowship for Early Career Faculty.