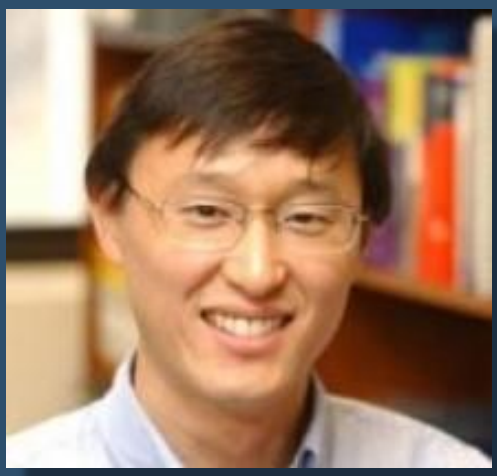
UNIVERSITY OF CALIFORNIA, IRVINE

Department of Materials Science and Engineering

The Materials Physics of Complex Oxide Interfaces



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Zoom: **https://uci.zoom.us/j/97890617262?pwd=N3A1cXY3U0RkQjMwM0FGY1ZrUkd2QT09**

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Abstract: Complex oxide materials exhibit a broad diversity of behavior encompassing a range of functional properties, such as magnetism, ferroelectricity, multiferroicity, and superconductivity. As diverse as this behavior is, an even richer spectrum of possibilities becomes available if one starts to combine different complex oxides together with atomic-scale precision to create new artificially structured, heterogeneous systems. In these nanostructured materials, the atomic-scale interface of these systems can play a decisive role in determining the observed behavior, with new physical properties emerging. In this talk, we describe the electrostatic control of strongly correlated behavior, such as magnetism and the metal-insulator transition, and we discuss the interplay between new interfacial structural motifs and functional behavior.

Bio: Charles Ahn is a William K. Lanman Jr. Professor of Applied Physics, Professor of Mechanical Engineering & Materials Science, Professor of Physics, Chair, Department of Applied Physics, and Director, Center for Research on Interface Structures and Phenomena, an NSF Materials Research Science and Engineering Center. He has received selected awards and honors; Fellow of the American Physical Society, AVS Peter Mark Memorial Award, David and Lucile Packard Fellowship in Science and Engineering, and Alfred P. Sloan Fellowship. The Ahn research group focuses on the fabrication and the study of the physical properties of novel complex oxide materials using advanced growth and characterization techniques, including molecular beam epitaxy and synchrotron x-ray scattering techniques. Current interests include the physics and technology of multifunctional oxides, nanofabrication and electronic writing using scanning probe microscopies, electronic control of complex order parameters in correlated oxides, and development of nonvolatile logic switches for post-CMOS computing paradigms.