

UNDERSTANDING AND SHAPING NEAR-FIELD ENHANCEMENT IN PLASMONIC NANOSTRUCTURES

September 2, 2016 at 1pm

Engineering Building 1, Rm N355

Interest in nanotechnology is driven by unprecedented means to tailor physical behavior via structure and composition. Most properties, including optical, catalytic, and electronic, can be fine-tuned through choice of composition, size, and shape of nanoparticles. This talk covers experimental advances in electron microscopy aimed at the characterization of the local field effects of plasmon resonances in metal nanoparticles (Ag, Au, and alloys). Recent results on the incorporation of catalytic metals in plasmonic systems for light-enhanced catalysis will be presented, including Au/Pd octopods, Pt-decorated Au nanoprisms, and Pd-decorated Al nanoparticles. Then, our newly discovered ability to re-shape the internal structures of semi-hollow nanorods will be discussed.



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SPEAKER BIO

Emilie Ringe is an assistant professor of Materials Science and Nanoengineering, as well as an assistant professor of Chemistry at Rice University. She earned her B.A./M.S. summa cum laude in chemistry, then Ph.D. in chemistry and materials science at Northwestern University in 2012. She then became the Gott Research Fellow at Trinity Hall as well as a Newton International Research Fellow (Royal Society) in the Electron Microscopy group (Paul A. Midgley) in the Materials Science and Metallurgy Department at Cambridge University.

Her research group at Rice focuses on using bimetallic nanostructures in catalysis and optical sensors and is funded by the American Chemical Society, the Materials Research Society, the National Science Foundation, and industrial partners through Rice's ATOMIC center. She is also the founding director of the Electron Microscopy Center at Rice University, and the chair of the proposal review board at the National Center for Electron Microscopy (Berkeley National Lab).

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