McElvain Materials Chemistry Seminar

Prof. Teri Odom
Northwestern University

Thursday, March 31
12:05 PM (CT)

Graduate Student Host: Beau Schweitzer

"Making Precious Metals More Precious: A Tale of Two Plasmonic Nanostructures"

Plasmonic materials that exhibit optical properties in the visible regime are typically coinage metals, such as gold and silver. This talk will describe how controlling the size and shape of precious metal nanostructures—as well as their organization—can result in diverse properties more valuable than the economic value of the material. In one tale, we will discuss the design of anisotropic gold nanostars that can facilitate unprecedented insight into interactions between live cells and targeting ligands at the molecular scale. These fundamental studies can provide insight into biological processes, from endocytosis to viral infection, at the single-particle level. In the second tale, we will introduce a photonic platform based on plasmonic nanoparticle lattices that can show collective behavior that mimics atomic electronic materials. These lattices provide the foundation for new classes of materials for nanoscale lasing, photo-electrocatalysis, and auto-regulation.

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