RICHARD A. WALTON LECTURE IN INORGANIC CHEMISTRY

Thursday, November 14, 2019

Reception: 4:00 PM BRWN 4102

Lecture: 4:30 PM WTHR 104

Professor Catherine Murphy
University of Illinois Urbana-Champaign

"Golden Opportunities: Gold Nanoparticles for Biomedical Applications"

Abstract: Gold nanoparticles exhibit brilliant colors that are size- and shape-dependent. In addition to their strong absorption of light through the visible and near-infrared, these nanomaterials elastically scatter light, and generate local electric fields and heat under resonant illumination. Many scientists are using these materials as active materials for bioimaging, chemical sensing, and photothermal ablation of tumors. However, as more and more nanomaterials become useful for biomedical applications, concerns about their long-term effects on living systems have been raised. In this talk I will discuss how these nanoparticles are prepared, how their surface chemistry can be tuned, how apparent cytotoxicity can be traced back to reagents in the synthesis rather than the particles per se, how protein orientation can be controlled on their surfaces, how cells respond to these virus-sized objects, and how the photothermal properties of these nanomaterials enable potential drug delivery applications.

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