Gold Nanocrystals: Applications in Biology and Environmental Impact

Gold nanoparticles are well known to absorb and scatter light as a function of particle size and shape. Gold nanorods, in particular, show strong plasmon resonances that are tunable with aspect ratio in the near-infrared. The strong elastic scattering of these nanomaterials makes them good candidates for bioimaging agents, and the heat they generate makes them good candidates for photothermal therapeutics. A world-renowned expert in gold nanoparticle synthesis, Dr. Cathy Murphy will highlight both the biological applications and implications of these nanomaterials, will emphasize the importance of initial surface chemistry for their properties, and will present results of their interactions with living cells, organisms, and model ecosystems.

ABOUT THE SPEAKER

Dr. Catherine J. Murphy is the Peter C. and Gretchen Miller Markunas Professor of Chemistry at the University of Illinois at Urbana-Champaign. She holds two B.S. degrees, one in chemistry and one in biochemistry from the University of Illinois, and a Ph.D. from the University of Wisconsin. At the California Institute of Technology, Dr. Murphy served twice as a postdoctoral fellow—first for NSF and then for NIH. Today at the University of Illinois, she and the Murphy Group fabricate colloidal inorganic nanomaterials of controlled shape and size; surface-engineer nanoparticles for chemical sensing, biological imaging, and energy-related applications; and pursue their interests in DNA and protein conformation and dynamics. Thomas Reuters named the Murphy Group to its “Highly Cited Researchers 2014” list for both chemistry and materials science. In 2011, the American Chemical Society of Inorganic Chemistry awarded Dr. Murphy the society’s Inorganic Nanoscience Award.

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Thursday, February 12, 2015
12:30 pm to 2 pm, 310 Kelly Hall