

# lunch for hungry minds



## Nanocrystals and Nanocrystal based devices:

*Opportunities in information, energy and life sciences*

**September 24, 2010 | 11:30 am - 1:00 pm**

### Speaker:

Christopher B. Murray, Ph.D.  
*Richard Perry University Professor*  
*Departments of Chemistry and*  
*Materials Science & Engineering*  
University of Pennsylvania

*Presented by Dr. Nicholas Kefalides*

**11:30 - 12:00**

Lunch & Networking

**12:00 - 1:00**

Presentation and Q&A

**Space is limited, so attendance  
is strictly by RSVP**

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Colloidal nanocrystals (NCs) with controlled crystal shape, structure and surface passivation provides a rich family of nanoscale building blocks for the assembly of multi-component solid thin films. The tunability of the electronic and optical properties of the NCs has led to them being compared to a set of "artificial atoms". This talk will briefly share our "best practices" in preparation, isolation and characterization of monodisperse semiconducting quantum dots plasmonic NCs and nanophosphors and magnetic NCs. I will provide case studies highlighting their potential impact in information, energy and life sciences with examples in solution processable FETs, thermoelectric conversion devices and biological tags respectively. NC systems will include PbS, PbSe, PbTe, Ag<sub>2</sub>Te, CdSe, CdTe, Au, Ag, NaYF<sub>4</sub>: RE (where RE is a family of rare earth dopants). Specific advances in the design of multi-component nanomaterials will be explored.

