INORGANIC CHEMISTRY SEMINAR

Building Functional Nanosystems with 0D, 1D and 2D Nanostructures

by **Professor Xiangfeng Duan**
Department of Chemistry and Biochemistry
UCLA

Wednesday, October 24, 2012
Cram Conference Room, 3440 Mol Sci
4:00 pm

Refreshments will be served

Abstract

Nanoscale integration of dissimilar materials with distinct compositions, structures and properties has the potential to create a new generation of integrated nanosystems with unique functions and/or unprecedented performance that can break the boundaries of traditional technologies. In this talk, I will first give a brief overview of diverse opportunities enabled by nanoscale integration of a wide range of 0D, 1D and 2D nanostructures, and then I will focus my discussions on the hetero-integration of graphene with a variety of nano and molecular scale structures to demonstrate the power and versatility of material integration at nanoscale. A few examples will be discussed, including the integration of graphene with a self-aligned nanowire gate to create the fastest graphene transistors, integration of graphene with other layered materials for vertically stacked multi-heterostructures and devices, integration of graphene with plasmonic nanostructures to create multi-color high speed photodetectors, and integration of graphene with various planar π-conjugating molecules for band gap engineering, molecular sensing and catalysis.

For additional information, please contact David Imai: imai@chem.ucla.edu or x54208