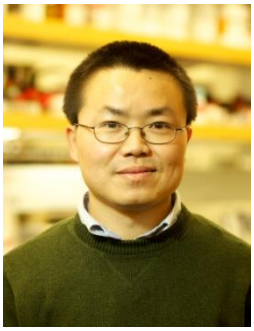
Invited Lecture

Title： Magnetic Tuning of Optical Properties of Nanostructured Materials

Speaker： Prof. Yadong Yin
University of California, Riverside.

Time： **10:00 -11:00 July 2, 2014（Wednesday）**

Place： **Meeting Room 308, IPE Mansion**



Introduction

Prof. Yadong Yin received his B.S. (1996) and M.S. (1998) in Chemistry from the University of Science and Technology of China, and Ph. D (2002) in Materials Science and Engineering from the University of Washington, Seattle. In 2003, he became a postdoctoral fellow at Prof. Paul Alivisatos' group at the University of California, Berkeley. Soon he joined the Molecular Foundry at the Lawrence Berkeley National Laboratory, as initially a postdoctoral fellow and then a staff scientist. Since 2006, he has been a faculty member at the Department of Chemistry, University of California, Riverside, and was promoted to full professor in 2014. His research interest focuses on the synthesis, self-assembly, and functionalization of nanostructured materials for catalytic, analytical, and photonic applications. Prof. Yin has received a number of national awards, including Cottrell Scholar Award from the Research Corporation for Science Advancement, DuPont Young Professor Grant, 3M Nontenured Faculty Grant, the Faculty Early Career Development (CAREER) award from the National Science Foundation, and the Distinguished Junior Faculty Award from the Chinese-American Chemistry Professor Association. He currently serves as an associate editor of *Journal of Materials Chemistry C* and also on the editorial board of *Advanced Functional Materials* and *NPG Asian Materials*.

Magnetic field can be employed as an effective tool for assembling nanostructured colloidal particles into functional materials, controlling their properties, and fabricating novel nanoscale devices. The key is to induce well controlled particle-external field interactions or particle-particle magnetic interactions. In this presentation, I will use a number of examples recently developed in my group to demonstrate that magnetic field can be utilized to dynamically tune the optical properties of nanostructured materials, such as diffraction of photonic crystals, birefringence of liquid crystals, and surface plasmon resonance of metallic nanostructures. By taking advantage of our tailored syntheses of well defined nanostructured building blocks, we show that such dynamic tuning can be realized through effective control over the assembly and disassembly behaviors or the orientation of the nanostructures using magnetic fields.