**Abstract:** Silver nanostructures are containers for surface plasmons - the collective oscillation of conduction electrons in phase with incident light. By controlling the shape of the container, one can control the ways in which electrons oscillate, and in turn how the nanostructure scatters light, absorbs light, and enhances local electric fields. With a series of discrete dipole approximation (DDA) calculations, each of a distinctive morphology, we illustrate how shape control can tune the optical properties of silver nanostructures. Calculated predictions are validated by experimental measurements performed on nanocubes with controllable corner truncation, right bipyramids, nanobars, and pentagonal nanowires. Control of nanostructure shape allows optimization of plasmon resonance for improved molecular detection and spectroscopy.

**Bio:** Dr. Younan Xia received his Ph.D. degree in physical chemistry from Harvard University (with Professor George M. Whitesides) in 1996, his M.S. degree in inorganic chemistry from University of Pennsylvania (with the late Professor Alan G. MacDiarmid) in 1993, and his B.S. degree in chemical physics from the University of Science and Technology of China (USTC) in 1987. He came to the United States in 1991.

Dr. Xia has received a number of prestigious awards, including the 2009 MRS Fellow, 2006 NIH Director's Pioneer Award (NDPA), Leo Hendrik Baekeland Award (2005), Camille Dreyfus Teacher Scholar (2002), David and Lucile Packard Fellow in Science & Engineering (2000), Alfred P. Sloan Research Fellow (2000), NSF Early Career Development Award (2000), ACS Victor K. LaMer Award (1999), and Camille and Henry Dreyfus New Faculty Award (1997).


Friday, April 23, 2010
3:00 p.m.
Bryan Hall, room 305
Light refreshments will be served. Host: Jung-Tsung Shen