Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Creating Janus Particles on Polymer Templates MARLA MCCONNELL, University of Pennsylvania, MATTHEW KRAEUTLER, SHU YANG, RUSSELL COMPOSTO, University of Pennsylvania — Gold nanoparticles and their unique optical properties have been the topic of many recent research efforts. These optical properties are associated with the collective oscillations of conduction band electrons, and can be tuned in the visible range by changing the size and shape of the particles. In this study, we assembled spherical gold nanoparticles (13 nm in diameter) on spherical amine-modified silica particles (100 nm - 800 nm), which were covalently linked to a polymeric surface. Because gold has a strong affinity for amines, the modified silica particles served as an ideal template for assembling the gold nanoparticles. By varying the diameters of the silica particles, it is possible to tune the separation between the gold particles, resulting in a change in optical response. Once the gold nanoparticles are attached to the silica spheres, they can be sintered. This technique produces janus particles, because the gold nanoparticles are localized to the top su! rface of the silica particles, due to shadowing.

Marla McConnell
University of Pennsylvania

Date submitted: 21 Nov 2008 Electronic form version 1.4