Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Spectroscopic Near-Field Imaging of Flat Gold Nanoparticles[1]
L.A. BUMM, D.H. DAHANAYAKA, D.W. KELLE, D.J. WASIELEWSKI, E.S. DAY, D.R. WHITE, Center for Semiconductor Physics in Nanostructures, Homer L. Dodge Department of Physics and Astronomy, University of Oklahoma, Norman, OK 73019, USA, B.S. PRALL, M. ACHERMANN, V.I. KLIMOV, Chemistry Division, C-PCS, Los Alamos National Laboratory, Los Alamos, NM 87545, USA
— Using a white-light near-field scanning optical microscope (NSOM) we demonstrate near-field imaging and local plasmon spectroscopy of flat gold nanoparticles (FGNPs). These nanoparticles are atomically-flat single crystal plates with well defined shapes ranging from equilateral triangles to regular hexagons, which include intermediate truncated triangle shapes. NSOM images reveal the FGNP plasmon mode structure and its dependence on FGNP size and shape. Moreover, spatially resolved spectroscopy shows position dependent coupling to different plasmon modes.

[1]This work has been supported by the Center for Intergrated Nanotechnologies (CINT) Jump Start Program, NSF CAREER grant No. CHE-0239803, and NSF MRSEC No. DMR-0080054.

Lloyd Bumm
University of Oklahoma

Date submitted: 30 Nov 2005 Electronic form version 1.4