Abstract Submitted
for the SES13 Meeting of
The American Physical Society

Direct Aminoglycoside Coated Gold Nanoparticles Synthesis, Characterization and Antibacterial Susceptibility Testing RAMMOHAN PARIPELLY, RAJALINGAM DAKSHINAMURTHY, DILLON PENDER, Western Kentucky University — Need for novel, innovative strategies for developing antibiotics is becoming a necessity due to an increasing number of rapidly evolving multi drug resistant bacteria threats. Antibiotic encapsulated gold nanoparticles (GNP's) are one such strategy showing promise. Kanamycin is an aminoglycoside antibiotic with bactericidal activity that works through binding the 30S subunit of the bacterial ribosome, interrupting protein synthesis. In this study we report development of Kanamycin coated gold nanoparticles (Kan-GNPs) which has highly effective, dose dependent antibacterial activity). The method employed in this study for synthesizing Kan-GNP's is an entirely eco-friendly, single step reaction, carried out within an aqueous buffer. The GNPs were identified and size was determined with transmission electron microscopy. The average diameter of the particles is 15 $\pm$ 5 nm. Further characterization was carried out with UV/vis spectrophotometer; Electron dispersion spectroscopy (EDS) and FTIR analysis. We have tested the antibacterial activity of Kan-GNP's against multiple strains of bacteria, both Gram-positive and Gram-negative, and have found Kan-GNP's to be highly efficient against all tested strains.

Rammohan Paripelly
Western Kentucky University

Date submitted: 20 Sep 2013 Electronic form version 1.4