Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Measurement of Temperature-Dependent Conductivity and Seebeck Coefficient of Self-assembled Gold Nanoparticle Wires J.W. SUN, J.B. HUTCHISON, J.A. HOFFMANN, M.E. REEVES, Department of Physics, The George Washington University — We are exploring the electrical and thermoelectrical properties of wires composed of 12nm diameter gold nanoparticles. The wires are deposited on glass substrates via evaporation-driven vertical colloidal deposition (VCD). We then measure the temperature-dependence of the resistance and thermopower (Seebeck coefficient) between 30 and 120K. We will discuss these measurements in the context of the constituent nanoparticle size and the preparation of the deposited wire; we also make comparisons to similar measurements of bulk gold and gold-iron alloys.

Mark Reeves
George Washington University

Date submitted: 23 Dec 2005 Electronic form version 1.4