Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Electric transport in Individual GaAs nanowires ZHUTING SUN, ANDREI KOGAN, University of Cincinnati, TIM BURGESS, CHENUPATI JAGADISH, Australian National University — We report electrical transport measurements on individual GaAs nanowires approximately 50 nm in diameter contacted via lithographically patterned Al/Ti metal films. The nonlinear current-voltage characteristics show a strongly hysteretic behavior sensitive to the device temperature and the biasing history. In hysteresis-free regimes, we compare the data to a model based on two metal-semiconductor barriers in series with the wire, and find a good overall agreement. We also discuss the effects of surface treatments on the metal-wire interface resistance. The work is supported by NSF grant DMR-1206784 and DMR-0804199 and University of Cincinnati.

Zhuting Sun
University of Cincinnati

Date submitted: 19 Dec 2012 Electronic form version 1.4