Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Electrical measurement of quantum interference population control in (111) GaAs JARED WAHLSTRAND, RYAN SMITH, JESSICA PIPIS, PETER ROOS, STEVEN CUNDIFF, JILA, NIST and University of Colorado — Two-color quantum interference control is the interference between absorption pathways, such as one- and two-photon absorption. Depending on the symmetry of the crystal, it can result in a ballistic current being injected or modulation of the carrier population. Previously, population control has been measured using an all-optical technique. We present results of an experiment in which we measured the carrier population modulation electrically using a Au/Ge electrode structure patterned on (111) GaAs. This is a more practical technique for potential applications, such as carrier-envelope phase detection.[1]

[1]T. M. Fortier, P. A. Roos, D. J. Jones, S. T. Cundiff, R. D. R. Bhat and J. E. Sipe, Phys. Rev. Lett. 92, 147403 (2004)

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Date submitted: 20 Nov 2006 Electronic form version 1.4