Abstract Submitted for the MAR05 Meeting of The American Physical Society

Electrically Driven Single Photons at Room Temperature ROBERT M. DICKSON, JOSE I. GONZALEZ, TAE-HEE LEE, JIE ZHENG, Georgia Institute of Technology, MICHAEL D. BARNES, University of Massachusetts Amherst, YASUKO ANTOKU, Georgia Institute of Technology — The high demand for practical quantum information processing has sparked a search for novel nanophotonic materials in which single-photon basis states may be easily prepared, manipulated, and characterized. Created within electromigration-induced break junctions, individual electrically-contacted several-atom gold nanoclusters reveal antibunched electroluminescence consistent with single-photon emission. Electricallydriven operation at room temperature, low bleaching, and high data rates with subns emission lifetimes make this system a convenient platform for study of nanoscale charge transport and applications of quantum light emission.

> Robert M. Dickson Georgia Institute of Technology

Date submitted: 04 Dec 2004

Electronic form version 1.4