Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Quantum yield of semiconductor nanocrystals in controlled environment[1] CLAYTON JACKSON, FARBOD SHAFIEI, DANIEL RATCHFORD, XIAOQIN LI, University of Texas at Austin — Semiconductor nanocrystals (SCNC) have potential applications in such fields as photovoltaic cells, biological labeling and solid-state lighting. In order to best utilize SCNC in these applications, one must understand their unique, dynamic properties such as photoluminescence intermittency, spectral wandering and time dependent quantum yield. The focus of this research is to understand the change in quantum yield with respect to time and what various environmental parameters contribute to that effect. Thus far a universal liquid-gas cell has been constructed for inert gas and vacuum studies. Currently, we are conducting a study of the quantum yield of SCNC in solution at various concentrations. Future work includes the study of SCNC time dependent quantum yield on substrates in various atmospheric conditions.

[1]We acknowledge the financial support from NSF-DMS and Texas-ARP programs.

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Date submitted: 27 Nov 2009 Electronic form version 1.4