Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Observation of Cavity QED in thick dielectric films BAHMAN SARABI, Laboratory for Physical Sciences, University of Maryland - College Park, A.N. RAMANAYAKA, S. GLADCHENKO, M.J.A. STOUTIMORE, Laboratory for Physical Sciences, M.S. KHALIL, Laboratory for Physical Sciences, University of Maryland - College Park, K.D. OSBORN, Laboratory for Physical Sciences — Cavity QED in amorphous dielectrics is investigated by measuring five linear superconducting resonators with thick dielectric films and capacitor volumes ranging from $80\mu m^3$ to $5000\mu m^3$. In the smallest volume dielectrics we observe additional resonances which may be explained by CQED, despite the dielectric volume which is many orders of magnitude larger than Josephson junction barrier volumes. In addition to the volume dependence of the CQED resonances, we will report on the stability of the resonances in time and the phase noise. This research allows new fundamental studies on TLS phenomena in meso-volume amorphous dielectrics.

Bahman Sarabi
Laboratory for Physical Sciences, University of Maryland - College Park

Date submitted: 27 Dec 2012 Electronic form version 1.4