Abstract Submitted
for the DAMOP09 Meeting of
The American Physical Society

Possible Explanation For Multiple Electron Emission From Pyroelectric Crystals In Dilute Gases STEPHEN SHAFROTH, DAVID KALEKO, University of North Carolina at Chapel Hill, JAMES BROWNRIDGE, University of Binghamton, Binghamton, NY — Pyroelectric crystals such as LiNbO3 when cut perpendicular to their z axes and when heated or cooled produce strong electric fields at their surfaces. If a 4 mm dia x 10 mm crystal is immersed in a dilute gas it acts as an accelerator of electrons when the surface is negative and positive ions when the surface is positive. In both cases a focused beam results but in the electron case multiple electron peaks are observed if they are detected through a pin hole with a surface barrier detector(1). In this poster we give evidence for an explanation of this effect. (1) Brownridge, J. D., Shafroth, S. M., Trott, D. W., Stoner, B. R., and Hooke, W. M., Observation of multiple nearly monoenergetic electron production by heated pyroelectric crystals in ambient gas, Appl. Phys. Lett., 78, 1158 (2001)

Stephen Shafroth
University of North Carolina at Chapel Hill

Date submitted: 23 Jan 2009 Electronic form version 1.4