Abstract Submitted
for the DAMOP15 Meeting of
The American Physical Society

Approach to a permanent electron electric dipole moment search using cold atoms in an optical lattice[1] CHENG TANG, TENG ZHANG, DAVID WEISS, Pennsylvania State Univ — We present our progress towards measuring the electron EDM using laser-cooled cesium and rubidium atoms trapped in a one dimensional optical lattice. To date, we have collected Cs atoms in two parallel 1D optical lattices that thread three glass electric field plates in a region of well-shielded magnetic fields. As a precursor to the EDM measurement, we have performed a variant of a Hanle effect measurement and used it to study the vector light shifts due to the cavity-built up lattice beams. This gives us a very high sensitivity to the absolute linear polarization of the light, which we have demonstrated to be as good as $\sim 10^{-8}$ in fractional power.

[1]NSF PHY-13-07096

Teng Zhang
Pennsylvania State Univ

Date submitted: 30 Jan 2015 Electronic form version 1.4