

Abstract Submitted
for the DAMOP12 Meeting of
The American Physical Society

Design and Construction of an Electron Electric Dipole Moment Experiment Using Thorium Monoxide¹ BENJAMIN SPAUN, PAUL HESS, NICK HUTZLER, ELIZABETH PETRIK, JOHN DOYLE, GERALD GABRIELSE, Harvard University, CHEONG CHAN, EMIL KIRILOV, BRENDON O'LEARY, DAVID DEMILLE, Yale University, ACME COLLABORATION — Observation of an electron electric dipole moment (eEDM) would imply new sources of CP violation beyond the Standard Model. By measuring spin precession signals on a cryogenic molecular beam, the ACME collaboration is searching for the eEDM in the metastable H $^3\Delta_1$ state of thorium monoxide. We discuss the design and completed assembly of the first generation of this experiment. Precise electric and magnetic field sources, magnetic shields, and a fluorescence collection system have been constructed and installed, and the molecule beam source has been optimized.² With this system we have begun collecting and analyzing eEDM data.

¹Work supported by the NSF.

²N.R. Hutzler *et al.*, Phys. Chem. Chem. Phys., 13, 18976-18985 (2011)

Benjamin Spaun
Harvard University

Date submitted: 31 Jan 2012

Electronic form version 1.4