

Abstract Submitted
for the DAMOP18 Meeting of
The American Physical Society

Progress Towards an Order of Magnitude Improved ACME II Measurement of the Electron Electric Dipole Moment CRISTIAN PANDA, DANIEL ANG, Harvard University, DAVID DEMILLE, Yale University, JOHN DOYLE, GERALD GABRIELSE, JONATHAN HAEFNER, Harvard University, NICK HUTZLER, Caltech University, ZACK LASNER, Yale University, COLE MEISENHELDER, Harvard University, BRENDON O'LEARY, ADAM WEST, Yale University, ELIZABETH WEST, XING WU, Harvard University, ACME COLLABORATION — The search for the electron electric dipole moment (eEDM) is a powerful probe of physics beyond the Standard Model. In 2014, the first generation of the ACME experiment set the most stringent upper limit on the eEDM of $|d_e| < 0.9 \times 10^{-28}$ e-cm by measuring spin precession in a beam of thorium monoxide (Science **343** (2014), 269). Since then, we have implemented improvements in signal, such as STIRAP preparation of the experimental measurement $^3\Delta_1$ state, optimized apparatus geometry, and enhanced detection efficiency, which have increased our statistical sensitivity by an order of magnitude (Phys. Rev. A **93** (2016), 052110). We describe recent progress in the ACME II measurement, including a discussion of data analysis and modeling and suppression of systematic errors.

Cristian Panda
Harvard University

Date submitted: 26 Jan 2018

Electronic form version 1.4