

Abstract Submitted
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The Second Generation ACME Electron EDM Experiment JACOB BARON, Harvard University, Department of Physics, WES CAMPBELL, University of California, Los Angeles, Department of Physics, DAVID DEMILLE, Yale University, Department of Physics, JOHN DOYLE, GERALD GABRIELSE, Harvard University, Department of Physics, YULIYA GUREVICH, Yale University, Department of Physics, PAUL HESS, NICHOLAS HUTZLER, Harvard University, Department of Physics, EMIL KIRILOV, Universitat Innsbruck, Institut für Experimentalphysik, IVAN KOZYRYEV, Harvard University, Department of Physics, BRENDON O'LEARY, Yale University, Department of Physics, CRISTIAN PANDA, MAXWELL PARSONS, ELIZABETH PETRIK, BENJAMIN SPAUN, Harvard University, Department of Physics, AMAR VUTHA, York University, Department of Physics and Astronomy, ADAM WEST, Yale University, Department of Physics, ACME COLLABORATION — We present a proposal to upgrade the ACME experiment to make a more precise measurement of the electron's electric dipole moment (eEDM). We plan a number of improvements to increase statistical sensitivity and suppress known systematic effects. Statistical sensitivity improvements include an upgraded molecular beam source, a molecular electrostatic guide, and a coherent state preparation scheme. We estimate a sensitivity improvement of at least an order of magnitude over our previous measurement [1].

[1] The ACME Collaboration et al., *Science* **343**, (2014) 269-272.

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