

Abstract Submitted
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Progress toward a measurement of the electron's electric dipole moment using PbO STEPHEN ECKEL, PAUL HAMILTON, EMIL KIRILOV, HUNTER SMITH, DAVID DEMILLE, Yale University — Searches for permanent electric dipole moments (EDMs) of fundamental particles provide a way to detect new sources of time-reversal symmetry violation. We present recent results on an experiment to search for the electron's EDM, using the polar molecule PbO. PbO offers several advantages compared to atoms, including a much larger effective internal electric field (> 10 GV/cm) and parity doubling, which can be used to reverse the effective internal electric field without reversing the laboratory electric field. This technique allows for significant rejection of systematic errors. Recent improvements to the experiment have resulted in statistical sensitivities of approximately 1×10^{-27} ecm/ $\sqrt{\text{day}}$, which could allow for an improvement over the current experimental limit on the electron EDM in only a few days of integration time. Details of the approach and studies of possible systematic errors will be described.

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