

Abstract Submitted
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Recent Results from the PbO Electron EDM Experiment PAUL HAMILTON, EMIL KIRILOV, HUNTER SMITH, DAVID DEMILLE, Yale University — Observation of an electric dipole moment (EDM) of the electron would imply CP violation beyond the Standard Model. This experiment searches for the electron EDM using a metastable state of the PbO molecule. Several unique properties of this state, including closely spaced levels of opposite parity and a long coherence time, make it suitable for use in a vapor cell, which in turn enables high counting rates. The closely spaced levels of opposite parity are due to omega-doubling. Roughly speaking this doubling leads to states with oppositely directed internal electric fields but otherwise nearly identical properties. This reversal along with those of the lab electric and magnetic fields allow us to greatly reduce most systematics. We will discuss the statistical and systematic limits from a recent EDM data run as well as improvements in both our state preparation and detection schemes.

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