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Search for the electron electric dipole moment¹

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In most viable extensions to the Standard Model, the electron is predicted to have a time-reversal violating electric dipole moment (EDM) at, or within a few orders of magnitude of, the current experimental upper bound. Experimental searches for the electron EDM hence have the capability to probe CP-violation at TeV (and potentially much higher) energy scales. Our group is developing new techniques to measure the electron EDM, with the long-term potential for improved sensitivity by many orders of magnitude. We are now taking data on a first-generation experiment using electrons embedded in the polar molecule PbO, where the size of the observable effect due to the EDM is dramatically amplified by the intramolecular electric field. This talk will describe the current status of the PbO EDM experiment, as well as plans for future upgrades.

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