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New Results from a Search for the Electric Dipole Moment (EDM) of ^{199}Hg ¹

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The measurement of a nonzero EDM of an atom or elementary particle, at current levels of experimental sensitivity, would imply CP violation beyond the CKM matrix of the Standard Model. Additional sources of CP violation have been proposed to help explain the matter-antimatter asymmetry observed in our universe and the magnitude of Θ_{QCD} , the strength of CP-violation in the strong interaction, remains unknown. We have recently completed a set of measurements on the EDM of ^{199}Hg , sensitive to both new sources of CP violation and Θ_{QCD} . The experiment compares the phase accumulated by precessing Hg atom spins in vapor cells with electric fields parallel and anti-parallel to a common magnetic field. The statistical sensitivity of new measurements represents a factor of 3 to 4 improvement over previous results. A description of the EDM experiment and the data, along with the current state of the systematic error analysis, will be presented.

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