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Testing the Standard Model with Electron Dipole Moments

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Our new ACME measurement of the electron electric dipole moment* has a sensitivity greater than past measurements by a factor of 12. The result is consistent with the standard model prediction rather than supersymmetric models, for example. Meanwhile, our measurement of the electron magnetic dipole moment** agrees with the standard models most precise prediction to a part in 10^{12} , though there is now a 2.4 standard deviation separation of measurement and prediction. A new measurement has been started.

ACME Collaboration, Nature 562, 355 (2018)

* D. Hanneke, S. Fogwell Hoogerheide and G. Gabrielse, Phys. Rev. A, 83 052122 (2011)