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Abstract for an Invited Paper
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New Upper Limit on the Electron's Electric Dipole Moment¹

JOHN DOYLE, Harvard University

The ACME collaboration has measured the electron's electric dipole moment (eEDM) to be $d_e = (-2.1 \pm 3.7_{\text{stat}} \pm 2.5_{\text{syst}}) \times 10^{-29} e \cdot \text{cm}$ [1,2]. This corresponds to an upper limit of $|d_e| < 8.7 \times 10^{-29} e \cdot \text{cm}$ with 90 percent confidence, which represents an order of magnitude improvement on the previous best limit [3]. We describe our method of measuring the eEDM using a buffer gas cooled beam of thorium monoxide (ThO) and discuss our approach to finding and quantifying systematic effects. This results constrains T-violating physics at the TeV energy scale.

[1] The ACME Collaboration, *Science* **343**, (2014) 269–272.

[2] L. V. Skripnikov, A. N. Petrov, and A. V. Titov, *J. Chem. Phys.* **139**, (2013) 221103.

[3] J. J. Hudson, D. M. Kara, I. J. Smallman, B. E. Sauer, M. R. Tarbutt, and E. A. Hinds, *Nature* **473**, (2011) 493–496.

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