

Abstract Submitted
for the DAMOP19 Meeting of
The American Physical Society

Interpreting the Electron EDM Constraint QIANSHU LU, CARI CESAROTTI, Harvard University, YUICHIRO NAKAI, Rutgers University, ADITYA PARIKH, MATTHEW REECE, Harvard University — The ACME collaboration has recently announced a new constraint on the electron EDM, $|d_e| < 1.1 \times 10^{-29} e \text{ cm}$. This is a powerful constraint on CP-violating new physics: even new physics generating the EDM at two loops is constrained at the multi-TeV scale. I will interpret the electron EDM bound through first a general order-of-magnitude analysis, then discussions of two specific scenarios: one is SUSY, where new physics involves the electroweak sector and couples to the Higgs. The other is the "QULE operators", $(q_f \bar{\sigma}^{\mu\nu} \bar{u}_f) \cdot (\ell \bar{\sigma}_{\mu\nu} \bar{e})$, where new physics couples to the charm or top quark. The electron EDM bound is the leading constraint on a wide variety of theories of CP-violating new physics. I will also briefly discuss the implications of future improvements in EDM searches.

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Date submitted: 29 Jan 2019

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