

Abstract Submitted
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Current results and future directions for an electron electric dipole moment search using molecular ions WILLIAM B. CAIRNCROSS, DANIEL N. GRESH, YAN ZHOU, KIA BOON NG, TANYA ROUSSY, YUVAL SHAGAM, FATEMEH ABBASI RAZGALEH, PARKER HINTON, JUN YE, ERIC A. CORNELL, JILA, NIST and University of Colorado, and Department of Physics, University of Colorado — We recently completed a first measurement of the electrons electric dipole moment (eEDM) using trapped HfF^+ ions, which we will present along with accompanying systematic error analysis. We will also detail our ongoing progress towards a second generation measurement with HfF^+ , including characterizations of our second generation ion trap. Finally, we will present LIF spectroscopy of ThF for the efficient production of ThF^+ , a species that possesses higher eEDM sensitivity than HfF^+ , as well as the potential for very long interrogation times with high immunity to systematic errors via electron spin resonance spectroscopy in its ground $^3\Delta_1$ electronic state [1].

[1] Daniel N. Gresh, Kevin C. Cossel, Yan Zhou, Jun Ye, and Eric A. Cornell, *J. Mol. Spec.* **319**, 1 (2016)

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