

Abstract Submitted  
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**Electron EDM Search with Trapped Molecular Ions** RUSSELL STUTZ, HUANQIAN LOH, LAURA SINCLAIR, University of Colorado/JILA, ERIC CORNELL, JILA/NIST — A sample of trapped molecular ions offers unique possibilities to search for a permanent electron electric dipole moment (EDM). Specifically, we plan to perform this search using the unpaired electron spins in the  $^3\Delta_1$  state of trapped  $\text{HfF}^+$  molecular ions. The ions will be confined in a linear RF Paul trap, allowing for long electron spin coherence times for increased sensitivity to an electron EDM. Effective internal fields of the molecular ions should exceed  $10^{10}$  V/cm, and the molecules are easily polarized in  $\sim 1$  V/cm electric fields due to a small  $\Omega$  doubling splitting in the  $^3\Delta_1$  state.  $\text{HfF}^+$  molecular ions are created via laser ablation of a Hafnium target in the presence of a He + 1% $\text{SF}_6$  supersonic expansion. The expansion cools the ions rovibrational and translational temperatures to a few Kelvin. We will report current experimental progress.

Russell Stutz  
University of Colorado/JILA

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