

Abstract Submitted
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Cold Molecular Ion Source for an electron EDM measurement

RUSSELL STUTZ, AARON LEANHARDT, LAURA SINCLAIR, ERIC CORNELL, JILA, NIST, and the Department of Physics, University of Colorado, Boulder — Molecular ions confined inside a Paul trap offer a potentially sensitive system for a search of the electron electric dipole moment. Large effective electric fields at the electron can be obtained by using molecules. Trapping these molecules allows for long spin coherence times to probe electron EDM induced energy splittings. We report on a supersonic expansion that cools ions created from laser ablation to temperatures of ~ 1 K. At these temperatures our proposed molecular ions (HfH⁺ or PtH⁺) would be cooled to their rovibrational ground states. Future work includes creation of HfH⁺ and loading these ions into a linear Paul trap while maintaining low temperatures.

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