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Progress Towards an Electron EDM Search Using Trapped Molecular Ions LAURA SINCLAIR, HUANQIAN LOH, RUSSELL STUTZ, ERIC CORNELL, JILA/University of Colorado Boulder — A sample of trapped molecular ions can provide large effective electric fields and long electron spin coherence times in the search for a permanent electron electric dipole moment (EDM). We plan to use the $^3\Delta_1$ state of trapped HfF^+ in this search. The $^3\Delta_1$ state should yield effective internal fields of $\sim$10 V/cm and should be easily polarized in $\sim$1 V/cm electric fields due to the small Ω-doublet splitting. Confinement of the ions in a linear Paul trap allows for long electron spin coherence times and thus increased sensitivity. We will report on preliminary HfF^+ spectroscopy and other experimental progress.

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