

Abstract Submitted  
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**Towards Generation II Measurement of the Electron's Electric Dipole Moment with Trapped HfF+** TANNER GROGAN, TANYA ROUSSY, YUVAL SHAGAM, KIA BOON NG, NOAH SCHLOSSBERGER, SUN YOOL PARK, MADELINE PETTINE, ANTONIO VIGIL, JUN YE, ERIC CORNELL, JILA — Searches for the electron's electric dipole moment (eEDM) offer a low energy window into the matter-antimatter asymmetry in the universe. Trapped molecular ions have proven to be an effective platform for measuring the eEDM since they can be interrogated for long times [1]. We have recently enhanced our eEDM measurement sensitivity with HfF+ by achieving second-scale coherence times and increasing the count rate to hundreds of ions per shot while detecting at the quantum projection noise (QPN) limit [2]. We discuss progress towards the next eEDM measurement and challenges posed by our newly developed measurement scheme.

[1] W. B. Cairncross, D. N. Gresh, M. Grau, K. C. Cossel, T. S. Roussy, Y. Ni, Y. Zhou, J. Ye, E. A. Cornell, *Phys. Rev. Lett.* 119, 153001 (2017).

[2] Y. Zhou, Y. Shagam, W. B. Cairncross, K. B. Ng, T. S. Roussy, T. Grogan, K. Boyce, A. Vigil, M. Pettine, T. Zelevinsky, J. Ye, E. A. Cornell, *Phys. Rev. Lett.* (In Press). arXiv: 1907.03413.

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