

Abstract Submitted  
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**Progress towards the measurement of the electric dipole moment of  $^{225}\text{Ra}$**  J. R. GUEST, I. AHMAD, K. BAILEY, D. BOWERS, R. J. HOLT, Z.-T. LU, T. P. O'CONNOR, D. H. POTTERVELD, E. C. SCHULTE, N. D. SCIELZO, Argonne National Laboratory, H. GOULD, Lawrence Berkeley National Laboratory — Ongoing searches in many laboratories for a permanent electric dipole moment (EDM) in the atom underscores the importance of this window into physics beyond the Standard Model. The lack of an observed EDM in  $^{199}\text{Hg}$  has set impressive limits on the strength of Parity (P)-and Time (T)-invariance violating interactions in the nucleus. We are in the process of developing a next generation experiment to search for an EDM in laser-cooled and trapped  $^{225}\text{Ra}$ .  $^{225}\text{Ra}$  is predicted to be more than two orders of magnitude more sensitive to these interactions than  $^{199}\text{Hg}$  due to a larger nuclear charge, the octupole deformation in the  $^{225}\text{Ra}$  nucleus, and the collective nature of (P,T)-odd nuclear moments. We will present the challenges associated with  $^{225}\text{Ra}$ , discuss our results from laser spectroscopy on a beam of  $^{225}\text{Ra}$  atoms, and report on our progress towards producing a laser-cooled and trapped sample of these atoms. We will also discuss measurements on the lifetime of the  $7s7p\ ^3P_1$  state.

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