

Abstract Submitted
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Progress towards the measurement of the electric dipole moment of ^{225}Ra ¹ J.R. GUEST, N.D. SCIELZO, E.C. SCHULTE, I. AHMAD, K. BAILEY, J.P. GREENE, R.J. HOLT, Z.-T. LU, T.P. O'CONNOR, D.H. POTTERVELD, Argonne National Laboratory, H. GOULD, Lawrence Berkeley National Laboratory — Ongoing searches in many laboratories for a permanent electric dipole moment (EDM) in the atom underscore the importance of this window into physics beyond the Standard Model. The lack of an observed EDM in ^{199}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}Ra . ^{225}Ra is predicted to be more than two orders of magnitude more sensitive to these interactions than ^{199}Hg due to a larger nuclear charge, the octupole deformation in the ^{225}Ra nucleus, and the collective nature of (P,T)-odd nuclear moments. We will present the challenges associated with ^{225}Ra , discuss our results from laser spectroscopy on a beam of ^{225}Ra atoms, and report on our progress towards producing a laser-cooled and trapped sample of these atoms. We will also present a measurement of the lifetime of the $7s7p\ ^3P_1$ state.

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