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Progress towards an electric dipole moment measurement in radium-225 I.A. SULAI[1], U. of Chicago, Argonne. Natl. Lab., W. TRIMBLE, I. AHMAD, K. BAILEY, Argonne Natl. Lab, H.A. GOULD, LBNL, Berkeley Ca., B. GRANER, J.P. GREENE, R.J. HOLT, Argonne Natl. Lab., W. KORSCH, U. of Kentucky, Argonne Natl. Lab, Z.-T. LU, Argonne Natl. Lab., U. of Chicago, P. MUELLER, T.P. O'CONNOR, Argonne Natl. Lab. — The search for a permanent electric dipole moment (EDM) in an atom is a sensitive test of time-reversal symmetry violation. In the nuclear sector, the best limit for T-violation through EDMs is set by measurements of the EDM of the neutron and of the diamagnetic atom Hg-199. Collective and mean field calculations suggest that because of the octupole deformation of its nucleus, Ra-225 (a spin $^1/_2$ diamagnetic atom with a half life of 15 days) would be two to three orders of magnitude more sensitive to underlying T-violating interactions in the nucleus than Hg-199. Our search for a permanent EDM in Ra-225 involves measuring the nuclear spin precession of polarized Ra-225 atoms held in an optical dipole trap. We will report on recent measurements of atomic properties in Ra as well as progress in the construction of the experiment. This work is supported by DOE, Office of Nuclear Physics, under contract No. DE-AC02-06CH11357.

[1]Membership pending

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