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Progress towards a nuclear EDM measurement of Ra-225¹ JAIDEEP SINGH, M.R. DIETRICH, Argonne National Laboratory, M. KALITA, University of Kentucky, R.H. PARKER, I.A. SULAI, University of Chicago, K. BAILEY, Argonne National Laboratory, J.P. GREENE, P. MUELLER, T.P. O'CONNOR, R.J. HOLT, Z.-T. LU, Argonne National Laboratory — We are developing a long term program to search for the permanent electric dipole moment (EDM) of the Radium-225 nucleus. A nonzero nuclear EDM is a signature of of CPand T-violating interactions within nuclei. Currently, the best experimental limits on these interactions are derived from EDM measurements of Mercury-199. The Ra-225 radioisotope (half-life of 15 days) is an attractive alternative because, due to its peculiar shape (octupole deformation), it is predicted to be 10^2 - 10^3 times more sensitive to these types of interactions than Hg-199. In our measurement scheme, Ra atoms are first laser cooled & trapped in a magneto-optical trap (MOT) and then transferred to an optical dipole trap (ODT), both of which have already been demonstrated. Currently being studied is the motion of this ODT into the science chamber and the transfer of atoms into a second ODT. We will report on progress towards measurements of atomic properties necessary for the EDM search and the EDM search itself.

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