

Abstract Submitted  
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**Challenges and opportunities in the search for electric dipole moment (EDM) in  $^{225}\text{Ra}$  atom**<sup>1</sup> MUKUT RANJAN KALITA, University of Kentucky, KEVIN BAILEY, MATTHEW DIETRICH, JOHN GREENE, ROY HOLT, Argonne National Laboratory, WOLFGANG KORSCH, University of Kentucky, ZHENG-TIAN LU, PETER MUELLER, THOMAS O'CONNOR, Argonne National Laboratory, RICHARD PARKER, IBRAHIM SULAI, University of Chicago, JAIDEEP SINGH, Argonne National Laboratory — The observation of a permanent electric dipole moment (EDM) in a non-degenerate system would indicate violation of time reversal symmetry.  $^{225}\text{Ra}$  atom is a particularly attractive candidate for this search since it has a nuclear spin  $I=1/2$  and has a significant nuclear octupole deformation. This property increases the Schiff moment of the nucleus and therefore enhances the atomic EDM. The half life ( $t_{1/2}=14.9$  days) of  $^{225}\text{Ra}$  is sufficiently long to perform EDM searches. Our group has already demonstrated the trapping of laser cooled Ra atoms in a magneto-optical trap (MOT) and transferring them to a far off resonant optical dipole trap (ODT). We will discuss our recent progress on manipulation of ultra cold Ra atoms in the ODT, efforts in improving our laser systems and generation of electric and magnetic fields required for the measurement.

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