

Abstract Submitted  
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**EDM measurements on cold  $^{225}\text{Ra}$  and  $^{171}\text{Yb}$  atoms**<sup>1</sup> TIAN XIA, University of Science and Technology of China, MATTHEW DIETRICH, Argonne National Laboratory, ZHENG-TIAN LU, University of Science and Technology of China, RA-EDM COLLABORATION — EDM measurements on diamagnetic atoms probe CP-violating effects in the nucleus. Some types of these Beyond-Standard-Model effects are known to be strongly enhanced in  $^{225}\text{Ra}$  due to octupole deformation of the nucleus. Other favorable characteristics of  $^{225}\text{Ra}$  include a high atomic number ( $Z = 88$ ), a ground state of  $^1\text{S}_0$ , and a nuclear spin  $1/2$ . An EDM search is carried out on this radioactive isotope (half-life 15 d) using laser-cooled atoms. Meanwhile, the stable isotope  $^{171}\text{Yb}$  shares several characteristics, including  $^1\text{S}_0$  and nuclear spin  $1/2$ , and is particularly useful as a proxy of  $^{225}\text{Ra}$  for developing laser trapping and probing techniques, for testing various measurement schemes, and for investigating systematic errors. Furthermore,  $^{171}\text{Yb}$  atoms can be placed within 0.1 mm of  $^{225}\text{Ra}$ , and act as a co-magnetometer. A laser trap of Yb atoms for an EDM measurement is under development.

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