

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, JAIDEEP SINGH, Michigan State University, ZHENG-TIAN LU, University of Science and Technology of China, MICHAEL BISHOF, KEVIN BAILEY, JOHN GREENE, PETER MUELLER, THOMAS O'CONNOR, Argonne National Laboratory, TENZIN RABGA, ROY READY, Michigan State University, YU-KUN FENG, TONG-YAN XIA, YANG YANG, SHAO-BO ZHANG, TAO ZHENG, University of Science and Technology of China, BAO-LONG LV, ZHUAN-XIAN XIONG, Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences, RA-EDM COLLABORATION 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,  $^{171}\text{Yb}$  is a stable isotope with atomic properties and transitions similar to those of  $^{225}\text{Ra}$ , 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. Moreover,  $^{171}\text{Yb}$  atoms can be placed within 0.1 mm of  $^{225}\text{Ra}$ , and act as a co-magnetometer. A laser trap of Yb atoms is under development towards an EDM measurement.

<sup>1</sup>EDM measurements on cold  $^{225}\text{Ra}$  and  $^{171}\text{Yb}$  atoms

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