Abstract Submitted
for the DAMOP20 Meeting of
The American Physical Society

The Advanced ACME Search for the Electron Electric Dipole Moment[1] COLE MEISENHELDER, DANIEL ANG, Harvard University, JAMES CHOW, DAVID DEMILLE, Yale University, JOHN DOYLE, Harvard University, GERALD GABRIELSE, Northwestern University, ZHEN HAN, Yale University, BINGJIE HAO, Northwestern University, PEIRAN HU, Yale University, NICHOLAS HUTZLER, California Institute of Technology, DANIEL LASCAR, SIYUAN LIU, Northwestern University, TAKAHIKO MASUDA, Okayama University, CRISTIAN PANDA, University of California, Berkeley, NOBORU SASAO, SATOSHI UETAKE, Okayama University, XING WU, Harvard University, Yale University, KOJI YOSHIMURA, Okayama University, THE ACME COLLABORATION COLLABORATION — Searches for the electron electric dipole moment (eEDM) serve as powerful tests of physics beyond the standard model, probing for high energy time-reversal violating interactions. In 2018 the ACME collaboration reported a measurement of the eEDM which set a new limit of $|d_e| < 1.1 \times 10^{-29}$ e$\cdot$cm (*Nature*, **562** (2018) 355-360). Work is currently underway on a new Advanced ACME search with the goal to realize an order of magnitude improvement in experiment sensitivity. This new measurement will rely upon a number of statistical upgrades and a reduction in systematic errors due to known sources. In order to improve the statistical sensitivity of the experiment we are implementing new techniques to increase the flux of our ThO molecular beam, improve our detectors, and to increase the experiment precession time. Potential sources of systematic error have been studied and we plan to further suppress these effects through a new mag

[1]We thank the National Science Foundation for funding this work through 1912513.

Cole Meisenhelder
Harvard University

Date submitted: 31 Jan 2020 Electronic form version 1.4