

Abstract Submitted
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Progress towards improved precision of the electron and positron magnetic moment measurement¹ SAMUEL FAYER, Northwestern University, XING FAN, Harvard University, THOMAS MYERS, BENEDICT SUKRA, GERALD GABRIELSE, Northwestern University — The measurement of the electron magnetic moment, measured to a precision of 0.28 ppt [1], gives one of the most stringent tests of the standard model, with an intriguing discrepancy of 2.4 standard deviations between the measurement and the prediction [2,3]. An apparatus has been developed which reduces the effects from external magnetic and vibration noise, thought to have caused the largest systematic uncertainty in the previous measurement. These advances and new techniques are aimed at obtaining a measurement an order of magnitude more precise [4]. Positrons from a student safe source will be used to measure the positron magnetic moment two orders of magnitude more precisely and give the most precise lepton test of CPT invariance. 1. D. Hanneke, S. Fogwell, and G. Gabrielse, Physical Review Letters 100 (2008) 120801 2. T. Aoyama, T. Kinoshita, M. Nio, Atoms 7 (2019) 28. 3. R. H. Parker, C. Yu, W. Zhong, B. Estey, and H. Müller, Science 360 (2018) 191 4. G. Gabrielse, S. E. Fayer, T.G. Myers, X. Fan, Atoms 7 (2019) 45.

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