

Recent results from the BASE experiment

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The Baryon Antibaryon Symmetry Experiment (BASE) at the antiproton decelerator of CERN is dedicated to high-precision measurements of the fundamental properties of the proton and the antiproton. Using single-particle multi-Penning-trap techniques, we measure their charge-to-mass ratios [1], magnetic moments [2,3] and lifetimes [4]. Comparing these properties of the antiproton to those of the proton provides stringent tests of CPT violation in the baryon sector. In this talk, I will present (preliminary) results from our most recent antiproton campaign, involving a more precise measurement of the antiproton-to-proton charge-to-mass ratio, a test of the weak equivalence principle by studying the gravitational coupling to protons and antiprotons, and a search for axion-like dark matter [5].

[1] S. Ulmer et al., *Nature* 524, 196 (2015).

[2] C. Smorra et al., *Nature* 550, 371 (2017).

[3] G. Schneider et al., *Science* 358, 1081 (2017).

[4] S. Sellner et al., *New. J. Phys.* 19, 083023 (2017).

[5] J. Devlin et al., *Phys. Rev. Lett.* 126, 041301 (2021).