

MEASURING THE GROUND STATE HYPERFINE SPLITTING OF ANTI-HYDROGEN

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The ASACUSA (Atomic Spectroscopy And Collisions Using Slow Antiprotons) collaboration at the Antiproton Decelerator at CERN aims to test the CPT symmetry by measuring the ground state hyperfine structure of antihydrogen which, according to the theorem of CPT, is predicted to have the same electromagnetic spectrum as hydrogen.

The experimental setup consists of a CUSP trap for antihydrogen production and a Rabi-like spectrometer line consisting of a microwave cavity, a superconducting sextupole magnet and an antihydrogen detector composed of a position sensitive central detector and a hodoscope.

This contribution will give an overview of the experiment and focuses on the two layer hodoscope. The challenging task of the detector is to discriminate between background events and antiproton annihilations originating from antihydrogen atoms which are produced only in very small amounts. Furthermore, first preliminary results of the 2016 beamtime will be discussed.