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Precision measurements of antiproton and antihydrogen properties at CERN

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The CERN Antiproton Decelerator, the only source of low-energy cooled antiproton beams in the world, will be extended by the ELENA storage ring to provide even lower energy antiprotons, thus increasing the number of antiprotons trapped in charged-particle traps or low density gas. The antiprotons are used for precision measurement or to form antihydrogen, the simplest anti-atom consisting of an antiproton and a positron, in order to perform tests of CPT symmetry or to directly measure the gravitational interaction between matter and antimatter for the first time. The talk will give an overview on the measurements of the antiproton magnetic moment and laser and microwave spectroscopy of antihydrogen, where first spectroscopy results have recently been obtained, and the garvity measurements under preparation.

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