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Measuring the fall of antihydrogen: the AEGIS experiment at CERN

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After the first production of cold antihydrogen by the ATHENA and ATRAP
collaborations, second generation experiments are being performed for measuring the fundamental properties of this antiatom. AEGIS (Antimatter Experiment:Gravity,
Interferometry, Spectroscopy) is an experiment with the goal of measuring the gravitational interaction between matter and antimatter with help of a pulsed, cold Antihydrogen beam. In AEGIS, antihydrogen will be produced by charge exchange reactions of cold antiprotons with positronium atoms excited in a Rydberg state(n>20).

In the first phase of the experiment, controlled acceleration by an electric field gradient (Stark acceleration) and subsequent measurement of free fall in a Moire deflectometer will allow a test of the gravity weak equivalence principle. In a second phase, CPT studies and detailed spectroscopy will become possible. In the present talk, after a general description, the present status of the experiment will be reviewed.

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