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The AEgIS Experiment - Measuring the Gravitational Interaction of Antimatter

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The AEgIS experiment at CERN's AD aims at performing the first measurement of the gravitational interaction of antimatter. This will allow to expand tests of Einstein's Weak Equivalence Principle to antimatter systems. Such tests have initially been attempted with antiprotons and failed due to uncontrollable stray electric fields. The advances over the past decade in forming cold antihydrogen makes such a measurement feasible nowadays.
Nevertheless, such an experiment provides substantial challenges and the interplay of various techniques from atomic, nuclear, and particle physics. We are planning to form a beam of antihydrogen via pulsed formation using 3-body recombination with laser-excited positronium and the subsequent Stark acceleration of the Rydberg antihydrogen using electric gradients. The gravitational deflection of the horizontal beam of antihydrogen will be measured using a classical Moire defelectometer.
This talk will present an overview of the experiment and review the current status of the apparatus.

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