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## Probing fundamental physics with Antihydrogen

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Antihydrogen, the bound state of an antiproton and a positron is an eminent system for testing fundamental symmetries of nature. It is calculable from first principles, and the standard model predicts that its energy spectrum should be identical to that of hydrogen to any precision. Its neutrality lends itself to also be a probe of the weak equivalence principle for antimatter free fall.

The ALPHA collaboration, the only group to consistently trap antihydrogen, is pursuing an extensive programme where we probe the internal states of antihydrogen as well as its gravitational behaviour. The presentation will include the latest updates from the experiment including the recent successful laser-cooling of trapped antihydrogen and recent attempts at measuring the influence of Earth's gravity on trapped antihydrogen.

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