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Seminar über Quanten-, Atom- und Neutronenphysik (QUANTUM)

Jan. 11, 2024 at 2 p.m.
IPH Lorentzraum 05-127

Prof. Dr. Stefan Eriksson
Department of Physics, Faculty of Science and Engineering, Swansea University, UK

Precision Measurements of Antihydrogen

Precision measurements of the properties of trapped antihydrogen offer stringent tests of fundamental principles underlying particle physics and general relativity, such as Lorentz and CPT invariance and the Einstein Equivalence Principle. In this presentation I will give an overview of the ALPHA antihydrogen experiment at CERN including recent results from spectroscopy and observations of the effect of gravity. I will review how results are interpreted as tests of fundamental physics with a discussion of how a hypothetical CPT violation could result in matter-antimatter asymmetry. I will give an outline of the prospects for future high-precision spectroscopy, free-fall and gravitational redshift experiments with antihydrogen.

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