

Tuesday, September 21, 2:30 pm

Speaker: Scott Menary

Institution: York University

Title:

Probing Fundamental Physics using Antihydrogen: Recent Results and Future Plans of the ALPHA Experiment at CERN.

Abstract:

Since first learning how to trap antihydrogen in 2010, the ALPHA experiment has gone on to measure the charge of antihydrogen as well as a number of spectral lines. These measurements allow for the most precise tests to date of CPT Invariance, a fundamental property of a quantum field theory like the Standard Model. We have built an additional apparatus, ALPHA-g, in order to test the Weak Equivalence Principle using antimatter. ALPHA-g is set to start taking data this year. In this talk I will briefly describe how we trap and perform measurements with the antihydrogen. I will then summarize our most recent results, including laser cooling of the antihydrogen (highlighted on the cover of the April 1 edition of Nature), as well as describe how we are going to test the gravitational interaction.