

Abstract Submitted  
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**Confronting CPT Symmetry with Atomic Antihydrogen**

MAKOTO FUJIWARA, TRIUMF — A long-term goal of antihydrogen research is precision tests of CPT and other symmetries between matter and antimatter, via precise comparisons of their properties. Any violations of these fundamental symmetries imply new physics at a very high energy scale, e.g., the Plank scale. The ATHENA experiment, located at CERN's Antiproton Decelerator, produced the first cold antihydrogen in 2002, establishing an important milestone towards the ultimate goal. The ATHENA data taking has been completed, and we are developing a second generation experiment, ALPHA (Antihydrogen Laser Physics Apparatus) with the aim of stably trapping cold antihydrogen atoms. After briefly reviewing ATHENA's achievements, I will present an overview of the ALPHA experiment, with an emphasis on its detection system using Si vertex detector. I will also discuss the prospects of Canadian participation in this exciting new project.

Makoto Fujiwara  
TRIUMF

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