

# THE ALPHA EXPERIMENT AT CERN: PRESENT STATUS \*

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The ALPHA (Antihydrogen Laser PHysics Apparatus) project is an international collaboration based at CERN's Antiproton Decelerator. Our long-term goal is to study the symmetry between matter and antimatter by studying the spectroscopy of the antihydrogen atom. The prevalence of matter over antimatter in the cosmos remains a major puzzle in the face of this symmetry in our physical laws.

The collaboration has constructed an innovative and flexible apparatus with the short-term goal of trapping antihydrogen atoms. This talk will describe the ALPHA apparatus and its operation. The description will cover the main components of the apparatus: the positron accumulator, antiproton catching trap and magnetic neutral atom trap. Particle detectors surrounding the traps enable the study of the  $\bar{p}$  plasma density and energy. Results will be shown to indicate our progress in the production and cooling of antiproton and positron plasmas.

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\*Work supported by CNPq, FINEP (Brazil), ISF (Israel), MEXT (Japan), FNU (Denmark), NSERC, NRC/TRIUMF (Canada), DOE (USA), EPSRC and the Leverhulme Trust (UK) and HELEN/ALFA-EC.

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