

Testing The Fundamental Symmetries Between Matter and Antimatter

UM-CERN REU Presentation I | Supervisor: Dr. Timothy Friesen

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Overview of the Antiproton Decelerator

- AD a.k.a "Antimatter Factory"



ALPHA α

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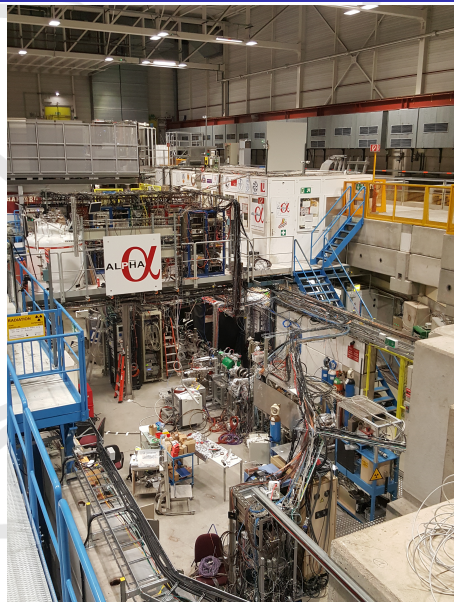
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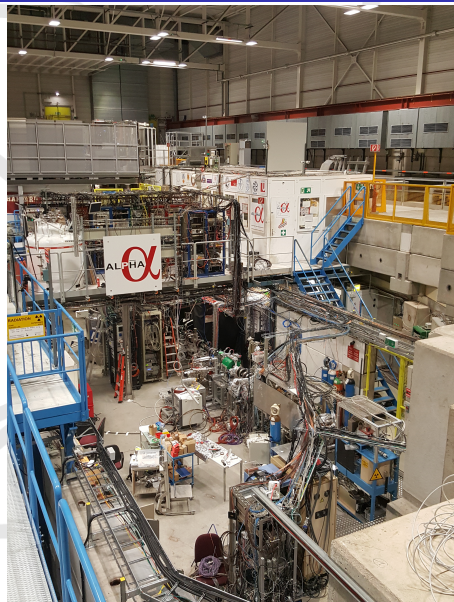
Antihydrogen Laser PHysics Apparatus (ALPHA)

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 - ▶ Positron accumulator
 - ▶ Catching trap (Pbars)
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- Make precise spectroscopic comparison of hydrogen and antihydrogen
 - ▶ Laser physics
 - ▶ CPT invariance
 - ▶ Observation of the hyperfine spectrum



My Project

- Build a pair of serial multiplexers (Arduino)
 - ▶ Reduces cable complexities



ALPHA α

My Project

- Build a pair of serial multiplexers (Arduino)
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- Help build the new apparatus ALPHA α
 - ▶ Looks for whether antimatter falls or rises under the influence of gravity
 - ▶ Precise mass of antihydrogen



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