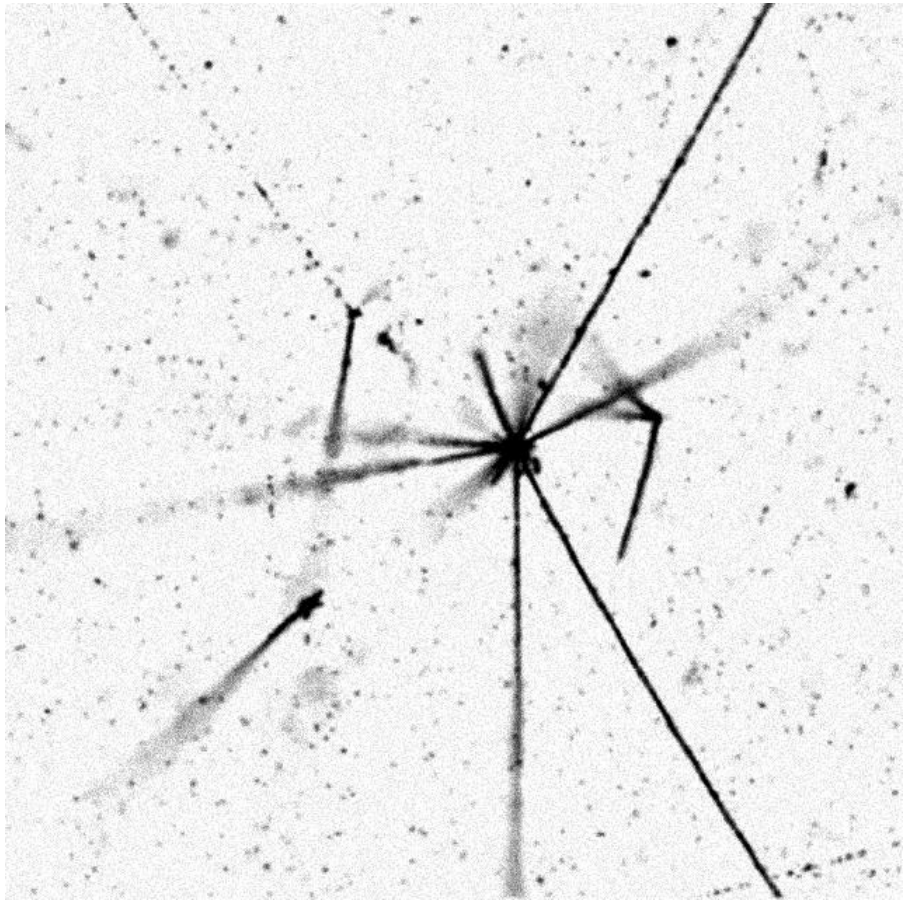

AEgIS

Antihydrogen Experiment: Gravity, Interferometry, Spectroscopy

Goals

- Direct measurement of earth’s gravitational acceleration (g) on antihydrogen
- Test Weak Equivalence Principle (WEP)- all bodies fall with the same acceleration independent of mass and composition

How Will They Measure This?

- Take antiprotons from the Antiproton Decelerator to make a beam of antihydrogen atoms
- Send the antihydrogen beam through a Moire deflectometer coupled to a position-sensitive detector to measure the strength of gravitational interaction between matter and antimatter (up to 1% accuracy)
- The antihydrogen collides with a silicon

detector, where they annihilate. The position and time of each annihilation is recorded and paired with its projected trajectory to measure how antihydrogen with different velocities drop