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【605】 Antihydrogen Formation from Cold Nonneutral Plasmas

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Atoms of antihydrogen can be formed by slowly merging cryogenic positron and antiproton plasmas. The ASACUSA collaboration will measure the ground state hyperfine splitting of these atoms, using a sextupole magnet to analyze the atoms after they pass through a microwave spin-flip cavity. This spectroscopy beamline has been tested with ordinary hydrogen, achieving ppb precision. The remaining technical challenge is the production of a sufficiently intense beam of antihydrogen. In this talk I will describe the ongoing efforts to (1) achieve cold, dense plasmas and (2) characterize the quantum state distribution of the atoms produced by recombination in the plasmas.

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