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Toward magnetic trapping of isotopes of hydrogen ROBERT CLARK, S. TRAVIS BANNERMAN, ISAAC CHAVEZ, ADAM LIBSON, TOM MAZUR, MARK RAIZEN, Department of Physics and Center for Nonlinear Dynamics, The University of Texas at Austin — Over the past decades, spectroscopy of atomic hydrogen has enabled precision measurements of many fundamental physical quantities. While atomic hydrogen has previously been trapped, its heavier isotopes deuterium and tritium have not. One promising technique for obtaining these samples is magnetic deceleration of a supersonic beam, via an "atomic coilgun." In this work, we present progress toward magnetically trapping deuterium in a simple room-temperature apparatus, which includes the coilgun and a solid-state laser system for addressing the 1S-2S transition. We also discuss prospects for cooling samples of deuterium and tritium through the recently discovered technique of single-photon cooling.

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