

Abstract Submitted
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Systematic characterization in hydrogen 2S-8D spectroscopy.

CORY RASOR, ADAM BRANDT, SAMUEL COOPER, Colorado State University, ZAKARY BURKLEY, Institute for Particle Physics and Astrophysics, Zurich, DYLAN YOST, Colorado State University — We will present progress in measuring the 2S-8D transition in hydrogen using a cryogenic metastable hydrogen beam (approx. 5 K), with a focus on the characterization of key systematics surrounding this measurement. In particular, we will present a characterization of the residual Zeeman shifts and measurements of the 2S-12D lineshape, which is used to characterize DC Stark shifts within the apparatus. The measurement of the 2S-8D transition in hydrogen can be used to determine the proton charge radius and the Rydberg constant.

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