

Abstract Submitted  
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**Measurement of the ratio of scalar to vector transition polarizabilities for the  $6s \rightarrow 7s$  transition in atomic cesium<sup>1</sup>** JONAH QUIRK, AMY DAMITZ, Purdue University, CAROL E. TANNER, University of Notre Dame, D.S. ELLIOTT, Purdue University — We report progress on a new measurement of the ratio of the scalar ( $\alpha$ ) to vector ( $\beta$ ) transition polarizabilities in atomic cesium ( $^{133}\text{Cs}$ ) for the  $6s \ ^2S_{1/2} \rightarrow 7s \ ^2S_{1/2}$  transition. This measurement is part of an effort in our laboratory to resolve the discrepancy between two determinations of the vector polarizability  $\beta$  for this transition [PhysRevLett.123.073002]. For the two-pathway coherent control technique used for this measurement, the two optical pathways will be excited with a two-color two-photon transition and a Stark-induced electric dipole transition concurrently. By varying the phase of the light exciting the Stark transition and the direction of the applied electric field, we will be able to precisely measure the transition strength in each field orientation and determine the ratio  $\alpha/\beta$ .

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