

Abstract Submitted  
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**Measurement of the Stark shift of the  $6s^2S_{1/2} \rightarrow 7p^2P_J$  transitions in atomic cesium**<sup>1</sup> GEORGE TOH, Purdue University, D. ANTYPAS, Mainz Institute for Physics, D.S. ELLIOTT, Purdue University — We report measurements of the Stark shift of the cesium  $6s^2S_{1/2} \rightarrow 7p^2P_{1/2}$  and  $6s^2S_{1/2} \rightarrow 7p^2P_{3/2}$  transitions at  $\lambda = 459$  and  $456$  nm, respectively, in an atomic beam. From these measurements, we determine the static scalar polarizability for both  $7P_J$  states and the tensor polarizability for the  $7P_{3/2}$  state. The fractional uncertainty of the scalar polarizabilities is  $\sim 0.18\%$ , while that of the tensor term is  $0.7\%$ . These measurements allow a precise determination of the reduced radial matrix elements  $\langle 7P_{1/2} || r || 6D_{3/2} \rangle = 17.92$  (3)  $a_0$  and  $\langle 7P_{3/2} || r || 6D_{5/2} \rangle = 24.28$  (6)  $a_0$ , providing a sensitive test and critical confirmation of theoretical models of the Cs atom, which has played a central role in parity nonconservation measurements.

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