

Abstract Submitted  
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**Polarizability of the  $6d_{3/2}$  state of cesium: experiment and theory<sup>1</sup>**

A. KORTYNA, C. TINSMAN, J. GRAB, Lafayette Col., M.S. SAFRONOVA, Univ. of Delaware, U.I. SAFRONOVA, Univ. of Nevada — We report the first polarizability measurements of atomic cesium's  $6d_{3/2}$  state. The scalar and tensor polarizabilities are determined from hyperfine-resolved Stark-shift measurements using two-photon laser-induced-fluorescence spectroscopy of an effusive beam. The resulting values are  $\alpha_0 = -5270(180)a_0^3$  and  $\alpha_2 = 8650(260)a_0^3$ . We also present relativistic all-order calculation of both the scalar and tensor polarizabilities. The resulting theoretical values,  $\alpha_0 = -5686(121)a_0^3$  and  $\alpha_2 = 8750(82)a_0^3$  have greater precision than past calculations and are in agreement with our experimental results.

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