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Two-Photon Polarization Spectroscopy of atomic Cs over the $6s^2S_{1/2} \rightarrow 6p^2P_{3/2} \rightarrow 9d^2D_{5/2}$ transition MORGAN J. WELSH, SEDA KIN, JACOB D. HINKLE, S. BURCIN BAYRAM, Miami University, OH — An experimental investigation of collisional depolarization of the atomic cesium $6s^2S_{1/2} \rightarrow 9d^2D_{5/2}$ two-color two-photon polarization spectrum with Ar buffer gas has been made. In the vicinity of the $6s^2S_{1/2} \rightarrow 6p^2P_{3/2} \rightarrow 9d^2D_{5/2}$ stepwise resonances the dependence of the Ar pressure revealed strong depolarization on the polarization spectrum. Measurements of the linear polarization degree were made with the first laser tuned to resonance and the second laser tuned within a $\pm 11 \text{ cm}^{-1}$ range over the final state. In the absence of collisions, the measurements of the polarization spectrum is in agreement with calculations. The polarization measurement on the $6s^2S_{1/2} \rightarrow 6p^2P_{3/2} \rightarrow 9d^2D_{5/2}$ transition and an overview of the experimental techniques of our results are also presented.

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