

Abstract Submitted
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Atomic beam measurements of the ^{133}Cs $7d^2D_j$ hyperfine structure¹ ANDREW KORTYNA, NICHOLAS MASLUK, JONATHAN FARRAR, Department of Physics, Lafayette College, Easton, PA 18042 — The hyperfine structures of the $7d^2D_{3/2}$ and $7d^2D_{5/2}$ states of cesium are studied using two-color, fluorescence spectroscopy in an atomic beam. Two single-mode external-cavity diode lasers probe the $7d^2D_j$ states through two-color resonant excitation. One laser is locked to the $6s^2S_{1/2}(F) \rightarrow 6p^2P_{3/2}(F')$ transition using a servo-feedback circuit; optical pumping of the ground state is minimized through electro-optic modulation of this laser. The second laser is scanned over the $6p^2P_{3/2}(F') \rightarrow 7d^2D_j(F'')$ hyperfine manifolds. High resolution is achieved by referencing the frequency scale of the second laser directly to the ^{87}Rb ground state hyperfine transition using a radio-frequency modulation technique.

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