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Quantum interference in two-photon excitation of the 6s - 7s transition in atomic cesium[1] C. VANDAM, A. HANKIN, A. SIERADZAN, Central Michigan University, M.D. HAVEY, Old Dominion University — We report measurements of the relative transition amplitudes for the hyperfine components in the two-quantum 6s $^2S_{1/2} \rightarrow 7s^2S_{1/2}$ transition of atomic cesium. Two independently-tuned diode lasers, operating at wavelengths around 852 and 1470 nm, are used to induce excitation in warm cesium vapor. Relative probabilities for transitions between specific initial and final hyperfine structure levels are determined as a function of the intermediate virtual level detuning from the spectrally-close 6p $^2P_{3/2}$ level. Strong quantum interference effects associated with indistinguishable excitation paths are observed. Relative transition probabilities are in general agreement with predictions of a simple model. Observed approximate 1% deviations require further analysis.

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