

Abstract Submitted
for the OSS14 Meeting of
The American Physical Society

Quantum Beats Spectroscopy of the Hyperfine Evolution in excited Cesium PHILLIP ARNDT, PATRICK BOYLE, BURCIN BAYRAM, Miami University, Oxford Ohio — A unique experimental quantum beat spectra via pump-stimulated emission probe technique is proposed to measure the hyperfine structure in the excited $8p^2P_{3/2}$ level of atomic cesium. The evolution of the polarization and state multipoles is measured, and the values of the magnetic dipole (A) and electric quadruple (B) moments of the hyperfine structure are determined. The $8p^2P_{3/2}$ level is populated using a tunable, nanosecond pulsed dye laser at 387.9 nm; a subsequent probe at 894.7 nm arrives a measured time later, up to 120 ns, and it causes the population to transfer via stimulated emission probe to the $5d^2D_{5/2}$ level. The polarization is determined by measuring the fluorescence from the $6p^2P_{3/2}$ level to the ground state, and a chi squared fitting program is used to determine the values of A and B.

Phillip Arndt
Miami University, Oxford Ohio

Date submitted: 14 Mar 2014

Electronic form version 1.4