Abstract Submitted
for the DAMOP12 Meeting of
The American Physical Society

Spectroscopy of the Cs 6s-5d quadrupole transition for qubit measurements[1] TIAN XIA, ALEX CARR, GANG LI, SIYUAN ZHANG, MARK SAFFMAN, University of Wisconsin — We have performed spectroscopy of the Cs $6s_{1/2} - 5d_{5/2}$ quadrupole transition using a heated thermal cell and a sample of cold trapped atoms. Measurements of the excited state hyperfine splittings have been used to determine values for the hyperfine constants. This transition is of interest for background free measurements on Cs qubits, as well as narrow line cooling since the Doppler tmeperature is only about 3 μK. We will report on experimental progress towards laser cooling and hyperfine qubit state detection using the quadrupole transition.

[1]This work was supported by IARPA through ARO, and DARPA.

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Date submitted: 26 Jan 2012 Electronic form version 1.4