Abstract Submitted
for the DAMOP14 Meeting of
The American Physical Society

Increasing the Coherence Time in a Magnetic Stimulated Raman Transition in ^{85}Rb[1] SARA A. DESAVAGE, Department of Physics, University of Maryland, Baltimore County, Baltimore, MD 21250 USA, DANIELLE A. BRAJE, RF and Quantum Systems Technology Group, MIT Lincoln Laboratory, Lexington, MA 02420 USA, JON P. DAVIS, FRANK A. NARDUCCI, Naval Air Systems Command, EO Sensors Division, Bldg 2187, Suite 3190, 48110 Shaw Road, Patuxent River, MD 20670 USA — We experimentally study, compare and contrast Ramsey and spin echo pulse sequence protocols in a cold ^{85}Rb gas. Our measurements, performed in an *unshielded* metal vacuum canister, are dominated by laboratory noise. Both Ramsey and spin echo show a decay of the interference in about 100 μsec, while we have found that changing the axis of rotation of the echo pulse by 90° can increase coherence time by nearly a factor of 10. These results show that this new pulse sequence can be used in our system to reduce dephasing on magnetic transitions.

[1]Grateful for funding from ONR

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Date submitted: 30 Jan 2014 Electronic form version 1.4