Abstract Submitted
for the DAMOP10 Meeting of
The American Physical Society

Precision measurements of atomic g factor ratios using a dual species MOT[1] I. CHAN, R. BERTHIAUME, B. BARRETT, C. MOK, A. CAREW, A. KUMARAKRISHNAN, York University — We describe progress toward a precision measurement of atomic g factor ratios in a dual species MOT using a coherent transient technique referred to as magnetic grating free induction decay (MGFID)[2]. In the experiment, a sample of laser cooled atoms is excited using two laser pulses with orthogonal polarizations. In a constant magnetic field, the MGFID signal exhibits oscillations at the Larmor frequency. Using a scheme in which both ^{85}Rb and ^{87}Rb atoms are simultaneously loaded from the background vapor into a dual isotope magneto optical trap (MOT), we measure the ratio of atomic g factors between the ^{85}Rb $F = 3$ and ^{87}Rb $F = 2$ ground states by extracting the Larmor frequency from the MGFID signal.

[1]Work supported by CFI, OIT, NSERC, OCE, and York University.
[2]I. Chan *et al.*, Phys. Rev. A **78**, 033418 (2008).

I. Chan
York University

Date submitted: 27 Jan 2010 Electronic form version 1.4