Abstract Submitted
for the DAMOP10 Meeting of
The American Physical Society

Realization of An Inexpensive Multi-Channel Frequency Synthesizer[1] ADAM CAREW, York University, R. BERTHIAUME, C. MOK, I. CHAN, B. BARRETT, M. WEEL, A. KUMARAKRISHNAN, York University — We present a high-precision RF synthesizer that uses phase locked loops for deriving multiple outputs for applications in atomic physics such as optical lattices and atom interferometry. The synthesizer utilizes inexpensive, readily-available components to produce dual RF outputs that are tunable over ~ 50 MHz in the vicinity of 250MHz. The difference frequency between the outputs can be tuned from ~ 10 mHz to 50 MHz. We achieve exceptional frequency stability by using a rubidium reference at 10 MHz. The RF outputs are also phase stabilized using a feedback loop so that the phase remains constant as the frequency is changed.

[1]Work supported by: CFI, OIT, NSERC, OCE and York University.

Adam Carew
York University

Date submitted: 21 Jan 2010 Electronic form version 1.4