

Abstract Submitted
for the DAMOP05 Meeting of
The American Physical Society

Design and Construction of a Ca/Sr Atom Interferometer CHRIS ERICKSON, BRIAN NEYENHUIS, JUSTIN PAUL, GREG DOERMANN, SCOTT BERGESON, DALLIN DURFEE, Brigham Young University — We are constructing a Ca/Sr dual species atom interferometer. We expect to achieve a high degree of common-mode drift cancellation by overlapping atomic and laser beams and tuning the effective velocity of each atomic beam via the Ramsey “pulse area.” The device will also feature the use of precision prisms for stable alignment and cancellation of and stabilization of various systematic shifts. As part of this project we have developed a new external-cavity diode laser stabilization scheme, a low-cost high-accuracy method of testing prism deflection angles, and a high temperature vapor cell. We are currently working to lock our lasers to ultra-high finesse optical cavities to achieve Hz-level short term stability.

Dallin Durfee
Brigham Young University

Date submitted: 02 Feb 2005

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