

Abstract Submitted
for the DAMOP12 Meeting of
The American Physical Society

Miniature, atomically referenced offset phase-locked laser for cold-atom sensors¹ JUAN PINO, BEN LUEY, SARAH BICKMAN, MIKE ANDERSON, Vescent Photonics — As ultracold atom sensors begin to see their way to the field, there is a growing need for small, accurate, and robust laser systems to cool and manipulate atoms for sensing applications such as magnetometers, gravimeters, atomic clocks and inertial sensing. In this poster we present an ultracompact, frequency agile laser source, referenced to a hyperfine transition of ^{87}Rb . The laser system is housed in a package roughly the size of a stack of business cards, is hermetically sealed, and contains no moving parts – ideal for field deployment. The laser system includes two lasers with independent temperature control, a Rb-filled vapor cell, a high-speed photodetector for monitoring the offset frequency between the lasers, as well the necessary optical isolation. We will present designs of the ultracompact laser system, as well as quantitative results including size, weight, expected power consumption, frequency agility, and frequency stability.

¹This work was funded by DARPA.

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Date submitted: 25 Jan 2012

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