Abstract Submitted
for the DAMOP10 Meeting of
The American Physical Society

Atomic Ytterbium Beam Experiments at an Undergraudate Physics Laboratory MARTIN MADSEN, Wabash College, R. PAUDEL, L.W. LUPINSKI, J.E. BARLOW, S.E. POND — We report our progress towards producing a beam of cold Ytterbium atoms in an undergraduate laboratory. We constructed a low-cost Zeeman slower designed to slow Yb atoms from 325 m/s to $\sim$ 1 cm/s on the $^1S_0$ to $^1P_1$ atomic transition, accessible by a direct-diode laser at 398.8 nm. We propose a number of atomic beam experiments for undergraduate labs including measuring the ytterbium isotope shift, and measuring both power and Doppler broadening of a single isotope. We also propose using the spectrally-resolved spontaneous emission from a long-lived decay channel ($\tau \sim 1$ μs) to measure the Yb beam velocity.

Martin Madsen
Wabash College

Date submitted: 22 Jan 2010 Electronic form version 1.4