

Abstract Submitted
for the DAMOP09 Meeting of
The American Physical Society

Progress towards a continuous atom laser¹ MALLORY TRAXLER, CORNELIUS HEMPEL, VARUN VAIDYA, GEORG RAITHEL, University of Michigan — We report on progress towards a continuous atom laser. In a previous design, ⁸⁷Rb atoms are guided in a high-gradient, linear magnetic guide with a transverse temperature of 420 μ K, a longitudinal temperature of 1 mK, and a flux of 3×10^7 atoms s⁻¹. This setup is currently being used to study the dynamics of Rydberg atoms and cold plasmas in extreme magnetic field configurations. In the present poster, we summarize results obtained in this guide. We have begun constructing an improved guide setup that enables a larger and colder atomic flux by addressing key problems associated with the continuous flow of cold atoms, such as atom heating during injection into the guide and atom losses due to laser-cooling stray light along the guide. In the poster, we outline the methods employed in the new guide setup to eliminate these issues.

¹This work is supported by the Army Research Office. M.T. acknowledges fellowship support from NDSEG and C.H. from the Fulbright Commission and the German National Academic Foundation.

Mallory Traxler
University of Michigan

Date submitted: 23 Jan 2009

Electronic form version 1.4