

Abstract Submitted
for the DAMOP06 Meeting of
The American Physical Society

Applications of cold, magnetically-guided atomic beams¹ S. E. OLSON, R. R. MHASKAR, G. RAITHEL, FOCUS Center, Department of Physics, University of Michigan, Ann Arbor, MI 48109 — In parallel with work aimed at developing a continuous-wave atom laser in a high-gradient magnetic guide, we are exploring tools suited to manipulate cold atomic beams in atom guides. We present an experimental demonstration of using RF-filtering to decrease the number of modes occupied by an atomic flow propagating in a high-gradient atom guide. Through sufficient filtering of this type, a near-single-mode guided atomic beam should be achievable, allowing basic atom-interferometric experiments. We present a new inline beam-splitting scheme using RF-dressed-state potentials. It is shown how this scheme could be employed to build fairly simple large-area Sagnac atom interferometers. Finally, we will present Monte Carlo collision simulations of novel evaporative cooling techniques in a guided atomic beam.

¹This work was funded by ARO grant number 42791-PH.

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Date submitted: 27 Jan 2006

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