Abstract Submitted
for the DAMOP05 Meeting of
The American Physical Society

Magnetic media for atomic diffraction TIMOTHY ROACH, HIEU PHAN, College of the Holy Cross — We are investigating the use of magnetic data recording media as an atomic diffraction grating. In order to optimize the visibility of diffraction order fringes we model the scattering of a thermal MOT cloud from the grating. We treat separately the region far from the grating where gravity dominates and the region near the grating where the magnetic field dominates. Thermal spreading is reduced by a combination of focusing (using a curved grating) and gravitational acceleration (which reduces the relative momentum spread of atoms incident upon the grating). Preliminary experimental scattering results from our rubidium MOT apparatus are presented. This work was supported by the American Chemical Society.

Timothy Roach
College of the Holy Cross

Date submitted: 01 Feb 2005 Electronic form version 1.4