Abstract Submitted
for the DAMOP08 Meeting of
The American Physical Society

Spin Relaxation of Cold Atomic Iron and Nickel in Collisions with ^{3}He BONNA NEWMAN, CORT JOHNSON, Massachusetts Institute of Technology, NATHAN BRAHMS, JOHN DOYLE, Harvard University, DAN KLEPPNER, TOM GREYTAK, Massachusetts Institute of Technology — We measure the ratio of transport to spin-projection changing collision cross sections (γ) in the Fe-He and Ni-He systems. γ for Ni [$^3F_4$, $m_J = 4$] is found to be $\gamma = 1.1 \pm .5 \times 10^4$ at 1 K in a .8 T magnetic field. γ for Fe [$^5D_4$, $m_J = 4$] was low enough such that only a bound could be measured, $\gamma < 5 \times 10^3$. The Ni result extends the notion of submerged shell suppression of inelastic loss in non-S-state atoms to this group of transition metals.

Cort Johnson
Massachusetts Institute of Technology

Date submitted: 01 Feb 2008 Electronic form version 1.4