Abstract Submitted
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Light scattering of degenerate fermions S. AUBIN, L. J. LEBLANC, S. MYRSKOG, M. H. T. EXTAVOUR, D. MCKAY, A. STUMMER, J. H. THYWISSEN, Dept. of Physics, University of Toronto — We report on progress in measuring the suppression of resonant light scattering in a gas of degenerate fermions. A gas of trapped degenerate fermions is expected to exhibit narrower optical linewidths and longer excited state lifetimes than single atoms when the Fermi energy is larger than the photon recoil energy [1-3]. In this case, the number of available states into which a scattered atom can recoil is significantly reduced due to the filling of the Fermi sea. We produce a degenerate gas of 4×10^4 ultra-cold fermionic ^{40}K atoms by sympathetic cooling with bosonic ^{87}Rb in a micro-magnetic chip trap. The atoms can then be loaded into a tight dipole trap just above the surface of the chip and probed with a near resonance laser pulse. [1] Th. Busch, J. R. Anglin, J. I. Cirac, and P. Zoller, *Europhys. Lett.* **44**, 1 (1998). [2] B. DeMarco and D. S. Jin, *Phys. Rev. A* **58**, R4267 (1998). [3] J. Javanainen and J. Ruostekosky, *Phys. Rev. A* **52**, 3033 (1995). Work supported by NSERC, CFI, OIT, Research Corporation, and PRO.

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