

Abstract Submitted  
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**Cooling Rubidium 87 Atoms Using Adiabatic Expansion in Microgravity**<sup>1</sup> ADELAIDE POLLARD, CASS SACKETT, University of Virginia — The Cold Atom Lab on the International Space Station produces samples of cold, magnetically-trapped Rb-87 atoms. By slowly reducing the trapping fields using a series of thirty or more linear ramps in the chip and coil currents, we adiabatically expand the magnetic trap to create an ultra-cold and stationary sample of atoms. We have demonstrated the ability to displace atoms from the chip into a trap with 3 Hz frequency, with minimal residual center-of-mass motional excitation. As part of this effort, we are exploring how different trap turn off procedures affect the population of different magnetic states, as well as how stray background fields may limit the length of time-of-flight observations. We will discuss the application of adiabatic expansion in CAL's future atomic interferometry experiments and possible improvements to the technique.

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Adelaide Pollard  
University of Virginia

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