

Abstract Submitted
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Spin Exchange Cooling in an Ultracold $^{85/87}\text{Rb}$ Mixture¹ REBEKAH FERRIER, MATHEW HAMILTON, JACOB ROBERTS, Colorado State University — Through the combination of the application of a magnetic field and using optical pumping for spin polarization, it is possible to use spin-exchange collisions to cool a mixture of ultracold ^{85}Rb and ^{87}Rb atoms trapped in an optical trap. This cooling can be accomplished without requiring the intrinsic loss of atoms from the gas. The use of two isotopes is also advantageous in mitigating reabsorption of the optical pumping light in the gas, a significant limitation in non-evaporative cooling. We report on our most recent implementation of this cooling technique and discuss the cooling performance with improved initial atom density, optical trap confinement, microwave coupling for optical pumping, and optical pumping scheme.

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