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An Optical Trap for ^{85}Rb and ^{87}Rb JUAN M. PINO II, SCOTT B. PAPP, CARL E. WIEMAN, JILA and University of Colorado — We report on the simultaneous optical trapping of an ultra-cold mixture of ^{85}Rb and ^{87}Rb. Using this trap we have been able to explore the interspecies Feshbach resonance between ^{85}Rb and ^{87}Rb. With adiabatic magnetic field ramps a Feshbach resonance provides the opportunity to create hetronuclear molecules, as well as superpositions of atomic and molecular states. Recently at JILA, the ^{85}Rb Feshbach resonance has demonstrated that large molecular conversion efficiency and long molecular lifetimes demand atomic gases with low densities [1]. In consideration of this we discuss our efforts in implementing an optical trap with very weak confinement. We acknowledge the funding for this work from the NSF and ONR. [1] E. Hodby, *et al.* cond-mat/0411487

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