

## Feshbach resonances in ultracold mixture of $^{87}\text{Rb}$ and $^{40}\text{K}$ (LT26)

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We study the transport the ultracold mixture in a harmonic potential over a distance of 12 mm to the center of cell and demonstrate the experimental preparation of the absolute ground state of  $^{87}\text{Rb}$  and  $^{40}\text{K}$  ( $|1, 1\rangle + |9/2, -9/2\rangle$ ) by means of the radio-frequency and microwave adiabatic rapid passages in an optical trap, created by two off-resonance laser beams, at a wavelength of 1064 nm, crossing in the horizontal plane.

We observe the magnetic Feshbach resonances in an ultracold mixture of bosonic  $^{87}\text{Rb}$  and fermionic  $^{40}\text{K}$  atoms between 0 and 600 G, including 6 homonuclear and 4 heteronuclear Feshbach resonances. The resonances are identified by the abrupt trap loss of atoms induced by the strong inelastic three-body collisions. These Feshbach resonances should enable experimental control of the interspecies interactions.