Giant Feshbach resonances in $^6$Li+$^{85}$Rb mixtures

KIRK W. MADISON, BRUCE G. KLAPPAUF, BENJAMIN DEH, WILL GUNTONG, MARIUSZ SEMCZUK, ZHIYING LI, University of British Columbia — We report on the observation of Feshbach resonances in an ultracold mixture of $^6$Li and $^{85}$Rb. While the Feshbach resonances in $^6$Li+$^{87}$Rb and $^7$Li+$^{87}$Rb mixtures are known to be relatively sparse and narrow, those in $^6$Li+$^{85}$Rb mixtures are, by contrast, numerous and wide. The experimental data are interpreted using a full coupled channels calculation which provides the energy of the least bound molecular states responsible for the observed resonances. This analysis fully characterizes the ground-state scattering properties in any combination of spin states.

$^1$This research was funded by NSERC, CFI, BCKDF, and CIFAR.

Kirk W. Madison
University of British Columbia

Date submitted: 22 Jan 2010