

Abstract Submitted
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Magnetic Feshbach Resonances in Ultracold Yb+Li¹ ALAINA GREEN, JUN HUI SEE TOH, XINXIN TANG, SUBHADEEP GUPTA, University of Washington — We have observed interspecies magnetic Feshbach resonances between the open-shell Li and the closed-shell Yb ground state atom. Resonances are detected via atom loss spectroscopy across different magnetic field ranges on an atomic mixture of ⁶Li and ¹⁷³Yb in a crossed optical dipole trap. Our observations are in good agreement with theoretical predictions (performed by the group of S. Kotochigova, Temple University) of resonance locations based on two-photon photoassociation (PA) spectroscopy performed in our group. Our PA work also provides an updated value of the s-wave scattering length for Yb-Li. In addition to our spectroscopic observations, we will also report on the associated coupling mechanisms responsible for the Feshbach resonances in this non-bialkali system. These interspecies magnetic Feshbach resonances may be used to associate free atom pairs of ultracold atoms into ground state YbLi molecules. Unlike dipolar bialkali molecules, the YbLi molecule possesses both electric and magnetic dipole moments, making it a candidate system for a rich variety of quantum simulations.

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