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Observation of Magnetic Feshbach Resonances in Li-Yb Mixtures[1] JUN HUI SEE TOH, ALAINA GREEN, XINXIN TANG, KATIE MCCORMICK, University of Washington, HUI LI, MING LI, Temple University, EITE TIESINGA, NIST, SVETLANA KOTOCHIGOVA, Temple University, SUBHADEEP GUPTA, University of Washington, UNIVERSITY OF WASHINGTON TEAM, TEMPLE UNIVERSITY TEAM — We observe multiple interspecies magnetic Feshbach resonances between the open-shell Li and the closed-shell Yb ground state atom [1]. We resolve closely-located resonances that arise from a weak separation-dependent hyperfine coupling between the nuclear spin of ^{173}Yb and the electronic spin of ^{6}Li, and confirm their magnetic field spacing by ab initio electronic-structure calculations. Resonances are identified via trap-loss spectroscopy with the mixtures in a crossed optical dipole trap and varying magnetic field. The asymmetric loss profiles of the resonances show that three-body recombination in fermionic mixtures has a p-wave Wigner threshold. We plan to apply these resonances towards magnetoassociation of ultracold YbLi molecules in the electronic ground state. The $^{2}\Sigma$ YbLi molecule possesses both electric and magnetic dipole moments that can be utilized towards ultracold chemistry, quantum many-body physics, and quantum information. [1] A. Green et al. arXiv: 1912.04874 (2019)

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