Resonantly interacting lithium-chromium Fermi mixtures

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Resonantly interacting mixtures of ultracold fermionic atoms provide versatile and highly controllable platforms with which to explore a wealth of phenomena occurring in strongly-correlated systems: from helium liquids and solid-state materials, up to nuclear and quark matter. Here, I will discuss recent progress of my experimental team in making, probing and characterizing novel $^6$Li-$^{53}$Cr ultracold Fermi mixtures under resonantly-interacting conditions: From the efficient production of highly-degenerate lithium and chromium Fermi gases [1,2] and the thorough characterization of the interspecies scattering properties [3], to the most recent studies of collective oscillations of resonantly-interacting mixtures, and the realization of high phase-space density Bose gases of LiCr Feshbach molecules.


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