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Collisional properties of ultracold potassium in the vicinity of a d-wave Feshbach resonance[1] CEDRIC ENESA, THOMAS REIMANN, MARKUS BOHLEN, JULIAN STRUCK, TARIK YEFSAH, CHRISTOPHE SALOMON, FREDERIC CHEVY, LKB, ULTRACOLD FERMI GASES TEAM — The massive impact of ultracold atoms on modern physics resides in the great versatility they offer to explore new quantum phenomena. Most notably, Feshbach resonances represent a formidable tool in order to tune interactions between atoms. Originally conceived in the context of nuclear physics by Herman Feshbach, it has, since then, found numerous other applications in several fields, including atomic (and molecular) physics and condensed matter. In particular, high partial waves Feshbach resonances (l>1) have been predicted to give access to complex order parameters and quantum phase transition such as p-wave superfluid and d-wave high-Tc superconductors. Here, we report on our progress on studying the temperature dependent collisional properties of a Fermi gas of ^{40}K in the vicinity of a new d-wave Feshbach resonance. To this end, we first characterize the nature of the two body losses before analyzing the dynamical evolution of the spin composition while reaching equilibrium.

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