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Stability of a Three-Component ^{6}Li^{40}K Fermi Mixture near a ^{6}Li Feshbach Resonance DEVANG NAIK, FREDERIK SPIEGELHALDER, ANDREAS TRENKWALDER, ERIK WILLE, GERHARD HENDL, FLORIAN SCHRECK, RUDOLF GRIMM, Österreische Akademie der Wissenschaften — We report on the stability of a three-component Fermi gas consisting of a strongly interacting ^{6}Li two-component degenerate mixture near the 834-G Feshbach resonance in the presence of a weakly interacting ^{40}K sample. Despite the presence of three distinguishable particles, we observe stability against three-body recombination both on resonance and on the BCS side of the resonance. On the molecular side, however, we observe increasing losses due to atom-dimer collisions. We have measured the corresponding rate coefficients, along with Li-K thermalization rates, for different magnetic fields around the resonance. The observed stability and thermalization opens up the possibility of using ^{40}K as a probe to study ^{6}Li BEC-BCS crossover dynamics.

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