

Abstract Submitted
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Dynamics of Feshbach molecules in an ultracold three-component mixture¹ ALEXANDER KHRAMOV, ANDERS HANSEN, WILLIAM DOWD, ALAN JAMISON, SUBHADEEP GUPTA, University of Washington, Seattle, WA 98195 — Feshbach resonances are an integral tool in ultracold atomic physics, allowing for tunable two-body interactions and the synthesis of molecular dimers. The two lowest energy states of the ^6Li atom exhibit a broad Feshbach resonance at 834 Gauss which can be used to link pairs of atoms into shallow dimers. We study ultracold mixtures of ^6Li atoms near the Feshbach resonance, immersed in a bath of ^{174}Yb . We observe dynamics of Li_2 Feshbach molecule formation and decay, as modified by a non-resonant component, and find remarkable molecule stability even in the absence of Fermi statistics. We also extract the reaction rate coefficients of the dominant chemical processes. This work opens various new possibilities for studies of strongly interacting Fermions, as interrogated by a second species.

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