

Abstract Submitted
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Optical Control of Collisional Interactions in ${}^6\text{Li}$ using Dark Molecular States¹ ARUNKUMAR JAGANNATHAN, Duke University, NITHYA ARUNKUMAR, North Carolina State University, ETHAN ELLIOT, Duke University, JAMES JOSEPH, JOHN THOMAS, North Carolina State University — We are developing “dark-state” two-optical field methods to control interactions in ${}^6\text{Li}$. Although external magnetic fields are typically used to tune the interaction strength in fermionic atoms near a Feshbach resonance, optical tuning methods can provide rapid temporal control and high-resolution spatial control thus enabling the study of non-equilibrium strongly interacting Fermi gases. However, optical tuning suffers from heating due to spontaneous scattering, which can be suppressed by a second optical field. We will report on the measurement of loss spectrum as a function of magnetic field and laser detuning near Feshbach resonances in ${}^6\text{Li}$ and our progress on two-optical field loss suppression.

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