

Abstract Submitted
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Two-field Optical Vernier to Probe Energy-Dependent Feshbach resonances¹ ARUNKUMAR JAGANNATHAN, University of Southern California, NITHYA ARUNKUMAR, Harvard University, JOHN THOMAS, North Carolina State University — Optical control of two-body interactions in ultracold gases enables new high resolution probes of energy-dependent narrow Feshbach resonances, which are strongly dependent on the relative momentum of colliding atom pairs. We demonstrate a two-field optical vernier using electromagnetically induced transparency, which expands kHz (mG) magnetic field detunings into MHz optical field detunings, providing new insights into the momentum-dependent two body interactions. Two-photon atom loss spectra are measured near the narrow Feshbach resonance in ⁶Li atoms, revealing rich structure in good agreement with our theoretical model.

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