

Abstract Submitted
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Low-field Feshbach resonances in dysprosium KRISTIAN BAUMANN, NATHANIEL BURDICK, MINGWU LU, BENJAMIN LEV, Stanford University — We report the observation [1] of resonance-like loss in the trap population of ultracold dysprosium as a function of magnetic field, which we attribute to anisotropy-induced Feshbach resonances arising from Dy's large magnetic dipole moment and nonzero electronic orbital angular momentum. We recorded these resonances for four different isotopes, three bosonic and one fermionic, over a field range of 0-6 G and show that the number of resonances changes significantly as a function of temperature, even in the nK regime. Most of the observed resonances are of very narrow width. The fermionic isotope, unlike its bosonic counterparts, possesses nonzero nuclear spin and exhibits a much higher density of resonances.

[1] K. Baumann, N. Q. Burdick, M. Lu, and B. L. Lev, to appear in Phys. Rev. A, Rapid Communications (2013). arXiv:1312.6401

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