

Abstract Submitted
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Bath-induced band-decay in a spin-dependent optical lattice¹

BRIAN DEMARCO, DAVID CHEN, CAROLYN MELDGIN, University of Illinois — We have measured the bath-induced band-decay rate for a thermal gas of ^{87}Rb atoms trapped in a cubic, fully spin-dependent optical lattice. Atoms in the $|F = 1, m_F = -1\rangle$ state are confined in the lattice and driven to the first-excited band via stimulated Raman transitions. We compare rates for decay to the ground band in the presence and absence of a bath consisting of a $|F = 1, m_F = 0\rangle$ BEC that does not experience the lattice potential. For lattice depths in the Mott-insulator regime, we measure increased decay rates induced by the bath atoms. This talk will include a discussion of decay mechanisms, and the importance of bath-induced decay to proposed methods for cooling quasimomentum distributions in a lattice.

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