

Abstract Submitted
for the DAMOP14 Meeting of
The American Physical Society

Toward Quantum Magnetism Experiments with Li-7 WILLIAM LUNDEN, JESSE AMATO-GRILL, IVANA DIMITROVA, NIKLAS JEPSEN, YICHAO YU, DAVID PRITCHARD, MICHAEL MESSER, DAVID WELD, GRACIANA PUENTES, WOLFGANG KETTERLE, MIT, CENTER FOR ULTRACOLD ATOMS COLLABORATION — We report on the rapid production of large Li-7 Bose-Einstein condensates in a new apparatus designed for optical lattice emulator experiments. Due to the small mass of lithium, we expect that the timescales for tunneling and superexchange in our experiment are 12 times shorter than those in a comparable Rb-87 lattice experiment. We plan to leverage these short timescales in order to study models of quantum magnetism and to explore the influence of synthetic gauge fields on quantum matter.

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Date submitted: 31 Jan 2014

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