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Generation of effective magnetic fields in Raman-dressed states I.B. SPIELMAN, Y.-J. LIN, W.D. PHILLIPS, J.V. PORTO, JQI: NIST and U. of Maryland — We load a ^{87}Rb BEC into the dressed states formed by a pair of far off resonant Raman beams. These counter-propagating beams are tuned to resonance between the three states in the linear-Zeeman split $F = 1$ manifold. We show that we can adiabatically load a BEC into these spin and momentum superposition states and hold it for times $t > 200$ ms. By changing the detuning between the Raman beams we transfer the BEC into states with non-zero momentum, which surprisingly are unmoving in the trapping potential. Finally we show that by applying a magnetic field gradient the atoms can move as do charged particles in a magnetic field.

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