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Progress towards a buffer gas cooled BEC of metastable He¹ S. CHARLES DORET, COLIN B. CONNOLLY, Harvard-MIT Center for Ultracold Atoms; Department of Physics, Harvard University, WOLFGANG KETTERLE, Harvard-MIT Center for Ultracold Atoms; Department of Physics, MIT, JOHN M. DOYLE, Harvard-MIT Center for Ultracold Atoms; Department of Physics, Harvard University — We report recent progress towards a BEC of metastable helium (⁴He*) using buffer gas cooling. 10^{11} ⁴He* atoms are produced via RF-discharge and magnetically trapped at an initial temperature of 400 mK in an anti-helmholtz quadrupole field. These atoms are evaporatively cooled into the ultracold regime and transferred to a superconducting QUIC trap with trap frequencies $\omega_{axial} = 2\pi \times 20$ Hz and $\omega_{radial} = 2\pi \times 150$ Hz, resulting in a cloud of $\sim 10^9$ atoms at a temperature of 1 mK. Trap lifetimes are limited only by collisions with residual background gas. Further cooling is achieved via RF evaporation, and the cloud is detected via absorption imaging at 1083 nm or 390 nm.

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