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Strongly Interacting Fermi and Bose-Fermi Gases CALEB A. CHRISTENSEN, JAE H. CHOI, GYU-BOONG JO, YE-RYOUNG LEE, TONY H. KIM, TOUT WANG, DAVID E. PRITCHARD, WOLFGANG KETTERLE, MIT/Harvard Center for Ultracold Atoms — We study ultracold gases of ^{6}Li and ^{23}Na near homonuclear and heteronuclear Feshbach resonances. By sympathetically cooling Li with Na and loading the gases into optical dipole traps, we can obtain quantum degenerate samples with more than 10^{6} atoms of either or both species. We study Fermi gases of Li in the two lowest hyperfine states or Bose-Fermi mixtures of Li and Na in the hyperfine ground states. We measure loss rates and use in situ imaging to study the effects of strong interactions. Our versatile apparatus also offers the possibility to load these strongly interacting gases into optical lattices of various geometries.

Caleb A. Christensen
MIT/Harvard Center for Ultracold Atoms

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