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Towards fermionic superfluidity in ultracold Li-Rb mixtures MICHAEL BROWN-HAYES, QUN WEI, WOO-JOONG KIM, ROBERTO ONOFRIO, Dartmouth College — Ultracold dilute atomic gases are providing a new window into quantum physics, with particular regard to the first-principle study of superfluid phenomena. We will report on the development of an apparatus for simultaneous trapping and cooling of 6Li and 87Rb.Ultracold mixtures should be obtainable by using a light-assisted magnetic trap to optimize the heat capacity matching [1]. This combination of species is also expected to be more immune to Fermi-hole heating losses which could limit the minimum reachable temperature in Fermi-Bose mixtures [2]. [1] M. Brown-Hayes and R. Onofrio, Phys. Rev. A 70, 063614 (2004). [2] R. Côté, R. Onofrio, E. Timmermans, Phys. Rev. A 72, 041605(R) (2005).

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