Abstract Submitted
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Sympathetic cooling in an optically trapped mixture of alkali and spin-singlet atoms ANDERS HANSEN, ALEXANDER KHRAMOV, WILLIAM DOWD, ALAN JAMISON, VLADYSLAV IVANOV, FRANK MÜNCHOW, SUBHADEEP GUPTA, University of Washington — We report on the realization of a stable mixture of ultracold lithium and ytterbium atoms confined in a far-off-resonance optical dipole trap. We observe sympathetic cooling of ^{6}Li by ^{174}Yb and extract the s-wave scattering length magnitude $|a_{^6Li-^{174}Yb}|$ from the rate of inter-species thermalization. Using forced evaporative cooling of ^{174}Yb, we achieve reduction of the ^{6}Li temperature to below the Fermi temperature, purely through inter-species sympathetic cooling. These observations constitute a starting point for experiments with simultaneously quantum degenerate species, and pave the way toward synthesis of paramagnetic, polar molecules. [Ref. arXiv:1101.5142]

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