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Four techniques to achieve deeper Fermi degeneracy in Fermi-Bose mixtures ROBERTO ONOFRIO, Department of Physics and Astronomy, University of Padova and ITAMP, Harvard-Smithsonian Center for Astrophysics — The study of exotic superfluid phases of ultracold atoms requires the achievement of deeper Fermi degeneracy with respect to the one already available. I will describe four techniques for efficient sympathetic cooling of Fermi gases with a different species Bose gas: bichromatic optical dipole [1] and light-assisted magnetic trapping [2], quasi one-dimensional Fermi-Bose mixtures [3], and fast adiabatic cooling [4].

[1] R. Onofrio and C. Presilla, Phys. Rev. Lett. 89, 100401 (2002);
[2] M. Brown-Hayes and R. Onofrio, Phys. Rev. A 70, 063614 (2004);
[3] M. Brown-Hayes et al., Phys. Rev. A 78, 013617 (2008);
[4] S. Choi, R. Onofrio, and B. Sundaram, arXiv 1109.4908.

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