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Strong coupling theory for the superfluidity of Bose-Fermi mixtures DAW-WEI WANG, Physics Department, National Tsing-Hua University, Hsinchu, Taiwan, ROC — We develop the strong coupling theory for the superfluidity of fermion s-wave pairing state in a Bose-Fermi mixture. Dynamical screening, self-energy renormalization, and pairing gap function are included self-consistently in the regime where the phonon velocity is smaller than the Fermi velocity. Analytical form for the transition temperature (T_c) is derived within reasonable approximations. In typical ^{40}K-^{87}Rb mixtures, the obtained T_c is several times larger than that in the weak coupling theory and can be as high as several percents of Fermi temperature.

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