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Many body exchange effects close to the s-wave Feshbach resonance in two component Fermi systems: is a triplet superfluid possible?
SERGIO GAUDIO, Los Alamos National Laboratory and Department of Physics, Boston College, JASON JACKIEWICZ¹, KEVIN BEDELL, Boston College — We suggest that the fluctuations close to a Feshbach resonance in a two component Fermi gas can result in an effective p-wave attractive interaction. On the BCS side of the resonance, the magnitude of this effective interaction is comparable to the s-wave interaction, therefore leading to the possibility of a spin-triplet superfluid in the range of temperatures of actual experiments. We compare the results for our effective scattering length to the mean field result and to the observed binding energy. Finally, we show that by including particle-hole exchange in the fluctuations, the divergence of the effective scattering length disappears.

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