

Abstract Submitted
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Quasi-two-dimensional Fermi gases MEERA PARISH, ANDREA FISCHER, University College London, JESPER LEVINSEN, Aarhus University — We consider a two-component gas of fermionic atoms confined to a quasi-two-dimensional geometry by a harmonic trapping potential in the transverse direction. We construct a mean field theory of the BCS-BEC crossover that allows us to extrapolate to an infinite number of transverse harmonic oscillator levels. Even when the interactions are weak and the Fermi energy is less than the confinement frequency, we find that the higher transverse levels can substantially modify fermion pairing. We also investigate the effect of confinement on few-body correlations, and we demonstrate the existence of a universal tetramer for mass ratios > 5.0 .

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