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**Pairing effects in the nondegenerate limit of the two-dimensional Fermi gas** JOHANNES HOFMANN, Condensed Matter Theory Center and Joint Quantum Institute, University of Maryland, MARCUS BARTH, Physik Department, Technische Universität München — I present results on the spectral function of a two-dimensional Fermi gas in the non-degenerate or high-temperature limit which are obtained by means of a quantum cluster expansion. Our findings are in good qualitative agreement with a recent experiment by Feld et al. [Nature (London) 480, 75 (2011)]. The spectral function displays two distinct branches, a particle branch and a bound-state branch, both of which have a quadratic dispersion. Interestingly, in the occupied part of the spectral function, the weight of the bound-state branch is shifted to higher frequencies with increasing momentum but bends backwards at high momentum. This shows that this “back-bending” cannot be taken as a phenomenological sign of a conjectured pseudogap phase but can be explained by bound-state pairing. I also show that the virial expansion gives expressions for the quasiparticle properties, the momentum distribution, and the radio-frequency spectrum that are in excellent agreement with exact universal results.

Johannes Hofmann  
Condensed Matter Theory Center and  
Joint Quantum Institute, University of Maryland

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