Abstract Submitted
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Density-functional theory for resonant Fermi gases THOMAS PAPENBROCK, University of Tennessee — Resonant Fermi gases interact via short-ranged forces that exhibit a two-body bound state at zero energy. Within the local density approximation, the form of the density functional is strongly constrained and contains only a small number of parameters. The parameters can be determined by exploiting the universality of the density functional, and by comparing results from Kohn-Sham density-functional theory with analytical solutions for the harmonically trapped two-body system. The results for the leading term and the correction due to a large scattering length agree rather well with Monte Carlo studies. The correction due to a small effective range is a prediction.

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