

Abstract Submitted
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Universal Dependence in Ultra-Cold Fermi Gases SHIZHONG

ZHANG, Department of Physics, University of Illinois at Urbana-Champaign — Over the last few years, there have been considerable efforts in understanding the physics of BEC-BCS crossover in ultra-cold fermi gases. Despite the fact that the problem can be easily formulated, it has not been amenable to analytic solutions. Various approximations have been used to address the problem especially around unitarity. Here we present some general considerations on the problem, relying on the fact that the system is dilute and thus the interaction effects comes only from two-body encounters. These enables us to express certain physical quantities(total energy, interaction energy, rf-spectroscopy shift and closed channel fractions) in terms of one universal function, depending only on temperature and interaction strength. The result obtained should be valid throughout the crossover and thus we expect it to have testable consequences in the future experiments.

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