Seminar/Talk

High Density Limit of the Fermi Polaron with Infinite Mass

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Host: Robert Seiringer

In the talk I will present a recent result about the ground state energy for N identical fermions in a two-dimensional box of volume L2 interacting with an external point scatterer. Since the point scatterer can be considered as an impurity particle of infinitemass, the model is a limit case of the Fermi polaron. We prove that the ground state energy in the limit of high density N/L2>>1 is given by the so-called polaron energy.The polaron energy is an energy estimate based on trial states up to first order in particle-hole expansion, which was proposed by F. Chevy in the physics literature. Therelative error in our result is shown to be small uniformly in L. The strategy of our proof relies on a twofold Birman-Schwinger type argument applied to the many-particle Hamiltonian of the system. This is joint work with Ulrich Linden.

Thursday, September 27, 2018 04:00pm - 06:00pm
Big Seminar room Ground floor / Office Bldg West (I21.EG.101)

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