



Seminar/Talk

Momentum distribution of a Fermi gas with Coulomb interaction in Random Phase approximation

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Host: Robert Seiringer

I will talk about the momentum distribution of an interacting Fermi gas on a three dimensional torus in mean field regime in a trial state that reproduces the Gell-Mann-Brueckner prediction for the correlation energy for Coulomb potential. We show that the momentum distribution is a step function corrected by the random phase approximation as predicted by Bohm-Pines for a class of potentials including the Coulomb potential. The key tool for deriving the distribution is a rigorous bosonization method. The expression for the momentum distribution contains the contributions of collective excitations above the Fermi-surface going beyond the precision of Hartree-Fock theory. This improves the result by Benedikter-Lill by being valid a larger class of potentials and for momenta closer to the Fermi surface.

Tuesday, March 17, 2026 04:15pm - 05:15pm

Office Bldg West / Ground floor / Heinzl Seminar Room (I21.EG.101)



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

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