

Fractional exclusion statistics – the method to describe interacting particle systems as ideal gases

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I will give a brief introduction into the formalism of fractional exclusion statistics (FES) and I will show how this can be applied to describe general interacting particle systems as ideal gases. To form the ideal FES gas we have to define a type of quasiparticles of energies which do not depend on the populations and such that the total energy of the system is equal to the sum of the quasiparticle energies – notice that for typical quasiparticles, e. g. Landau's quasiparticles in the Fermi liquid theory, neither of these conditions is satisfied. The FES description is physically equivalent to other descriptions of the system in terms of quasiparticles and I will show how we can make the correspondence between such descriptions.