

Abstract

Anna Minguzzi (LPMMC, CNRS and University Grenoble-Alpes)

Some exact results of strongly interacting one-dimensional bosons and fermions under external confinement

We consider a one-dimensional gas of delta-interacting quantum particles under external confinement, choosing for specificity a harmonic confinement. This is an extension of the Lieb-Liniger model for bosons and of the Yang-Gaudin model for two-component fermions. Due to the presence of the external confinement, no Bethe Ansatz solution is available. Focusing on the limit of infinitely strong interactions, we develop and use an exact solution to obtain various physical properties of both bosons and multi-component fermions, both for static and dynamical properties.