Abstract

Many-Body Systems

Wolfgang Spitzer (FernUniversität in Hagen)

Large-scale behavior of the local ground-state entropy of the ideal Fermi gas in a constant magnetic field

With Hajo Leschke and Alexander V. Sobolev

We consider the ground state of an ideal Fermi gas confined to a plane perpendicular to a constant magnetic field. We determine the precise leading scaling behavior of its entropy localized to some bounded domain $\Lambda \subset \mathbb{R}^2$. This local entropy satisfies a so-called area law in the sense that it scales with the length of the boundary curve $\partial\Lambda$ as Λ becomes large.