



量子物理学・ナノサイエンス第 288 回セミナー

Quantum anomaly and transport in the 2D Fermi gas

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- 場所** : 本館 2 階 239 物理学系輪講室

概 要

Most physical systems exhibit scale invariance only when fine-tuning to a phase transition or a scattering resonance. Remarkably, a classical gas in two dimensions is scale invariant for an arbitrary strength of contact interaction. This has striking consequences for its nonequilibrium scaling dynamics, in particular the breathing motion in a harmonic trapping potential. For a two-dimensional Fermi gas, instead, quantum fluctuations violate the classical scaling symmetry and give rise to a quantum anomaly. I will discuss the origin of this scale anomaly and how it affects the equation of state, pairing properties, quantum bounds to spin transport, and nonequilibrium scaling dynamics.

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