Weekly Seminar

Quantum liquids in one dimension

Xiwen Guan (

Wuhan Institute of Physics and Mathematics, Chinese Academy of Science

Time: 4:00m, April. 25, 2018 (Wednesday)
时间：2018年4月25日 （周三）下午4:00
Venue: Room W563, Physics Building, Peking University
地点：北京大学物理楼 西563

Abstract

Interacting spins, bosons and fermions in one dimension (1D) provide a paradigm of many-body phenomena ranging from quantum liquid to quantum criticality. However, how can such different constituent particles form the same type of collective motion (the TLL) and how do they comprise the same universality class of quantum criticality that still lack a comprehensive understanding. In this talk, using Bethe ansatz solutions, I will discuss fundamental 1D many-body phenomena of the Tomonaga-Luttinger liquid, the Fulde-Ferrell-Larkin-Ovchinnikov Fermi liquid, quantum criticality and spin-charge separation in the Lieb-Liniger gas, the spin-1/2 Heisenberg chain and the Yang-Gaudin Fermi gas. Our results shed light on many-body phenomena of higher dimensional quantum systems.

About the Speaker

1998 2002 2003-2012
2012 10
2014 10
, , , Journal of Physics A Advisory Panel
100 SCI
Review of Modern Physics Advance