



强关联冷原子系统研究新进展

2015年3月18, 19日

会议安排:

<p>Two Atoms in a Double Well: An Exact Solution 3月18日, 10:30-11:45</p>	<p>Inverse symmetry protected topological states in 1D superlattices 3月18日, 15:30-16:45</p>
<p>张云波 山西大学研究生院院长, 理论物理研究所教授, 博士生导师。1995-1998年在中国科学院物理研究所攻读博士学位。2000-2002年作为洪堡学者(Humboldt Fellow)在德国凯萨斯劳特大学从事BEC系统中隧道效应方面的研究。2002年-2004年在芬兰图尔库大学做超冷原子气体中的拓扑激发方面的博士后研究工作。目前研究方向为: 冷原子理论, 一维量子气体, 旋量凝聚体, 光晶格中的量子模拟等。</p>  <p>Abstract: We propose to experimentally realize an odd parity eigenstate of two atoms in the double well. The occupation probability of this state shows evident dependence on the interaction, distinct from the result of two-mode model adopted in a very recent experiment by Prof. Selim Jochim's group in Heidelberg Phys. Rev. Lett. 114, 080402 (2015). The tunneling dynamics of two atoms starting from the NOON state with infinite barrier height can be derived from the exactly solved model of δ-barrier split double well based on a Bethe ansatz type hypothesis of the wave functions. We find that the single particle tunneling transfer the probabilities between double occupancy and single occupancy of each well.</p>	<p>陈澍 中国科学院物理研究所研究员, 博士生导师, 杰青。1993年西南师范大学物理系毕业, 1996年北京师范大学物理系硕士, 1999年在中科院物理所获博士学位。1999年到2004年先后在德国拜罗伊特大学, 杜塞尔多夫大学和美国佐治亚理工学院从事博士后研究。2004年入选中国科学院“百人计划”。目前研究方向: 冷原子系统及BEC理论; 低维量子磁性理论; 量子相变; 量子可积模型及统计模型。</p>  <p>Abstract: In this talk, I shall introduce our recent works on the inverse symmetry protected topological states in 1D superlattice systems, which are characterized by the presence of degenerate edge states or quantized Berry phase. We also give a clear geometrical interpretation of the topological phases of inversion-symmetric polymerized models. A complete phase diagram of the interacting Bose systems in superlattices is also given and topological nontrivial phases are found corresponding to the emergent insulator states.</p>
<p>Higgs Mode in Cold Atom and Superconductors 3月19日, 10:30-11:45</p>	<p>Many-body physics with quantum gases in disorder 3月19日, 15:30-16:45</p>
<p>翟 荟 清华大学高等研究院研究员, 博士生导师, 杰青。1998年进入清华大学基础科学班, 2002年本科毕业, 2005年在清华大学高等研究中心获物理学博士学位。2005年博士毕业后在美国俄亥俄州立大学和加州大学伯克利分校做博士后研究。2009年起任清华大学高等研究院研究员。目前研究方向: 超冷原子分子量子气体的多体理论, 特别是由于原子分子间强相互作用导致的新物态和新效应。</p>  <p>Abstract: In this talk, I will first brief review recent experiments on detecting Higgs mode in both cold atom and superconductor systems. I will then discuss the fate of Higgs mode away from the Lorentz symmetric point, using BEC-BCS crossover model as an example. Finally, I will point out that the Anderson-Higgs mechanism plays an important role in stabilizing a well-defined Higgs mode in superconductor.</p>	<p>G. Shlyapnikov Director of Research at CNRS, LPTMS, Orsay, France, and Professor in Univ. Of Amsterdam. His work on the theory of quantum gases was awarded by the Humboldt Prize (Germany) in 1999, by the Kurchatov Prize (Russia) in 2000, and by the International Bose-Einstein condensation Prize in 2011. He got the European Research Award in 2013. He published about 140 papers, got more than 9400 citations and H-index of 48.</p>  <p>Abstract: I will give a brief overview of the studies of 1D finite temperature bosons in disorder, focusing on the insulator-fluid transition. I then turn to weakly interacting bosons in the 1D incommensurate potential and discuss the phase diagram. The most remarkable result here is the anomalous "freezing with heating" phenomenon. Namely, due to a peculiar structure of the density of single-particle states, in a wide range of parameters an increase in temperature favors the glass state. An image of this phenomenon would be getting a piece of ice when heating water.</p>

会议地点:

频标楼四楼会议室

主办单位: 武汉物数所理论与交叉研究部