

武汉物数所理论交叉学术交流系列报告

(第一四八期)

Novel quantum states in spin-orbit coupled quantum gases

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2016年06月24日(周五) 上午10:00-11:30

频标楼4楼报告厅

Abstract:

Spin-orbit coupling (SOC) in cold atoms is a single-particle effect. SOC dramatically changes the single-particle dispersion. In this talk, I will show that the modification of the single-particle dispersion can have interesting effects in many-body settings. I will present a couple of examples, one is a repulsive Fermi gas subject to Rashba SOC which exhibits itinerant ferromagnetism, and the other is an attractive condensate with 3D SOC which forms a self-trapped soliton-like state in free space.



About the speaker:

Han Pu obtained his Ph.D. in physics in 1999 from the Univ. of Rochester. After a postdoc experience at Univ. of Arizona, he joined the faculty of Rice University in 2003, where he is now a professor of physics. He works in the field of theoretical ultracold atomic physics. His current interest includes cold atoms inside optical cavities, low-dimensional quantum gases, and cold atoms with synthetic spin-orbit coupling. He is a fellow of American Physical Society.

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