

Seminar

Center of Mass Momentum Dependent Interaction between Ultracold Atoms

Peng Zhang (张芑)

Renmin University of China

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Venue: Physics building, Peking University

地点: 北京大学物理楼, 西楼563会议室

Abstract

We show that a new type of two-body interaction, which depends on the momentum of the center of mass (CoM) of these two particles, can be realized in ultracold atom gases with a laser-modulated magnetic Feshbach resonance (MFR). Here the MFR is modulated by two laser beams propagating along different directions, which can induce Raman transition between two-body bound states. The Doppler effect causes the two-atom scattering length to be strongly dependent on the CoM momentum of these two atoms. As a result, the effective two-atom interaction is CoM-momentum dependent, while the one-atom free Hamiltonian is still the simple kinetic energy $p^2/(2m)$.

About the Speaker

张芑, 2005年在中科院理论物理所获得博士学位, 之后在美国佐治亚理工大学和日本东京大学做博士后研究, 2010年回国在中国人民大学任职。主要研究领域为超冷原子气体和量子光学系统中的量子少体问题。迄今为止发表论文40余篇, 2012年获得国家自然科学基金优秀青年基金资助。