



Weekly Seminar

Three-body interactions in one-dimensional Bose gases

Prof. Manuel Valiente

Tsinghua University

Time: 4: 00 pm, Sept. 18, 2019 (Wednesday)

时间: 2019年9月18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会议室

Abstract

The effective low energy interactions between ultracold atoms can be manipulated and controlled with high degree of accuracy by means of several experimental techniques. External confinement and fields can be used to drive the system from weakly to strongly interacting and viceversa. In particular, two-body interactions can be engineered to be negligible at low energies. The naive expectation that the quasi-one-dimensional many-body problem, in such case, becomes non-interacting, will be analysed. In particular, the most important contribution to the physics of three or more bosons is a three-body interaction. I will review its emergence, its effects and potential experimental observation of genuine three-body effects in one dimension.

About the speaker

Manuel Valiente received a Marie Curie fellowship in 2007 to do his PhD at the Humboldt-University in Berlin, Germany, where he obtained his PhD in 2010. He then received a Villum Kann Rasmussen postdoctoral fellowship at Aarhus University in Denmark, where he worked from 2010-2012. He was a senior Research Associate at Heriot-Watt University in Edinburgh, United Kingdom from 2012 to 2018. In 2018 he moved to the Institute for Advanced Study, Tsinghua University, where he is now an Associate Member.