清华大学高等研究院

Institute for Advanced Study, Tsinghua University

物理学术报告

Physics Seminars (biweekly)

Title: **Chemical reactivity controlled collisions of ultracold NaRbmolecules**

Speaker: **Dajun Wang**

***(Department of Physics, the Chinese University of Hong Kong*)**

Time: **4:00pm, Tuesday, March 28, 2017**

(3:30~4:00pm, Tea, Coffee, and Cookie)

Venue: **Conference Hall 322, Science Building, Tsinghua University**

Abstract

Ultracold polar molecules with fully controlled internal and external degrees of freedom have applications in diverse fields including ultracold chemistry, strongly correlated many-body physics, quantum information, etc. Recent experiments with two-body reactive molecules have confirmed that chemical reactions can still happen at ultracold temperatures with rates dominated by the quantum behavior of the collision partners. In this talk, I will report our recent results in creating and studyingan optically trapped gas of ground-state ultracold bosonic NaRb moleculeswith fully controlled inelastic loss channels and chemical reactivates. We show that rapid loss of molecules persists, contrary to intuitive expectations, regardless of the two-body chemical reactivity. Our investigation also provides strong evidences that collision complexesare playing a key role in understanding the observed losses.