

武汉物数所理论交叉学术交流系列报告

Lecture 2:

(第九十八期)

How can exotic Rydberg molecules be made with excitations in an ultracold atom quantum gas?

Dr. Hossein Sadeghpour

ITAMP, Harvard-Smithsonian Center for Astrophysics

2014年07月18 (周五) 上午10:30-12:00

频标楼4楼报告厅

Abstract:

In the second lecture, I will describe the theory for a particularly exotic class of extremely long-range Rydberg molecules with extremely huge electric dipole moments, made in excitations in an ultracold atomic gas. Such molecules are by far the largest molecules ever created and possess dipole moments which are orders of magnitude larger than anything in nature. These molecules can be the building blocks for coherent chemistry in the ultracold regime and can be utilized to probe impurity interaction in an atomic superfluid (BEC) and for dipolar interactions in optical lattices. I will reference some of the tour-de-force experiments in this direction.



About the speaker:

Senior Scientist - Harvard-Smithsonian Astrophysical Observatory

Senior Research Fellow - Harvard College Observatory

PhD: theoretical atomic and molecular physics - JILA (with Chris Greene)

Postdoc: Harvard University (with Alex Dalgarno)

Joined "Institute for Theoretical Atomic, Molecular and Optical Physics" (ITAMP) staff in 1994 as the coordinator of the Visiting Fellows and workshops program

2009 became the Deputy Director of ITAMP

2010 - now, the Director of ITAMP (guided ITAMP through its latest funding)

Current areas of research interests: Rydberg molecules; ultracold collision and spectroscopy; heating noise in ion traps, Casimir surfaces, and superconducting qubits; synthesis of large carbon molecules in interstellar medium; Rydberg formation in ultracold and astrophysical plasmas

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