

AIAS FELLOWS' SEMINAR

Jesper Fredenslund Levinsen

The few-atom problem

Consequences of quantum statistics and dimensionality

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AARHUS INSTITUTE

ABSTRACT

The quantum mechanical few-body problem has a long history, covering diverse fields such as nuclear, high-energy and atomic physics. In recent years, progress in understanding the few-body problem has been driven by rapid developments in the field of cold atomic gases. In this talk, Jesper Levinsen will review the role played by quantum statistics and dimensionality on few-body physics. He will then present several new results, for instance how in a two-dimensional heteronuclear Fermi gas three atoms have a hydrogenic spectrum while tetramers consisting of three identical fermions and an additional light atom can form. Furthermore, the possibility of fermionic trimers at large mass ratio can lead to strong p-wave scattering at slightly smaller mass ratio, which has recently been confirmed by experiment.

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