

AMO PHYSICS SEMINAR

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IFA

Coherent Control. From atoms to molecules

Time: Thursday, October 28, 15.15 to 16.00

Place: Fysisk Auditorium

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Abstract

How can we control the outcome of a chemical reaction? Coherent control is a new addition to the quest. Coherent control is based on quantum interferences of matter-waves, where a constructive interference is built in the desired reaction channel and a destructive interference in all other channels. To carry out such a task the molecular matter-wave has to exhibit a coherent property. To date, all experimental applications of coherent control have been based on imprinting the coherent properties of a light/optical source onto the matter to be controlled. With the experimental realization of Bose-Einstein condensation a new source of coherent matter-waves has become potentially available – namely a coherent source of atoms the so-called atom laser. This talk explores the use of the atom laser to achieve the coherent control of a surface mediated recombination reaction where two atoms react and form a molecule.

Ulrik Uggerhøj and Steen Brøndsted