

QUANTUM OPTICS SEMINAR



Title: Engineering of quantum systems atom by atom

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Time: Tuesday, April 22 at 10:15

Place: 1525-323

Abstract:

Since the time of the invention of quantum mechanics, the counterintuitive behavior of nature at the quantum level puzzles the minds of physicists. Until recently, experimenting with single quantum objects was only in the realm of “Gedanken Experiments”. Recent scientific and technological advancements open up new possibilities to control single atoms now. These include techniques for manipulating neutral atoms, ions, as well as artificial atoms like quantum dots, etc.

In my talk I will present the state of the art in the single neutral atom manipulation. I will present how the external and internal degrees of freedom of one or several atoms are manipulated, as well as strategies for the realization of the controlled interaction between atoms. The ability to manipulate single quantum objects has a huge impact on different areas of modern science, where the puzzling behavior of quantum mechanics is used to improve the precision metrology or to manipulate quantum information.

Michael Drewsen