

EINLADUNG

zum Vortrag von

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Universität Wien, Quantenoptik, Quantennanophysik und Quanteninformation

The Nobel Prize in Physics 2018 and the versatile applications of optical forces

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Dienstag, 30. April 2019, um 17:30 Uhr

Ort: Lise-Meitner-Hörsaal, Fakultät für Physik, Universität Wien,
1090 Wien, Strudlhofgasse 4 / Boltzmannngasse 5, 1. Stock

Barrierefreier Zugang: Boltzmannngasse 5, Lift, 1. Stock rechts über den Gang zum Hintereingang des Hörsaals

Abstract

The Nobel Prize in Physics 2018 was awarded for groundbreaking inventions in the field of laser physics: Arthur Ashkin was honored for optical tweezers and their application to biological systems. Gérard Mourou and Donna Strickland jointly received the price for their method of generating high-intensity, ultra-short optical pulses.

After an overview of the story behind these groundbreaking inventions and their inventors, I will briefly discuss some of the scientific fields they enabled or influenced, like attosecond science, frequency combs, atom-quantum optics and optical micromanipulation. These fields continue to have a tremendous impact, partially leading to Nobel prize winning discoveries themselves. As a final topic, I will focus on a young line of research at our Faculty of Physics that directly roots in Arthur Ashkins initial experiments: Optical levitation is about to become a new tool to investigate fundamental questions in statistical physics as well as macroscopic quantum physics and may provide the basis for sensors of unmatched performance.

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