

## **EINLADUNG**

zum Vortrag von

**Dr. Nikolai Kiesel**

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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