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Fakultät für Naturwissenschaften, Fachbereich Physik

Announcement

Seminar: Basic Methods in Biophysics

Description

The invention of optical microscopy in the 17th century revolutionized biology, since the increased resolution revealed a level of organization in biological systems that was previously hidden. Today, the invention of super-resolution microscopy is driving a similar revolution. In addition to optical microscopes capable of observing single molecules, methods have been developed to mechanically manipulate single biomolecules. Together, they contribute to ground breaking new biological insight.

Join this seminar to learn more about the methodologies developed by biophysicists and how they help to understand biology.

Learning Outcomes

Students who attended this seminar

- understand how basic super-resolution microscopy and force spectroscopy methods work
- learn how biophysical methods contribute to a deeper understanding of live phenomena

Content

In this seminar we will cover the following topics:

- single molecule tracking
- basic super-resolution microscopy methods (STORM / PALM, STED, SSIM)
- basic force spectroscopy methods (optical and magnetic tweezers, AFM)

Prerequisites

Formal prerequisites: none

Recommended prerequisites: basic physics lectures

Literature

- Textbook chapters
- Review articles
- Original research articles

Additional Information

The module refers to bachelor students

Lecturer

Prof. Christof Gebhardt, Institute of Biophysics