# Münchner Physik-Kolloquium

Sommer 2018

## Probing the unfolding/refolding dynamics of individual proteins with AFM by leveraging enhanced spatio-temporal resolution

**Dr. Devin Edwards,** *JILA, National Institute of Standards and Technology and University of Colorado, Boulder, USA*

Monday, 16 April 2018, 17:15 h
Hörsaal H 030, Fakultät für Physik der LMU, Schellingstraße 4, München

Single-molecule force spectroscopy (SMFS) is an important tool for characterizing the unfolding/refolding dynamics of individual molecules. We apply custom-modified atomic force microscopy (AFM) cantilevers to repeatedly unfold and refold the protein $\alpha$3D at equilibrium. Observing a single protein unfold and refold hundreds of times enables the discovery of rarely populated intermediates and the reconstruction of the 1-D energy landscape. To overcome these limitations of AFM-based SMFS due to limited long-term stability, we developed focused-ion-beam modified AFM cantilevers that achieve an unparalleled combination of force stability, force precision, and temporal resolution. This enhanced data quality allowed identification of an unfolding intermediate and transition path times that were previously undetectable with AFM.

## Student event: Meet the speaker

*We invite you to a **student-only** discussion-round with Dr. Devin Edwards before his Munich Physics Colloquium talk.*

*Be curious and feel free to ask any question.*

Monday, 16 April 2018, 16:00 h
Room H 522 (5th floor), Fakultät für Physik der LMU, Schellingstraße 4, München