



EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN



CSC-Tübingen PhD Scholarship Program

2025/2026 application round: prospective PhD positions at the University of Tübingen

Faculty: Faculty of Science

Institute / Section / Subject: Center for Plant Molecular Biology (ZMBP), Cellular Nanoscience

Supervising Professor(s): Prof. Dr. Erik Schäffer, PD Dr. Anita Jannasch

About the Supervisor(s): Prof. Dr. Erik Schäffer is head of the Cellular Nanoscience group at the Center for Plant Molecular Biology (ZMBP), University of Tübingen. He received his PhD / Dr. rer. nat. in Physics from the University of Konstanz. He completed a postdoctoral position at the Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG) in Dresden (2002–2006) under the supervision of Prof. Joe Howard. From 2007 to 2012, he was an Emmy-Noether group leader at the Biotechnology Center (BIOTEC) at TU Dresden. His research combines physics and biology to investigate how molecular motors and the cytoskeleton function at the single-molecule level, utilizing advanced biophysical tools such as optical tweezers.

PD Dr. Anita Jannasch obtained her PhD /Dr. rer. nat. in Physics at TU Dresden in 2012. Since 2015, she has been Akademische Rätin in the Cellular Nanoscience group of Prof. Schäffer, and in 2025, she completed her habilitation (Privatdozentin). Her research focuses on the biophysics of motor proteins, cytoskeletal dynamics, and the development of advanced microscopy techniques.

Specification/Project title: *In vitro* investigation of kinesin-8 “superpower” behavior

Topic Description: Cell division is one of the most fundamental processes of life. This process is remarkably complex and requires many nanoscale machines to work together with high precision. Among them are kinesin motor proteins that use chemical energy to move along and reorganize the cellular cytoskeleton. Understanding how these motors work is not only essential for basic biology but also relevant for diseases such as cancer. This project focuses on Kip3, a kinesin-8 motor protein in budding yeast, that shows surprising and unique “superpower” behavior under certain conditions. By combining single-molecule methods from physics, biology, and nanoscience, this project aims to reveal how kinesin-8 adapts its mechanical properties and how such regulation may contribute to cell division. The results will provide new interdisciplinary insights into the nanoscale machinery of life.

Intended Degree: Dr. rer. nat.

Type of the PhD Study: Full-time (complete doctoral studies at the University of Tübingen)

Required Degrees and Qualifications: Master’s degree (or equivalent) in Physics, Biophysics, Molecular Biology, Nanoscience, or a related field

Background in experimental work and interest in interdisciplinary research at the interface of physics and biology.

Experience with techniques such as microscopy, single-molecule methods, or protein biochemistry and purification is advantageous.

Language Requirements: TOEFL iBT ≥ 95 or IELTS ≥ 6.5 (as required by CSC)

Knowledge of German is not required

Notes: