



At the **B CUBE Center for Molecular Bioengineering** (TU Dresden, Germany) in the groups of Prof. Nils Kröger and Dr. Nicole Poulsen (<http://www.bcube-dresden.de/research-groups/kroeger/home/>) positions for

2 PhD students or 2 Postdoctoral Associate

are available immediately. Subject to personal qualification the successful candidates will be remunerated according to salary group E 13 TV-L 65% (PhD students) or E 13 TV-L (Postdocs). The positions are initially limited for 3 years (PhD student) or 2 years (Postdoc) with the possibility of extension. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz - WissZeitVG).

The successful applicants will work on two research projects in the topic area **'The Molecular Basis of Diatom Adhesion and Motility'**. Diatoms are a large group of unicellular eukaryotic algae that possess intricately nanopatterned silica cell walls. They are responsible for about 20% of global biological carbon fixation, form a substantial basis of the marine food web, and are major contributors to climate change processes. Benthic, pennate diatoms are well known for their adhesion strength to natural and man-made surfaces forming dense brown biofilms on submerged surfaces (biofouling). The annual cost of ship biofouling exceeds \$150 billion, and thus understanding the molecular mechanism of diatom adhesion will inform the development of novel ship hull designs with anti-biofouling properties. At the same time, insight into the structure-function relationship in diatom adhesives will pave the way for designing biomimetic water compatible glues for technological and medical applications. Many adhesive diatoms have the ability for rapid gliding on underwater surfaces that is fueled by an as yet uncharacterized intracellular actin-myosin complex. Diatom motility is unrivalled among actin-based motility systems as it is extremely fast (25 $\mu\text{m/s}$) and bi-directional. Investigating the molecular basis of this process will therefore lay the groundwork for discovering new chemo-mechanical principles in actin-myosin dependent cell motility. The main aims of the research projects are identification and functional characterization of proteins involved in underwater adhesion of diatoms to surfaces (project 1), and proteins of the machinery that generates the force for diatom motility (project 2). Both projects will utilize a variety of techniques including using biochemical, molecular genetic, and molecular cell biological approaches.

The B CUBE and its partner institutions, the Biotechnology Center (BIOTEC) and the Center for Regenerative Therapies Dresden (CRTD) are equipped with state-of-the-art facilities for Molecular Bioscience research (<http://biotp.tu-dresden.de/biotechnology-platformf>). They are part of a rich and collaborative environment that includes the Faculty of Science, the Carl Gustav Carus Faculty of Medicine, the Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG), and the Leibniz Institute for Polymer Research Dresden (IPF).

Requirements: The position requires a university and MSc or PhD degree in biochemistry, biological chemistry, molecular biotechnology, or related fields. Applicants with strong research experience in both protein biochemistry and recombinant DNA techniques will be preferred. Excellent communication skills in English are essential as this is the language at the research center.

Applications from women and people with disabilities are encouraged.

Complete applications (letter of motivation, CV, list of publications, and certificates of qualifications) in a **single pdf-file** to nora.froehlich@tu-dresden.de (we are currently not able to receive electronically signed and encrypted data.) or via post to TU Dresden, CMCB - B CUBE, Prof. Nils Kröger, Arnoldstr. 18, 01307 Dresden until 31.12.2017 (stamped arrival date applies). Please note that your application documents will not be returned.