

PhD Thesis “Plant Cell Biology / Biomimetics”

in the DFG-funded SFB / TRR 141 (Stuttgart, Tübingen, Freiburg): "Biological Design and Integrative Structures"

Project A09: Analysis of *Physcomitrella* chloroplasts to reveal adaptation principles leading to structural stability at the nano-scale

Proteins of the FtsZ (*filamentous temperature-sensitive Z*) family establish complex polymeric spatial patterns in plastids of the moss *Physcomitrella patens*. These structures represent a "plastoskeleton" that might contribute to plastid shape and stability. The aim of this project is to develop mathematical models of FtsZ network connectivity and dynamics in order to investigate whether molecular structures of the plastoskeleton are evolutionary optimized to withstanding mechanical stress.

The successful candidate will work in the group of Prof. Ralf Reski, Department of Plant Biotechnology, Faculty of Biology, University of Freiburg, Germany. Please visit www.plant-biotech.net for details. A major part of the work is the establishment and analysis of transgenic moss lines. Applicants should have a strong background in plant molecular biology as well as (confocal) microscopy. An interest in bioinformatics is required, because the project depends on a close collaboration and constant exchange between the results of computational modelling and the ensuing requirements and possibilities for biomimetics and reverse biomimetics experiments in the biological system. The research will be conducted in close collaboration with a second PhD student specialised in engineering, based in Stuttgart (Prof. Röhrle).

We offer a highly interdisciplinary, inspiring and open-minded environment within the newly funded Transregio TRR 141 including a strong course- and seminar-program for graduate students.

Applicants should have an excellent master or diploma in biology or a related discipline. Experience with the *Physcomitrella* system is an advantage.

Employer is the University of Freiburg. Funding is available for 3 years from October 2014. Please apply with one pdf including motivation letter, CV, list of talks and/or presentations, scans of relevant certificates and contact details of 2-3 professionals who are willing to provide a reference. The screening process will start on August 25th.

Please email your application with the subject "TRR141 / A09" to: ralf.reski/at/biologie.uni-freiburg.de