

# Ph.D.-Position in Biophysics and Fluorescence Microscopy

The interdisciplinary research group Bio-inspired Communication Systems at Technische Universität Darmstadt is inviting applications for a

## PhD position (80% E13 TV-H)

initially limited for 3 years, starting as soon as possible.

The research position is dedicated to the development of novel single-cell and single-molecule techniques for the quantitative characterization of gene expression. In particular, already established in vivo nascent RNA labeling techniques should be further developed and combined with microfluidics in order to capture the transient, stochastic dynamics of gene expression. Practically, the project mostly involves molecular biology work in the wet-lab (i.e. genetic engineering of yeast and *E. coli*) and operation of a fully computer-controlled fluorescence microscope. Existing microfluidics designs for the accurate imaging of single cells will be further improved. Image processing algorithms will be adapted to robustly extract quantitative information from the fluorescence recordings that will then be used within the theory part of the group for computational modeling. Engaging into joint theoretical and experimental work within the group is highly encouraged and this opportunity for interdisciplinary research represents a unique feature of this position. Interest and skills to perform additional theoretical work is most welcome. The developed characterization techniques of gene expression should later be applied to simple gene regulatory networks, for instance, logic circuits as investigated in synthetic biology. Collaboration with the LOEWE Research Cluster CompuGene on synthetic biology ([www.compugene.tu-darmstadt.de](http://www.compugene.tu-darmstadt.de)) is highly encouraged.

We provide the environment and support for publishing and presenting original research results at leading international conferences and in scientific journals. The fulfillment of the research and service requirements attached to this employment will equate to the academic requirements for the candidate's doctoral degree.

Technische Universität Darmstadt intends to increase the number of female researchers and encourages female candidates to apply. In case of equal qualifications applicants with a degree of disability of 50 or more will be given preference. Wages and salaries are according to the collective agreements on salary scales, which apply to the Technische Universität Darmstadt (TV-TU Darmstadt). Part-time employment is generally possible.

### Your profile:

- Completed studies in physics, engineering, material science, chemistry or biology
- Experience with and passion for experimental laboratory work
- Appreciation for computational/theoretical work, basic programming skills
- Interest and proactive drive to learn about a new field (e.g. molecular biology) and work in an interdisciplinary team

**Contact:** Prof. Heinz Köppl, Rundeturmstrasse 12, 64283 Darmstadt, [heinz.koepl@bcs.tu-darmstadt.de](mailto:heinz.koepl@bcs.tu-darmstadt.de)

**Application:** Your application must include

- a cover letter explaining succinctly why you are interested in this position and why you believe you are the right candidate
- a CV
- a list of passed courses and obtained grades
- and contact details of at least two references (academic advisors) of yours.

Please send your documents as one single PDF file to: [application@bcs.tu-darmstadt.de](mailto:application@bcs.tu-darmstadt.de) indicating the application code number within the subject line. Incomplete applications and applications in different file formats will be discarded.

**Application code:** 380-4

**Deadline:** 23.09.2017