



Ph.D. position in Computational Systems Biology

Morphogenesis and pattern formation is one of the most fascinating topics in biology. In strong contrast to human engineering, pattern in biology occur in a self-organized manner, due to ex-change of information between cells and response to this information by non-linear intra-cellular reaction networks. Plants show a high variety of different patterns, starting from the embryo to the adult plant, where often one pattern builds on top of a previously established pattern. The conceptual understanding of pattern formation is often beyond the intuitive understanding and requires a multi-disciplinary approach, joining forces between biology, mathematics, physics, and computer simulations. This Ph.D. project is a joint project between an experimental group at Cologne University and a Theoretical/Computational group at Freiburg University. The position will be placed at Freiburg.

The successful Ph.D. candidate will develop multi-scale models for pattern formation in plants using computer simulations, analytical methods and machine learning.

Requirements

For this position we request a good background in mathematics, physics, programming, and an interest in molecular biology.

In particular:

- Master's degree in Physics or Applied Mathematics
- Experience in doing research in a multi-disciplinary team
- Experience in systems biology, mathematical biology, dynamic systems
- True interest in biological problems
- Strong interest in combining different scientific disciplines to develop new insights
- Excellent programming skills (C++, Python, etc.)
- Excellent command of the English language (German is not required)

We offer

Participation in an established research project. A temporary position for a period of 3 years with a monthly stipend of 1400 €.

We are

Freiburg University

The Fleck group for Spatial Systems Biology is part of the Freiburg Center for Data Analysis and Modeling (FDM). Our research focus is on the analysis of dynamic biological networks. The position will be located at Freiburg University at the FDM.

Cologne University

The Hülkamp group is located in the Cologne Biocenter. We are exploring the molecular, cell biological and biochemical mechanisms underlying epidermal patterning in *Arabidopsis thaliana*.

Interested?

Please send a letter of motivation and a CV to: christian.fleck@fdm.uni-freiburg.de

Additional information

For more information about this position, please contact Christian Fleck who heads the Spatial Systems Biology Group at the FDM (christian.fleck@fdm.uni-freiburg.de).