



PhD Positions in Theoretical and Computational Membrane Biophysics

at Friedrich-Alexander University of Erlangen-Nürnberg, Germany

Applications are invited for PhD positions in theoretical and computational membrane biophysics in the Computational Biology Group of Rainer Böckmann at the University of Erlangen-Nürnberg, Germany.

Projects

Plasma membranes and in general biomembranes establish and maintain differences in composition between the cell or organelle interior and exterior. Biomembranes are the site for cell-cell recognition, they allow active and passive transport of material into and out of the cell, and they harbour proteins as initiators of signal transduction pathways.

Projects within the international group focus on lipid-protein interaction, membrane dynamics, membrane phase transition, structure-dynamics-function relationship of membrane channels using methods from statistical and computational physics, i.e. atomistic and coarse-grained molecular dynamics simulations. The aim is to shed light on the cooperative action of proteins and lipids in shaping biomembrane structure and their contribution to micro-scale compartmentalization.

PhD Project 1: The doctoral researcher will study the role of peptide-lipid interactions in membrane fusion. Central questions are: How do peptides induce membrane curvature, what is the role of lipid composition and peptide oligomerization in synaptic vesicle fusion? Which molecular mechanisms are involved in spatial control and assembly?

PhD Project 2: This project focuses on the mechanical properties of biomembrane mimetics and the domain-dependent sorting of membrane proteins. The aim is to decipher the driving forces involved in sorting, signal transduction and transport through biological membranes.

Requirement

Candidates should preferably hold a master in bio-/physics, have a good knowledge of statistical mechanics, programming skills and a strong interest in interdisciplinary projects. The PhD student will join the Research Training Group *Dynamic Interactions at Biological Membranes*:

www.biomembranes.org

Other requirements

High level of English and good communication skills; effective team working.

We offer

3 years PhD contract and a competitive salary (65-75% E13).

Interested candidates should send one pdf document containing a cover letter, CV, and certificates to rainer.boeckmann@fau.de. For further information please visit

www.biomemphys.nat.fau.de

