

## **Open PhD position to study membrane-mediated protein self-assembly**

The group of **Protein Design and Self-Assembly** at the Life and Medical Sciences Institute, University of Bonn is offering a PhD position (TV-L EG 13 50%) to study membrane-mediated protein self-assembly.

### **The project**

The Khmelinskaia lab has a novel hybrid approach to study protein self-assembly: we combine *de novo* computational protein design and *in vitro* biophysical characterization to dissect the physical principles behind this ubiquitous phenomenon. In this project, we aim to understand the fine balance between protein-protein and protein-membrane interactions, protein structural flexibility and membrane elasticity that allow for the formation of curvature inducing protein coats, involved in a number of important biological processes such as viral envelopment and endocytic signaling pathways. *De novo* designed proteins can not only recapitulate the self-assembling behavior of natural systems but are also more resilient to modification than their natural counterparts, while *in vitro* model systems allow us to investigate the process in a controlled environment. We use computational tools, such as Rosetta based protein design and structural predictions, to create protein scaffolds with precise properties and characterize their assembly pathways *in vitro* using structural biophysical methods, model lipid membranes and microscopy techniques. We aim to capture the behavior of naturally occurring systems and further map out the possible assembly space.

### **Your profile**

- Enthusiasm for research in a collaborative environment
- Strong interest in solving fundamental biological problems
- Experience in molecular biology, protein biochemistry, physics, biophysics and/or computational biology (Master's degree or equivalent)
- Excellent degrees and track record
- Very good communication skills (English)

### **We offer**

- Challenging projects at the interface of biophysics, molecular biology and computational biology
- A stimulating, multidisciplinary and international research environment
- Supportive mentoring
- Salary will be according to the German salary scale TV-L EG 13
- A "Jobticket" (subsidized public transport) is available
- There is also a possibility to use the day care center
- Supplementary benefits in the public sector (pension plan according to VBL)
- numerous offers of university sports

### **Contact information**

We welcome people from all backgrounds to join our lab! To apply, please send your CV, short motivation letter and contact information of 2 scientific referees to Alena Khmelinskaia via e-mail (akhmelin@uni-bonn.de).