

PhD position: Understanding specific regulation by disordered biomolecules and liquid-liquid phase separation by multi-scale simulations

The position is in the newly established [Computational Molecular Biology Group](#) led by Dr. Lukas Stelzl, at Johannes Gutenberg University Mainz (JGU) and in association with the Institute of Molecular Biology (IMB). The PhD project is embedded within the [M3ODEL](#) initiative, bringing together multi-scale simulation expertise from physics to biology and the focus area of Resilience, Longevity and Adaptation (ReALity) at JGU.

The phase separation of disordered proteins and nucleic acids is a crucial regulatory mechanism in cells and its dysregulation contributes to disease and ageing. Your research will bridge from biophysics to a new and quantitative understanding of cell biology to address fundamental biological questions. You will develop and employ multi-scale simulations to understand specific recognition of disordered biomolecules and their phase-separated condensates and how recognition underpins biological regulation. Collaborating with leading experimentalists on and off campus you will elucidate molecular principles of regulation by disordered biomolecules and their phase behavior and decipher the role of phase separation in regulating genes.

Ideally you have:

- A Master's degree either in biophysics, physics, biology, chemistry or computational science or a related discipline.
- A strong interest in interdisciplinary research.
- Strong communication skills and working proficiency in English.
- Experience in computational research, programming (e.g., Python) and molecular simulations (such as GROMACS, LAMMPS or HOOMD-Blue) are a plus.

We offer:

- A highly inspiring interdisciplinary research environment at the interface of biology and the physical sciences.
- Outstanding research infrastructure (e.g., MOGON II supercomputer).
- Excellent mentoring, including participation in [Institute of Molecular Biology International PhD Programme](#) (IPP) on "Epigenetics, Gene Regulation & Genome Stability"
- A very competitive salary and social benefits.
- Good [quality of life](#) in an international environment. Mainz is a charming college town and part of the vibrant and cosmopolitan Frankfurt metro area, at the heart of Europe.

Required documents:

- A motivation letter, explaining why you want to do a PhD in the field and how your previous experiences motivate your future research.
- Curriculum vitae listing your education and research experiences, skills, and if applicable publication list and an accompanying list highlighting your contributions.
- Name and contact information of at least one reference.
- Transcription of detailed records of classes and grades from your undergraduate (Master's and Bachelor's) programs.

The successful applicant is expected to start ideally in January 2021. Interviews will be conducted in middle of December.

Please send all documents as a single PDF to Dr. Lukas Stelzl [stelzl@uni-mainz.de]. For any further question, please contact Dr. Lukas Stelzl.

JGU is an equal opportunity employer, and particularly encourages female applicants. It also tries to increase the proportion of scientists with physical disabilities. Respective applications are welcome. The Stelzl lab and JGU celebrate diversity and are committed to creating an inclusive environment for all employees.