



The Department of *Theoretical and Computational Biophysics* (Prof. Dr. Helmut Grubmüller) invites applications for a position as

PhD Student or Postdoc (f/m/d)
(Code Number 07-19)

for the project

- Macromolecular Structures from Single Molecule X-Ray Diffraction Experiments -

to advance structure refinement of single molecule x-ray diffraction data. In these “diffract and destroy” experiments, femtosecond x-ray free electron laser pulses are shot at a single molecule, and the diffraction pattern is recorded. Depending on sample size, only very few photons are scattered in each shot, such that many scattering images have to be combined. The analysis is complicated by the fact that for each shot the orientation of the sample molecule is random and unknown. We have recently shown that as few as three recorded photons per image suffice. You will develop, implement, and test with recent experimental data a rigorous Bayesian approach, which holds the promise to drastically reduce the number of required photons, thus rendering single molecule x-ray structure determination feasible. (paper: <https://www.nature.com/articles/s41467-018-04830-4>)

The successful candidate for either position has a keen interest and strong skills in computational physics, mathematics, and probability theory and a strong interest in interdisciplinary collaborative research.

PhD candidates hold (or expect to complete soon) a Master’s or equivalent degree; Postdocs hold a PhD or equivalent degree in any of these or a related field.

PhD students will have the opportunity to participate in one of several available PhD programs, with three years funding and a possibility of extension, in collaboration with the University of Göttingen. Masters students aiming at a fast track PhD are also welcome. The Postdoc position is limited to two years with a possibility of extension.

Payment and benefits are based on the TVöD guidelines. The starting date is flexible.

The group language is English, so no German language skills are required – but it’s a great opportunity for you to learn German!

The Max Planck Society is committed to increasing the number of individuals with disabilities in its workforce and therefore encourages applications from such qualified individuals.

Interested? Submit your application including cover letter (explaining background and motivation), CV, transcripts, and publication record preferably via e-mail as one single PDF file to

ausschreibung07-19@mpibpc.mpg.de

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