

The **Thorn Laboratory** at the **University of Würzburg** (Germany) is recruiting a

PhD candidate (m/f/d) In crystallographic methods development

Macromolecular X-ray structures define molecular biology. However, the large discrepancy between the measured X-ray data and the structural models we use to interpret these data (as evidenced by residual values of 15-25%) clearly shows that something is amiss. This project aims to discover what is missing, using both practical experiments and 'big data' analyses (including machine learning). This knowledge will then be used to fundamentally improve how atomic structures of biological macromolecules are modeled and ultimately, enable structural biologists solve more borderline cases, extract more information from known biological structures, and to answer more challenging biological questions.

What we offer

We offer a 36-month full- or part-time position at the Rudolf-Virchow Center (RVZ) of the University Würzburg, the birthplace of X-rays, with a competitive TV-L salary. Your position is funded by the Deutsche Forschungsgemeinschaft (DFG) as part of the project "Towards a better understanding of macromolecular X-ray structures".

This rewarding and challenging research project will allow you to acquire skills in data analysis, software development, applied structural biology and its theoretical foundations. While often theoretical in nature, our work is deeply rooted in experiments: you will have access to state-of-the-art lab equipment and receive training in advanced macromolecular structure determination. Our group is well-connected and we maintain close ties with other method developers worldwide, giving you access to a wide range of skills and training opportunities. You will have the opportunity to visit our collaboration partners at Diamond Light Source, Oxfordshire, UK and others. Through the Würzburg Graduate School for Life Sciences (GSLs) you will have a personal thesis committee to guide you and you will benefit from an extensive transferable skill program, travel funding and administrative support.

You will have access to both national and public-service pension schemes (VBL), health care, and 30 days of holiday entitlement in addition to 13 annual public holidays in Bavaria. The JMU Welcome Center supports international candidates in finding accommodation as well as administrative matters - and the University also offers support for researchers with children, including flexible work hours and a kindergarten.

Your qualification profile

You should have a M.Sc. or equivalent in a physical, chemical, computational or other relevant subject or be due to complete your studies within 3 months of applying.

We are looking for someone with a good working knowledge of Linux and Python and a basic understanding of crystallography (irrespective of the field, e.g. mineralogy, structural physics, biology or chemistry). Skills in statistical or image analysis, C++ and previous experience with machine learning are a bonus. You should be able to develop your own ideas, and have the necessary skills to successfully drive and complete a research project.

You should be a good communicator, willing to talk about science and to instruct other students; a good command of English is a prerequisite. You will be expected to present your work both at in-house and international meetings, and to contribute on occasion to teaching and public outreach.

Female scientists are particularly encouraged to apply. Disabled applicants will be preferentially considered in case of equivalent qualification.

Applications should be sent by e-mail as one single pdf-document including: cover letter, curriculum vitae (detailing any data analysis, programming or crystallographic qualifications, any software projects you contributed to and academic track-record), diplomas/certificates and 3 addresses of referees **by October 13th, 2019** to andrea.thorn@uni-wuerzburg.de.

If you have any further questions, please do not hesitate to contact us!

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Lap page: www.uni-wuerzburg.de/rvz/forschung/assoziierte-forschungsgruppen/ag-thorn/

