



At the Faculty of Chemistry and Physics, Institute of Experimental Physics, research group Resonant X-ray Methods and Crystal Modeling the temporary position of a



Scientific assistant (m/f/d) – Position number 195-E/2020

within a DFG-financed third-party funded project is to be filled at the earliest possible date.

We are looking for a postdoc (m/f/d) targeting a scientific profile to continue a (lateral thinking) method for (sub-atomically) resolved X-ray crystal structure analysis without phase or (Patterson) deconvolution problems.

Salary: E 13 TV-L

Compensation: 1.0 FTE

Time limit: 3 years

The research group Resonant X-ray Methods and Crystal Modeling focuses on the application and methodological development of resonant X-ray methods at synchrotron research facilities, especially the German Electron Synchrotron (DESY) in Hamburg and the European Synchrotron Radiation Facility (ESRF) in Grenoble, as well as on modeling of the atomic and electronic structure of crystalline materials and the prediction of crystal structures and corresponding material properties (<https://tu-freiberg.de/exphys/resonante-roentgenmethoden>).

We expect:

- method development for crystal structure analysis based on single crystal diffraction data using the *Parameter Space Concept* as an alternative to conventional Fourier methods (partly in cooperation with Prof. K. Fischer, University of Saarbrücken)
- programming of up to 3 different approaches of the *Parameter Space Concept* and implementation of corresponding algorithms
- clarification of some theoretical questions
- creation and optimization of scripts for *Parameter Space Concept* simulations
- if required, use of Machine Learning and AI (in cooperation with Dr. P. Steinbach, Helmholtz Center Dresden-Rossendorf)
- if required, experimental verification of the application-ready method (proven contacts to synchrotron facilities available)
- publication and presentation of scientific research results in peer-reviewed academic journals and at national and international conferences
- participation in project reports as well as in third-party funding applications for R&D and follow-up projects

What we offer:

- working at a family-friendly university with flexible working hours in a young team
- remuneration according to the provisions of the collective agreement for the public service of the federal states in accordance with the personal requirements; attractive fringe benefits, e.g. B. Asset-based benefits (VL), company pension schemes (VBL), health management, assistance (training) by experienced colleagues

To succeed you will need:

- a doctorate in a natural or engineering / materials science subject (including mathematics, computer science)
- experience in HPC algorithm application / programming skills for solving implicit equations in high-dimensional parameter spaces and possibly existing prior knowledge in crystallography would be advantageous
- ability to work in a team and communication skills are emphasized as well as the ability to work independently and well organized, personal commitment
- in general, the candidate (m/f/d) should be able to process the results obtained, present them at scientific conferences and publish them in scientific journals
- advanced English skills

For further information please contact Dr. Matthias Zschornak (applicant and supervisor, Tel. +49(0)3731 39 3333, E-Mail matthias.zschornak@physik.tu-freiberg.de) and Prof. Karl Fischer (Emeritus, intimate connoisseur of the concept, first contact via E-Mail: karl.fischer@uni-saarland.de).

Applicants (m/f/d) must meet the employment requirements for temporary employment contracts in accordance with the *WissZeitVG*. TU Bergakademie Freiberg is committed to increasing the number of women in teaching and research positions. Qualified female scientists are therefore invited to apply. Severely disabled applicants will be given preferential consideration in the event of equal suitability.

Please send your application and relevant documents with reference to the **position number (195-E/2020), until 19.10.2020** to:

TU Bergakademie Freiberg - Dezernat für Personalangelegenheiten - 09596 Freiberg, Germany

Your application documents will not be returned, therefore please send only copies. Interview costs will not be covered. TU Bergakademie Freiberg is further looking for scientific personnel of diverse specialization. For further information: <http://tu-freiberg.de/wirtschaft/karriere/stellenausschreibungen>