

The Leibniz-Institute for Crystal Growth (IKZ) is a leading research institution in the area of science & technology as well as service & transfer of crystalline materials. Our goal is to enable solutions for urgent societal challenges (e.g. communication, artificial intelligence, climate protection, health etc.) by modern electronic & photonic technologies. The work covers the full spectrum from basic over applied research up to pre-industrial development and is performed in collaboration with national and international partners from university, academy and industry. The institute is part of Forschungsverbund Berlin (<https://www.fv-berlin.de/>) and a member of the *Leibniz Association* [www.leibniz-gemeinschaft.de](http://www.leibniz-gemeinschaft.de). You can find more details on the institute webpage: [www.ikz-berlin.de](http://www.ikz-berlin.de).

**With anticipated start date on 1<sup>st</sup> February 2020 we are looking for a**

## **PhD student (m/f/d)**

**for the topic: "Multi-physics simulation for crystal growth"**

Within the framework of a highly regarded Starting Grant from the European Research Council (ERC) we are setting up a group "Model experiments" at the IKZ to work on a new generation of multiphysical models for crystal growth processes (see *News* on our webpage). The project team will develop a dedicated experimental platform to study heat transfer, electromagnetism, melt and gas flows as well as crystal stresses in order to build and validate coupled numerical models. Here you will gain unique experience while working in an interdisciplinary team on ground-breaking science.

### **Your tasks:**

- Analyze selected crystal growth processes at IKZ (e.g., floating zone growth of silicon) with respect to heat transfer and electromagnetic aspects in particular
- Identify physical models and their parameters for the description of all relevant phenomena
- Develop validation strategies using dedicated model experiments based on similarity criteria, perform the necessary trials and measurements
- Implement the models in open source software libraries (e.g., Elmer, OpenFOAM)
- Describe und publish model demonstrators, applications, and benchmark cases

### **Our requirements:**

- MSc or equivalent degree in physical sciences or related discipline with an excellent score
- Solid knowledge in the development and validation of models for complex physical processes
- Excellent capability of scientific work as well as its documentation and presentation
- Practical experience in numerical simulation using finite elements or similar methods
- Skills in programming and scripting languages (e.g., C++, Python)

The position is limited to 3 years, an extension for another year is possible. Payment is according to TVöD (75%) (Treaty for German public service). IKZ is an equal opportunity employer. Therefore, female candidates are encouraged to apply and will be preferred in case of adequate qualification. Among equally qualified applicants preference will be given to disabled candidates. IKZ supports the compatibility of job and family and is certified as family-friendly by the "Job and Family" audit.

For information about the project contact: Dr. Kaspars Dadzis, [kaspars.dadzis@ikz-berlin.de](mailto:kaspars.dadzis@ikz-berlin.de), Phone +49 30 6392 2830.

### **Have we aroused your interest?**

Then apply with a letter of motivation for this project (1–2 pages), curriculum vitae and all relevant certificates by **01.12.2019**. To do so, please go to **Job offers/jobs** on our homepage and click on this advertisement and then on "**Apply online**". Please send us your complete application documents this way.

**We look forward to receiving your application!**