

The Leibniz Institute for Solid State and Materials Research Dresden – in short IFW Dresden – is a non-university research institute and a member of the Leibniz Association. The IFW employs approximately 600 people and one focus is on the training of young scientists besides enhancing fundamental and applied research development. At the highest international level, the IFW operates modern materials science on a scientific basis and makes the obtained results useful for the economy. The complex and interdisciplinary research work is carried out within the IFW by five scientific institutes, which are supported by a highly developed technical infrastructure. The IFW supports its employees in reconciling work and family life and regularly submits to the berufundfamilie® audit. Further information at: <http://www.ifw-dresden.de>

## **Doctoral Researcher Position (m/f/d) Atomic layer deposition of ferecrystals**

The Institute of Metallic Materials at the Leibniz Institute for Solid State and Materials Research Dresden (IFW Dresden) offers a PhD position on the topic “Atomic layer deposition of ferecrystals” starting from May 2019.

The employment contract is primarily limited to 12 months and will be extended by another 2 years upon a successful mid-term evaluation. The salary is based upon the TV-L rules (E13; 50%).

### **Your profile:**

We are looking for a highly motivated and team-oriented student, who holds a Master degree in physics, chemistry or material science. Basic knowledge in chemical vapor deposition, atomic layer deposition and electrical/thermal transport characterizations are welcome though not mandatory. The successful candidate is open-minded, curious and ready to work in a strongly interdisciplinary environment. Very good communication skills in written and spoken English are required.

### **Project description:**

A material class of stacked metal monochalcogenides (MMCs), topological insulators and/or transition metal dichalcogenides (TMDCs) are sometimes called ferecrystals. In the past, they were prepared by physical vapor deposition. Now, a synthesis route via atomic layer deposition (ALD) shall be established. Then, the structural ordering of the heterostructures and their properties in electric and magnetic fields will be investigated to determine, e.g., carrier density and mobility or the density of states. This will be complemented by investigations of the thermoelectric properties of these materials as well as studies of the quantum transport via, e.g., the detection of Subnikov-de-Haas oscillations or Hall measurements. These layered systems, where two independent structures are interleaved on a nanometer lengthscale, can be tailored to exhibit unusual properties such as low thermal conductivity or additional optical and electronic properties in comparison to the constituent layers. In a more general context, we are interested in the change of properties of material A by depositing (sub-)monolayers of material B via ALD.

For further information please contact: Dr. Andy Thomas ([a.thomas@ifw-dresden.de](mailto:a.thomas@ifw-dresden.de)).

See also: <http://www.ifw-dresden.de/de/institute/institut-fuer-metallische-werkstoffe-imw/>

The institute promotes the professional equality between all genders. In science, the IFW Dresden would like to increase the proportion of women. Qualified women are therefore explicitly invited to apply. Equally qualified handicapped applicants will be given preference.

Please send your application including a cover letter with motivational statement, CV, copies of degrees and grades, a copy of your Master thesis (or a draft thereof), published articles or other relevant material (if applicable) quoting the reference number **DM2102-1/2019** by **28 February 2019** as a single pdf-file exclusively to: [bewerbung@ifw-dresden.de](mailto:bewerbung@ifw-dresden.de)