

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) Ferecrystals based on Atomic Layer Deposition

The Institute for Metallic Materials (Prof. K. Nielsch) of the IFW Dresden offers a PhD-Position (m/w/d) starting from January 2020. The PhD will develop a novel class of materials based on stacked metal monochalcogenides (MMCs), topological insulators and/or transition metal dichalcogenides (TMDCs) called *ferecrystals* via atomic layer deposition (ALD). The well-defined and surface limited chemical reactions of the ALD processes lead to (multi)layers with the ideal stoichiometry and conformal growth on curved surface. The functional properties of ferecrystals can be tailored and exhibit unusual properties such as low thermal conductivity or exceptional electronic properties. In this PhD project the electronic properties of 2D materials will be modified by the interactions between layered and non-layered materials.

Further details on this PhD project:

- Development of sulphur and selen based ferecrystals: Combining di-chalcogenides and trivial compound semiconductors
- Structural characterization of the ferecrystals and improving the ordering degree of the multilayered systems based on 2D materials
- Electrical transport characterization of MeS₂ and MeSe₂ based ferecrystals by micropatterned measurement platforms and determination of the Hall, Seebeck and Nernst coefficients.
- Growth of ferecrystals on non-planar surfaces by ALD

For further information, please contact: Prof. Kornelius Nielsch (K.Nielsch@ifw-dresden.de)

Your Profile:

We are seeking highly motivated applicants with a university degree (Master / Diploma) with a background in solid state chemistry or physics or materials science, or a relevant subject, who are interested in interdisciplinary research, the involvement in the ALD community and creatively contribute their own ideas. Good communication skills in English (spoken and written) are expected.

We offer:

The project duration is limited to 3.5 years. The employment contract is primarily limited to 12 month and will be extended upon a successful mid-term evaluation. We support and strongly encourage the candidates to perform a research stay of a few months abroad. PhD candidates are facilitated to participate in the PhD program to successfully complete their dissertation. We offer an attractive work place with excellent facilities and environment in Dresden.

The salary (EG 13, volume of employment 65%) is based upon the TV-L rules.

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

Your application:

Please send your application including a cover letter with motivational statement, CV, copies of certificates, published articles and other relevant material (if applicable) quoting the reference number **A2000-ALD/2019** in a single PDF file (other formats will not be accepted) exclusively to:

bewerbung@ifw-dresden.de

Deadline for applications: **31 October 2019**