The Institute for Metallic Materials (Prof. K. Nielsch) of the IFW Dresden offers a

**PhD position (m/f/d)**

on the following topic:

**Ferecrystals based on Atomic Layer Deposition.**

The candidate (m/f/d) 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 Ph.D. project the electronic properties of 2D materials will be modified by the interactions based on the interwoven of layered and non-layered materials. Further details on this Ph.D. projects:

- Development of Sulphur, Tellurium or Selen based ferecrystals: Combing di-chalcogenides and 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 MeTe₂ based ferecrystals.
- Growth of ferecrystals on non-planar surfaces by ALD growth on nanoparticles, on opals and on surfaces of nanopores.

We are seeking highly motivated applicants (m/f/d) with a university degree (Master / Diploma) with a background in inorganic or physical chemistry or nanoscience or solid states physics or materials science, or a relevant subject, who are interested in interdisciplinary research, like to be involved in the ALD community and creatively contribute their own ideas. Good communication skills in English (spoken and written) are expected.

The duration of the Ph.D. project is limited to 3.5 years and will start as soon as possible. We support and strongly encourage the Ph.D. candidates to perform a research stay of max 6 months abroad. The salary is based upon the TV-L rules (EG 13, 65 %). PhD candidates (m/f/d) 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 institute promotes the professional equality between all genders. The IFW would like to increase the pro-portion of women in science. Qualified women are therefore explicitly invited to apply. The application of severely disabled persons is expressly desired.

Application including a CV, a motivation letter describing the research career goals, skills and experience, copies of all certificates should be sent citing the reference number 026-22-2001 no later than April 15th, 2022 online as a single pdf-file to:

bewerbung@ifw-dresden.de

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