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

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

on the following topic:

**2D Materials based on Atomic Layer Deposition.**

The candidate (m/f/d) will develop 2D materials based on novel transition metal dichalcogenides (TMDCs) via atomic layer deposition (ALD) from liquid or gas phase. The well-defined and surface-limited chemical reactions of the ALD processes lead to layers with the ideal stoichiometry and conformal growth on non-planar surfaces. The functional properties of 2D materials will be tailored and exhibit unusual properties such as low thermal conductivity or exceptional electronic properties. Further details on this Ph.D. projects:

- Development of 2D materials with low bandgap ($E_{gap} < 0.7$ eV) based on selenium and tellurium dichalcogenides based on gas or liquid phase based ALD processes.
- Structural characterization of the 2D materials and improving the ordering degree of the layered materials
- Electrical transport characterization of MeS$_2$, MeSe$_2$ and MeTe$_2$ based 2D materials by micropatterned measurement platforms and determination of the Hall, Seebeck and Nernst coefficients.
- Integration and testing of the 2D materials in MOSFET devices.

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 is 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 025-22-2001 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)