

The Leibniz Institute for Solid State and Materials Research Dresden e. V. (IFW Dresden) conducts modern materials research on a scientific basis for the development of new and sustainable materials and technologies. The institute employs an average of 500 people from over 40 nations and, in addition to its scientific tasks, is dedicated to promoting young scientists and engineers. Further information at: <http://www.ifw-dresden.de>

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

Ph.D. position (m/f/d)

on the following topic:

Interface Engineering of Thermoelectric Materials Through Powder Atomic Layer Deposition

on a part-time basis with a weekly working time of 26 hours, starting from November 2023.

Project description:

They will work on the interface engineering of a wide variety of thermoelectric materials using Atomic Layer Deposition (ALD). 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 like thermoelectric powders' surfaces. The thermoelectric performance of modified materials will be tailored to understand the effect of interface engineering on the selected TE system.

Further details on this Ph.D. project:

- Development of new ALD formulation for metals, oxides, and semiconductors based on the necessity in TE society.
- Structural characterization of developed films using different characterization techniques such as GIXRD, XPS, SEM, ToF-ERDA, etc.
- Electrical and thermal transport characterization of modified TE compounds using standard techniques like LSR, LFA, etc.
- Integration and testing of the modified thermoelectric materials in thermoelectric modules.

Your profile:

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

Conditions:

The project duration is limited to 3 years, starting on November 1, 2023. A research stay abroad of maximum 6 months is supported and strongly recommended. Remuneration is based on the TV-L (EG 13, 65 %). The first contract is limited to 1 year, an extension for another 2 years is possible. Doctoral students are facilitated to participate in the doctoral program in order to successfully complete their dissertation. We offer an attractive workplace with excellent facilities and surroundings in Dresden.

IFW Dresden strives for a balanced gender ratio in all areas. In science, IFW Dresden would like to increase the proportion of women and therefore explicitly invites suitably qualified female scientists to apply. The application of severely disabled persons is explicitly welcome.

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 **033-23-2001** no later than **July 15th, 2023** online as a single pdf-file to:

bewerbung@ifw-dresden.de.

For further information, please contact: Dr. Amin Bahrami (a.bahrami@ifw-dresden.de).

