

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 position as

PhD position (m/f/d)

on the topic “**Transverse Thermoelectric Materials and Devices**” on a part-time basis with a weekly working time of 30 hours.

They will develop a novel material class of transverse thermoelectric materials in which the heat transport is orthogonal to the electrical transport. This material will be optimized for a selected application scenario. So far, different concepts of transversal thermoelectric materials have been discovered, e.g. based on single crystalline materials with a strong anisotropy of the thermoelectric transport properties or microstructured metamaterials based on multilayered material systems. Transverse thermoelectric materials are very well suited for solid-state cooling and energy harvesting, as a device does not rely on the classical optimization of p- and n-type materials and no low-resistance contacts on the hot side are required. In this dissertation, the transverse devices are designed using the FEM simulations and later realized and validated through experimental investigations and device integration. More details about this Ph.D. project:

- Evaluation of different concepts of transverse thermoelectric materials
- Development of an own model system for transverse thermoelectric transport.
- Evaluation of the device applications based on transverse thermoelectric materials.

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

The project duration is limited to 3 years, starting on September 1, 2023. A research stay abroad of maximum 6 months is supported and strongly recommended. Remuneration is based on the TV-L (EG 13, 75 %). The first contract is limited to 1 year, an extension for another 2 years is possible. Doctoral students (m/f/d) 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 **018-23-2001** no later than **May 15, 2023** online as a single pdf-file to:

bewerbung@ifw-dresden.de.

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

