

## IFW Dresden e.V.



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>.

### **PhD position (m/f/d) 003-25-2502**

on the following topic: Design and System Integration of a Micro-Thermoelectric Generator for Energy-Efficient Self-Powered Sensor Wireless Systems

City: Dresden; Starting Date: 06/01/25; Remuneration: TV-L 13; Reference number: 003-25-2502; Closing date: 16/12/24

#### **Working field**

Are you passionate about cuttingedge technology and interested in contributing to a pioneering research project? We are seeking a dedicated PhD student to join our team in developing an energy-autonomous, multi-standard wireless sensor system. This research initiative aims to create a highly efficient sensor platform powered by compact energy harvesting generators, pushing the boundaries of wireless technology.

#### **Project Overview:**

- Design and develop an energy-efficient wireless sensor system with minimal power consumption, leveraging compact energy harvesting technology.
- Use COMSOL Multiphysics to optimize the design of a micro-thermoelectric generator ( $\mu$ TEG) for maximum power density and thermal efficiency.
- Assist in the fabrication of  $\mu$ TEGs using advanced techniques such as electrochemical deposition and photolithography. Conduct comprehensive testing to evaluate performance.
- Integrate  $\mu$ TEG into the sensor system and perform extensive testing to ensure energy efficiency and functionality.
- Analyze data, publish findings, and present results at conferences. Collaborate with an interdisciplinary team to advance the field.

#### **Requirements**

The applicant (m/f/d) should have experience in thermoelectric material synthesis, particularly in electrochemical deposition (ECD), and device development. We seek highly motivated candidates with a PhD in mechanical engineering, electrical engineering, or a related field in engineering, who are interested in interdisciplinary applied research and can creatively contribute their own ideas to the team. Good communication skills in English (spoken and written) are expected.

## **What We Offer**

The selected candidate will receive a salary following TV-L rules (E13, 75%). The first contract is scheduled to begin January 6th, 2025 and is limited to 1 year, an extension for another 2 years is possible. PhD candidates are facilitated to participate in the PhD program to successfully complete their dissertation. We offer an attractive workplace with excellent facilities and environment in Dresden. The institute promotes gender equality and aims to increase the proportion of women in science, so qualified women are explicitly encouraged to apply. Applications from severely disabled persons are expressly welcomed.

## **Application**

Please send your application with informative documents (letter of motivation, CV, relevant transcripts, training certificates, and contact details for at least two professional references) exclusively in electronic form and in a PDF file (other formats will not be considered), citing the reference number 003-25-2502, no later than December 16th 2024 to

**[bewerbung@ifw-dresden.de](mailto:bewerbung@ifw-dresden.de)**

If you have further questions about the position please contact Dr. Heiko Reith (**[h.reith@ifw-dresden.de](mailto:h.reith@ifw-dresden.de)**).

Weitere Informationen unter <https://stellenticket.de/189300/>  
Angebot sichtbar bis 16.12.2024

