

Paul-Drude-Institut für Festkörperelektronik (PDI) in Berlin, Germany, invites applications for the following position:

Postdoc (m/f/d)

Large-area synthesis and characterization of the room temperature 2D ferromagnet $Fe_{5-x}GeTe_2$

About the position

Magnetic two-dimensional (2D) materials are very promising building blocks for the realization of ultra-compact and innovative spintronic devices. We are looking for a Postdoc researcher who will investigate molecular beam epitaxy (MBE) and properties of $Fe_{5-x}GeTe_2$ (FGT, with $x \sim 0$). FGT is a 2D ferromagnetic conductor which it exhibits a Curie temperature around or above room temperature, which is a key aspect regarding practical applications. The overall goal is to create an unprecedented structural/magnetic phase diagram for epitaxially grown $Fe_{5-x}GeTe_2$ films with thicknesses down to a few atomic layers. For this, the Postdoc researcher will optimize and further develop MBE protocols and employ several characterization methods for the investigation of the magnetic, electrical and structural properties. This project will benefit from the excellent experimental facilities for MBE growth and characterization of 2D materials at the PDI as well as the close collaboration with highly competent senior scientists.

Your responsibilities:

- Growth of FGT films via MBE on different substrates including graphene and hexagonal boron nitride
- Structural/morphological characterization by atomic force microscopy, X-ray photoelectron spectroscopy, and Raman spectroscopy
- Magnetic and electrical characterization via magneto-transport measurements and SQUID magnetometry
- Data analysis and planning of experiments
- Presentation of results at conferences and in publication

Your profile:

- PhD degree in physics, materials science, or a related field.
- Experience with epitaxial growth, in particular MBE of layered materials
- Experience with characterization of materials
- Experience with magneto-transport and magnetic characterization of materials is highly advantageous

This position is available immediately and is limited to a 2-year period. Salary and benefits are according to the Treaty for German public service (TVöD Bund) to a level of E13.

What we offer:

- Modern laboratories with a wide range of experimental techniques
- Supportive environment with experts for various scientific sub-fields
- International and culturally diverse community
- Location in the heart of Berlin with excellent public transport connections and a subsidized travel ticket
- Possibility to participate in professional development programs

About PDI

The Paul-Drude-Institute is part of the Forschungsverbund Berlin e.V. and a member of the Leibniz Association. The institute carries out basic and applied research at the nexus of materials science, condensed matter physics, and device engineering.

Inclusive & equal opportunity employer

With approximately 100 employees and more than 15 nationalities, PDI is committed to building a talented, inclusive, and culturally diverse workforce. We understand that our shared future is guided by basic principles of fairness and mutual respect. Among equally qualified applicants, preference will be given to candidates from marginalized groups. As an equal opportunity and family-friendly employer, we offer highly flexible employment conditions, such as flexible working hours, parental leave, and home office, and we strive to create a family- and life-conscious working environment.

How to apply

Please send your application as a single PDF file to Even Pruefer (he/him/his) at recruiting@pdi-berlin.de by July 31, 2023 with the title of the position in the subject line. The document should include a dedicated cover letter, CV, publication list, letter(s) of recommendation/contact information of references, diploma(s), and transcript(s). For scientific information about the project, please contact Dr. Joao Marcelo J. Lopes at lopes@pdi-berlin.de.