

**Paul-Drude-Institut für Festkörperelektronik (PDI) - <https://www.pdi-berlin.de/>**

PDI is a research institute in Berlin, Germany. We perform basic and applied research at the nexus of materials science, condensed matter physics, and device engineering.

**Artificial defects in epitaxial graphene  
on SiC investigated by scanning  
tunneling microscopy**

Master Thesis Topic, Microstructure

City: Berlin; Starting date (earliest): At the earliest possible; Remuneration: 13,90€/hour;  
Closing date: 31/03/26

**Tasks**

Graphene consists of a single layer of carbon atoms arranged in hexagonal lattice and represents an excellent platform for two dimensional materials with huge potentials in electronics and quantum technology. Structural defects in graphene can be deliberately introduced in the honeycomb network. One important role of defects is to serve as nanoscale pathways for metal atoms to enter the interface between epitaxial graphene and SiC to form stable ultrathin metal layers with new exotic properties.

In this project, we investigate artificial defects in graphene using low-temperature scanning

tunneling microscopy. Atomic level structures and electronic properties of these defects will be identified which shed lights on the future nanoscale understanding of metal-defect interaction,

which serves as founding background for metal intercalation.

Objective: Investigate artificial defects of graphene and defect-metal interaction using low

temperature scanning tunneling microscopy.

**Requirements****Skills & Requirements**

- Basic background in solid state physics and surface science or related fields
- Hands-on experimental skills

## What we offer

### Opportunities and Benefits

- Working with highly skilled scientist; access surface science analytical tools with atomic resolutions  
and opportunity for continuing a PhD program at PDI

## Application

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More information at <https://stellenticket.de/201884/TUB/>

Offer visible until 26/03/26

