



Institute of Physics of the Polish Academy of Sciences

Scholarship for a PhD Student



Job ID: #JOB65/2020

Job Description

Job Title: PhD student – scholarship holder

Job Summary:

Tunable topological devices from superlattices (theoretical)

Job Description:

In this project, the student will study superlattices of layered van-der-Waals materials as platforms for tunable topological devices. The interplay of the underlying electronic structures with the ingredients and configuration of the superstructures is envisioned to lead to new phases with highly altered properties. The student will study this interplay theoretically by modelling the various setups and by performing numerical calculations. The arising phases will be analyzed with a focus on transport phenomena and topological invariants.

Aim: Model and theory for van-der-Waals superlattices based on moiré patterns and adatoms. Identification and characterization of topological phases. Optimization of tuning parameters with respect to topology and transport properties.

Requirements:

- Master's degree in physics (or an equivalent that qualifies one for PhD studies in physics in the country of issue).
- Strong background in theoretical physics
- Basic programming skills
- To be employed, the candidate must be accepted into the PhD school in which the Institute of Physics participates. Applications for the position are through recruitment to the School, online at warsaw4phd.eu.

Main research field: Physics

Sub Research Field: Solid state physics

Career Stage: Early stage researcher (no PhD degree)

Research Profile: First Stage Researcher (R1)

Type of Contract: Fixed term

Status: Full-time

Salary: Scholarship and project within the Programme International Research Agenda of the Foundation for Polish Science ([International Research Agendas](#)). For first year students, the net amount is 3500 PLN per month (830 € per month)

Contact

More information can be obtained from

Alexander Lau (e-mail: alexlau@magtop.ifpan.edu.pl),

Timo Hyart (e-mail: timo.Hyart@MagTop.ifpan.edu.pl),

Wojciech Brzezicki (e-mail: brzezicki@magtop.ifpan.edu.pl)

Application details

Application deadline: 5.1.2021 Later applications will not be considered.

Required materials:

- Scientific CV
- Cover letter
- Scan of MsC diploma or equivalent (or an explanation of when one is expected)
- Academic record (for finalized semesters)
- Recommended: A recommendation letter by an academic, or their contact email.

All materials should be submitted in electronic form by application to the PhD school warsaw4phd.eu, choosing the project: "*Tunable topological devices from superlattices*". (The application system will be active from 22 December 2020).

Results regarding the position will be made available by 10 February 2021.