



Institute of Physics of the Polish Academy of Sciences

Scholarship for a PhD Student



Job ID: #JOB 37/2022

Job Description

Job Title: PhD student – scholarship holder

Job Summary: Quantum structures based on wide band gap semiconductors for application in UV optoelectronics

Job Description:

ZnO-based materials have important potential industrial and medical applications due to their biocompatibility and biodegradability properties. Due to the low cost of ZnO layers, their high crystal quality and resistance to radiation, the oxides can compete with GaN-based materials. In the far UV range, ZnMgO-based quantum structures crystallizing in rocksalt (RS) structure with an energy gap of 4.2-7.8 eV are promising candidates.

In light emitting diodes or lasers, light emission is tuned by changing the chemical composition of the quantum structure and/or the thickness of its layers, and thus by changing the value of the energy gap. In the project ab-initio studies of materials based on RS-ZnMgO will be performed, taking into account the influence of all microscopic mechanisms on energy gaps.

The aim of the project is to create a theoretical basis for the applications of wide-gap quantum structures in far UV optoelectronics. Quantum structures based on RS-ZnMgO will be examined. Final indications for extending the range of wavelengths emitted in optoelectronic devices towards far UV will be formulated on the basis of theoretical results compared to experiments conducted at the Institute of Physics PAS.

Requirements:

- Master's degree in physics (or an equivalent that qualifies one for PhD studies in physics in the country of issue).
- 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: Physics of Semiconductors

Career Stage: Early stage researcher

Research Profile (details): First Stage Researcher (R1)

Type of Contract: Fixed term (36 months)

Status: Full-time

Salary: grant funding of **5000** PLN per month, before subtracting obligatory employer and employee social security contributions (~15%).

Contact

More information can be obtained from Henryk Teisserye

e-mail: teiss@ifpan.edu.pl

Please make contact.

Application details

Application deadline: 10.08.2022 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: "Quantum structures based on wide band gap semiconductors for application in UV optoelectronics"

(The application system will be active from 27 July 2022).

Results regarding the position will be made available by 19 September 2022.