Institute of Physics of the Polish Academy of Sciences
Scholarship for a PhD Student

Job ID: #JOB 33/2020

Job Description

Job Title: PhD Scholarship

Job Summary:

In-operando electron microscopy investigations of piezoelectric and magnetic properties of the hybrid nanowires

Job Description:

The scholarship holder will participate in the realization of NCN OPUS project: "*In-operando electron microscopy investigations of properties and structural stability of the nanowires with piezoelectric core and magnetostricted shells*". The task of the doctoral student will be to perform in-operando transmission electron microscopy investigations of hybrid nanowires consisting of a piezoelectric core and a magnetostrictive shell. In these studies, micro electromechanical systems chips (MEMS) compatible with the TEM microscope holder will be used. Thanks to the MEMS chips, the PhD student will be able realize measurements of electromagnetic fields generated in, or mechanically strained hybride nanowires biased by external potential using electron holography. The PhD student will also perform the structural characterization of hybrid nanowires with particular emphasis on the analysis of defect structure evolution during cyclic polarization/deformation of nanowires. The crystal lattice distortions in the cores and in the shells of the nanowires under in-operando conditions will be analyzed using the electron nano diffraction and the analysis of high-resolution TEM images using the geometric phase method.

A scholarship holder will be involved in the research tasks of the above Project. He/she will carry out research in close cooperation with other contractors of the OPUS Project in the field of contacting nanowires by means of metal deposition by a focused beam of electrons or ions from organometallic compounds as well as in creating a computer model of the reaction of hybrid nanowires to electrical, mechanical, thermal and magnetic stimulation using modeling based on the finite element method and molecular dynamics.

Requirements and candidate profile:

- Master degree in physics or materials science or nanotechnology or related domain
- Basic knowledge of transmission electron microscopy methods (diffraction, phase contrast, electron holography).
- Knowledge of crystallography
- Experience in the field of electron hologram analysis and in-situ TEM testing using MEMS technology will be an advantage.
- Ability to work in a team and effectively communicate
- The candidate must have the status of a PhD student in Poland

-Due to the specificity of the planned tasks and experiments using electron and optical microscopes, the candidate should have:

- ophthalmological and neurological tests confirming the possibility of long-term work with screen monitors and optical microscopes - undisturbed binocular vision and undisturbed recognition of subtle colors and shades of gray, resistance to strobe effects (at

the recruitment stage, the candidate's declaration and in the case of admission presentation a medical certificate is mandatory)

-Good spoken and written English.

- Passion for experimental work, including:
  - manual and motor skills necessary for performing precise works using optical -microscopes, good motor coordination, speed of reaction to visual stimuli,
  - readiness to conduct complicated long hours of experiments in continuous mode also during outside normative hours (sporadically).
  `- resistance to long-lasting continuous mental and physical efforts
  - readiness to travel and participate in research in in european and world research centers

Main research field: Physics

Sub Research Field: Solid state physics, transmission electron microscopy

Career Stage: Early stage researcher or 0-4 yrs (Post-graduate);

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

Type of Contract: Temporary for 36 months;

Status: full-time

Salary: 5000 PLN per month (grant funding, before obligatory employer and employee social security contributions)

Contact

More information can be obtained from
Sławomir Kret (e-mail: kret@ifpan.edu.pl).

Application details

Application deadline: _10.08.2020_ Later applications will be not considered.

Required materials:

• Curriculum Vitae (including list of publications if any)

• Documents confirming PhD student status

• List of publications, conference presentations and other achievements (if the candidate has).

• Letter of motivation

• At least one reference contact person(s) and/or recommendation letter. In both cases phone number(s) and e-mail address(es) of the contact person(s) should be also provided.

• Consent to process your personal data

All materials should be submitted in electronic form to the address: jobs@ifpan.edu.pl with Job ID in the subject.

Information clause in the process of recruitment for studies

Under Art. 13 sections 1 and 2 of the Regulation of the European Parliament and of the Council (EU) 2016/679 of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Resolution), EU OJ L 119 of 04.05.2016, page 1, as amended, hereinafter referred to as "GDPR", we hereby inform as follows:

1. The Data Controller, i.e. the entity deciding how your personal data are used, is the Institute of Physics of the Polish Academy of Sciences, represented by the Director, with its registered office in Warsaw Al. Lotników 32/46. You can contact the Data Controller using one of the contact forms available at: phone (22) 116-2111, e-mail director@ifpan.edu.pl.
2. The Director of the Institute of Physics of the Polish Academy of Sciences has appointed a Data Protection Officer (DPO) with whom you may contact in matters regarding your personal data. You may contact the Officer sending an e-mail to: iodo@ifpan.edu.pl
3. Your personal data shall be processed in order to perform the process of recruitment for studies;
4. The basis for processing of your personal data are provisions of the Act on Higher Schools and Education (consolidated text: Journal of Laws of 2018, item 1668);
5. Your personal data shall be processed for the period of 6 months upon completion of the recruitment process and in case of admission to studies, according to the course of the studies, and then they shall be archived according to the applicable provisions;
6. Your personal data shall not be made available to any other entities save for entities authorised under the provisions of the law. Employees and members of the university recruitment committees authorised by the Data Controller will have access to your personal data;
7. Providing personal data by you is voluntary, but failure to provide them precludes participation in the recruitment process;
8. You have the right to access the contents of your personal data and you have the right to rectify them, erase them and restrict their processing;
9. You can submit a complaint to the Inspector General for the Protection of Personal Data if you find that their processing violates provisions of the General Data Protection Regulation.

Consent for processing:

☐ I grant my consent for processing of my personal data by the Institute of Physics of the Polish Academy of Sciences in order to ensure conditions of full participation in the process of recruitment for studies. I provide the personal data voluntarily and declare that they are true. I have familiarised myself with the content of the information clause, including the information about the purpose and methods of processing of personal data and right to access the content of my data and the right to rectify them.

……

Date, candidate's signature