



# Institute of Physics of the Polish Academy of Sciences

## Scholarship for a PhD Student



Job ID: #JOB14/2018

### Job Description

**Job Title: PhD student in semiconductor physics/solid state physics;**

**Job Summary:**

Growth and electrical characterization of ZnO based layers/heterostructures.

**Job Description:**

The PhD student will participate in the realization of the NCN SONATA-BIS project: „Bulk and interfacial defects in structures based on ZnO and ZnO semiconducting alloys” financed by the National Science Centre (NCN). Aim of the project is to study the electrically active defects located in the bulk and at the interface of ZnO based heterostructures/Schottky diodes with advanced electrical characterization techniques like deep level transient spectroscopy (DLTS), photoinduced current transient spectroscopy (PICTS) and their Laplace extensions. Such advanced studies are of primary importance since they will contribute to understanding the potential of ZnO and ZnO based alloys in opto-electrical applications like low-cost solar cells and high efficiency LEDs and can lead to innovative solutions to overcome the present limitations in these prospective structures. The successful candidate will be responsible for growing the samples by atomic layer deposition (ALD) and their analysis by Hall measurements. In addition, he/she will perform the electrical and electro-optical characterization of the thin film ZnO-based structures and contribute to the analysis, interpretation and dissemination of the achieved results. Therefore, previous experience in electrical/structural characterization of semiconductors and/or in thin films growth, even though not necessary, will be considered as an advantage.

The PhD studies will be conducted according to the Institute of Physics of the Polish Academy of Science, IP PAS, rules. For more information please refer to the IP PAS international PhD studies web pages at:

[http://www.ifpan.edu.pl/msdifpan/Studium/index\\_en.html](http://www.ifpan.edu.pl/msdifpan/Studium/index_en.html)

Profile of the PhD candidate:

1. MSc university degree in physics or related field possibly with a strong background in semiconductor physics/solid state physics/nanostructure engineering or be able to document the upcoming date of the defence for the degree;
2. Highly motivated to perform supervised and independent scientific work in the field relevant to the PhD position;
3. Ability to work in a team;
4. Numerical modelling and programming skills;
5. Good spoken and written English.

**Main research field:** Physics;

**Sub Research Field:** semiconductor physics/solid state physics;

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

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

**Type of Contract: Temporary for four years;**

**Salary: 3000 PLN per month (untaxed scholarship).**

## **Contact**

More information can be requested contacting directly the project principal investigator dr. Ramon Schifano (e-mail: [schifano@ifpan.edu.pl](mailto:schifano@ifpan.edu.pl), telephone number: +48-221163315, ResearchGate profile at [https://www.researchgate.net/profile/R\\_Schifano](https://www.researchgate.net/profile/R_Schifano)).

## **Application details**

**Application deadline: 20 April 2018 Later applications may also be considered.**

### **Required materials:**

- Curriculum Vitae.
- List of publications, conference presentations and other achievements (if any).
- Letter of motivation.
- Undergraduate studies transcript of records.
- 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.

All materials should be submitted in electronic form to the address: [jobs@ifpan.edu.pl](mailto:jobs@ifpan.edu.pl) with the Job ID as the subject.