

PhD position available

Institution: Department of Applied Physics, Faculty of Physics, Astronomy and Informatics
Nicolaus Copernicus University in Toruń (Poland)

About you: Nicolaus Copernicus University is internationally acclaimed for academic and research excellence. We encourage applications from students with the ability, enthusiasm, curiosity, and commitment needed to pursue further education, irrespective of their background. There are five doctoral schools at Nicolaus Copernicus University (NCU) which offer a unique experience to graduate students from all over the world, including the opportunity to conduct research with leading academics in state-of-the-art laboratories. The modern study programmes at the doctoral schools at NCU equip PhD students with the highest qualifications in a chosen scientific field and skills essential in high-profile research.

Position title: PhD Student in Applied Physics and Materials Engineering

The position: PhD Position in the Team conducting research on Nanostructures and Thin Films for Applications in Optoelectronics, Photovoltaics and Non-linear Optics.

Description of tasks:

1. Production of multilayer structures using the Physical Vapor Deposition (both PVD processes: layer by layer and co-deposition) and Sol-Gel techniques.
2. Measurements of optical properties, i.e.: transmission spectroscopy, Raman spectroscopy, photoluminescence and its temperature dependencies.
3. Measurements of nonlinear optical properties, i.e.: generation of second and third harmonics and Z-Scan technique.
4. Structural properties measurements, i.e.: X-ray diffraction and Atomic Force Microscopy.
5. Measurements of electrical properties, i.e. photoconductivity and its temperature dependence, I-V characteristics.
6. Investigation of the photovoltaic structures efficiency, especially solar cells.
7. Analyzing the results and preparing scientific publications.
8. Participation in the promotion of the team's projects, including participation in scientific conferences.

Experience required to do the job:

1. Thorough knowledge of the physics of solids, thin films and nanostructures.
2. Knowledge of PVD and Sol-Gel techniques.
3. Knowledge of phase transformations occurring in materials under the influence of temperature changes
4. Experience in experimental work related to: transmission spectroscopy, Raman spectroscopy and photoluminescence.
5. Experience in experimental work related to: XRD and AFM.
6. Experience in experimental work related to: photovoltaics effect.

- Previous experience in 2, 4 and 5 appreciated.

Candidate additional qualities:

1. Ability to use programs for quantum physical computing, Gaussian or similar.
2. Ability to use programs for XRD and AFM image analysis.
3. Ability to create simple animations of physical processes and rendering 3D pictures.
4. Knowledge of the LabView package.

Requirements for the candidate:

- Master degree in Physics, Chemistry, Materials Science or similar.
- Motivation for hard work, improving own skills and involvement in the development of the research team.
- Proficiency in spoken and written English.
- Social openness and acceptance of cultural differences.

Extra info: Did you include supplementary information such as salary, company benefits, application instructions, and desired start date?

Project PhD@NCU: Nanostructures and thin films of metalorganics complexes and hybrid perovskites for applications in optoelectronics and photovoltaics.

Deadline for submitting offers: 31 May 2021, 00:00

Form of submitting offers: email: ster@umk.pl

The conditions of employment:

Stipend for 4 years in the amount of 4 266,00 PLN/month.

Scholarship: PhD student stipend is available from July 1st, 2021.

A candidate should submit:

- a) CV (research experience, publications, projects, presentations, scholarships, awards)
- b) cover letter
- c) list of published research papers and documented participation in research projects.
- d) opinion about candidate from master thesis supervisor.
- e) information about previous doctoral studies or education at a doctoral school.
- f) a copy of the master's diploma or completion of graduate studies (or equivalent).
- g) if English is not the mother tongue or higher education studies were not conducted in English, a document confirming the knowledge of English at B2 level.
- h) declaration of selection of the project (available for download at <https://www.ac.umk.pl/nawa-ster/list-of-documents/>).
- i) declaration of selection of the Doctoral School within which the project will be implemented, (available for download at <https://www.ac.umk.pl/nawa-ster/list-of-documents/>).

j) a statement that the candidate does not possess a doctoral degree (available for download at <https://www.ac.umk.pl/nawa-ster/list-of-documents/>).

k) Statements of readiness to join the project and consent to the processing of personal data in connection with the implementation of the project (available for download at <https://www.ac.umk.pl/nawa-ster/list-of-documents/>).

Please, send the application to: ster@umk.pl

By submitting the application, a candidate agrees to the processing of her/his personal data in the recruitment process.

Additional information: Work in a young, dynamic and international team.