



Warsaw 30.07.2020

Recruitment No 51/2020

CHEMISTRY IN CONFINED SPACES GROUP

PhD student – scholarship position. Number of positions available: 1

Job summary:

PhD position available in the Institute of Physical Chemistry PAS within National Science Center (NSC) **MAESTRO 11 nr 2019/34/A/ST5/00416** entitled “Elaboration of unconventional nanostructured perovskites and zinc oxide through compositional and morphological engineering for game-changing improvements in light-harvesting devices” (leader **prof. Janusz Lewiński**)

Job Description:

Electron transport layers (ETLs) play a vital role in the PSCs performance and stability. To date, TiO_2 is commonly used as ETL in heterojunction PSCs due to its suitable band alignment with perovskite layer and good transparency for visible light. However, TiO_2 -based layers also showcased some significant drawbacks. Moreover, application of novel morphologies of perovskites together with ZnO ETLs can significantly change efficiency of the PSCs or exhibit brand new electrical or optoelectronic properties. In our project, we plan to search for an alternative ETL, based on high-quality ZnO nanomaterials, alongside with development of perovskite morphological engineering. Thus, the main aim of the project will be to elaborate new high-quality pristine ZnO and metal-doped ZnO nanomaterials by the developed in our group one-pot self-supporting organometallic (OSSOM) procedure and their further use as ETLs in a combination with metal halide perovskites to assemble solar cells. The relationship between the properties of the resulting ZnO QDs and the electrical parameters of the obtained layers along with the solar cell efficiency will be also comprehensively investigated.

Responsibilities:

- PhD student will be involved in the realization of the following research tasks:
 - a) development of controlled growth of metal halide perovskite materials with various morphologies;
 - b) in-situ monitoring of the solid state formation and degradation mechanisms of halide perovskites;
 - c) development of high quality ZnO nanomaterials prospective for light harvesting devices;
 - d) fabrication of perovskite- and ZnO-based thin film layers and optoelectronic devices;
 - e) characterization of physicochemical properties of the resulting nanostructured materials.
- Scientific initiative and contribution through regular reporting and publishing, as well as presenting at group meetings, national and international conferences.

- Cooperation with researchers, including communication with English-speaking colleagues
- Providing help and supervision to junior members of the group.
- Contribution to the efficient functioning of the lab including necessary administrative and organizational tasks.

Research Profile: First Stage Researcher (R1)

Main Research Field: chemistry

Career perspectives:

- Participation in high impact and timely research,
- Access to unique technology and modern research laboratories,
- Opportunity to work in a team of dedicated researchers and technologists,
- Opportunity to advance scientific knowledge and gain hands-on experience at the border between theory and experiment.
- Participation in international conferences
- Institute provides opportunity to participate in ERASMUS + programme

For additional job details: Contact <http://lewin.ch.pw.edu.pl>

Benefits:

Scholarship amount is up to **4 000 PLN*** (in case of students of Warsaw PhD School in Natural and BioMedical Sciences and affiliated with the Institute of Physical Chemistry PAS the scholarship will be paid in form of a PhD school scholarship and NCN supplementary NCN scholarship. In case of students being part of another PhD programme scholarship will be paid in full as NCN scholarship).

The position within the grant is for a period of **45 months**.

*under the condition that according to NCN regulations regarding Maestro 11 call a total amount of remuneration and scholarships received from the NCN funded source does not exceed 5 000 PLN per month. Scholarships funded within ETIUDA call as well remuneration of PI within PRELUDIUM call are excluded from the above limit.

Application Details:

- **Envisaged Job Starting Date: October 1st, 2020**
- **Application Deadline: August 31, 2020, 23:00**
- **How to Apply:** Send application directly to rekrutacja@ichf.edu.pl;
IMPORTANT: email title **“Rekrutacja nr 51/2020”**
- Additionally, if the applicant does not have a status of PhD student in Poland according to NCN regulation *“Regulations for awarding NCN scholarships for NCN-funded research projects”* (Annex to Resolution No 25/2019 of the NCN Council, 14.03.2019), to be eligible, the applicant is required to submit simultaneously their application to the online recruitment system of **Warszawska Szkoła Doktorska Nauk Ścisłych i BioMedycznych** [Warsaw Doctoral School “Warsaw-4-PhD” <http://warsaw4phd.pl>] **between 5th May and 18th of August 2020** (follow updates within the Candidates → Admission section).

Required Languages: English, **Language level:** good

Additional requirements

1. university degree in chemistry,
2. experience in laboratory work in the field of inorganic and coordination chemistry, and/or semiconductor nanomaterials, experience with the use of a Schlenk line and manipulation of air-sensitive compounds,
3. knowledge of spectroscopic methods: IR, NMR, UV-Vis, PL, DLS, and/or basics X-ray crystallography and/or electron microscopy,
4. good command in English, communication skills and predispositions to work in a team

Recruitment procedure:

Complete application should include the following items:

- scientific curriculum vitae, including a list of scientific achievements (scholarships, publications, patents, conference presentations, etc.).
- motivation letter
- at least one recommendation letter
- a transcript of the grades/credits received during the last stage of studies and grade point average

The best applicants will be invited for an interview (on-site or online) between **03.09 – 04.09 2020**.

The scholarship will be awarded in accordance with the NCN regulations: "*Regulations for awarding NCN scholarships for NCN-funded research projects*"

(Annex to Resolution No 25/2019 of the NCN Council, 14.03.2019:

https://www.ncn.gov.pl/sites/default/files/pliki/uchwaly-rady/2019/uchwala25_2019-zal1_ang.pdf) and in accordance with the Employment policy of the Institute of Physical Chemistry PAS

(http://ichf.edu.pl/employment_policy.pdf)

- The Commission will take into account the following criteria:
 - a) the candidate's competence to carry out specific tasks in the research project,
 - b) the candidate's research achievements, including publications in prestigious academic press /journals,
 - c) research-related achievements, scholarships, awards and research experience gained in Poland or abroad, research workshops and training courses, participation in research projects.
- The commission evaluates applications on a point scale. The scholarship will be awarded to the person who obtains the highest number of points.
- At the starting date of the work within the project, applicant should be enrolled to a doctoral school (within the meaning of the Act on Higher Education and Science of 20 July 20) or doctoral programme (within the meaning of the Act on Higher Education of 27 July 20).
- If the top candidate does not sign the contract, due to the resignation, we reserve the right to choose the next candidate from the ranking list.
- The results of the competition are made public.
- The Competition results shall be made known on **21 September 2020**.

- Scheduled date of starting work within the Project: **October 1st, 2020**

By submitting the application you consent to the processing of your personal data in the recruitment process.

The controller of your personal data is the Institute of Physical Chemistry of the Polish Academy of Sciences with its registered office in Warsaw, NIP: 5250008755 (the "Institute"). The Institute will process your data for the purpose of carrying out scientific and research activities, providing services and contact with the Institute, on the basis of a contract (in connection with the performance of the contract or in order to take action on your request before the contract is concluded – Article 6, paragraph 1, letter b) of GDPR), the legitimate interest of the Institute (Article 6, paragraph 1, letter f) of the GDPR) and legal provisions (Article 6, paragraph 1, letter c) of the GDPR) - depending on the circumstances.

You have the right to: request access to your data, receive a copy of it; rectify (correct) it; delete it; limit its processing; transfer it; lodge a complaint to the supervisory body; withdraw your consent for processing at any time (withdrawal of consent does not affect the lawfulness of the processing carried out prior to its withdrawal) or to lodge an objection to data processing. More information is available on the Institute's website.

http://ichf.edu.pl/gen_inf/gen_en/GDPR%20-%20General%20Information%20Clause.pdf