Warsaw 30.07.2020

Recruitment No 52/2020

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:

Metal halide perovskites (MHPs) have emerged as a new class of revolutionary optoelectronic semiconductors promising for various applications. Hybrid organic-inorganic perovskites of the type ABX3 are ionic crystals based on organic and inorganic components featuring mixed electronic-ionic conduction and constitute the core element of the newest generation of solar cells. Perovskites exhibit a number of phase transitions and their stability and various physicochemical parameters can be continuously tuned by the chemical composition engineering.

Chemical composition and morphology play a key role in governing halide perovskite properties and the respective solar cell devices. A demanding issue in regards of photovoltaic and photocatalytic systems is fabrication of halide perovskite micro/nanowires and nano/microtubes of various chemical compositions. **The ability to manipulate the composition, morphology, orientation, and properties of perovskite materials in a controllable manner using the mechanochemical and solution-mediated methods as well as the formation of mixed-cation low dimensional perovskite nanomaterials remains a significant challenge, that yet needs to be explored.**

Responsibilities:

- PhD student will be involved in the realization of the following research tasks:
  a) solid-state compositional engineering of novel lead and lead-free halide perovskites using the classical wet approach, and mechanochemistry and slow-chemistry approaches,
  b) development of controlled growth of metal halide perovskite materials with various morphologies
  c) in-situ monitoring of solid state formation and degradation mechanisms of halide perovskites in mechanochemical and slow-chemistry processes
  d) in-situ and ex-situ control of kinetics and reaction mechanism of mechanochemical reactions by spectroscopic and diffractometric techniques
  e) preparation of halide perovskite-based devices, like solar cells and photodetectors

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 52/2020"**

• 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, or related sciences

2. Experience in chemical laboratory work in the field of: (a) inorganic and coordination chemistry, (b) semiconductor materials, (c) hybrid materials and d) experience with manipulation of air-sensitive compounds .
3. Knowledge related to air-sensitive materials, solid-state reactions, spectroscopig methods (UV-VIS-NIR, NMR, FTIR, PL) and baics X-ray crystallography
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)

A scholarship agreement will be signed with successful applicants on condition that the Institute of Physical Chemistry signs the grant agreement with NSC."

- 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