



Warsaw 2018-12-04

ICHF 25/2018
Charge Transfer Processes in Hydrodynamic Systems group
PhD position
Number of positions available: 2

Job summary: Two full-time PhD positions available in the Institute of Physical Chemistry Polish Academy of Sciences within the National Centre for Research and Development, Lider 9 Project No. NCBiR 0138/L-9/2017 entitled "3D scaffolds with integrated multielectrode measurement setup for cell culture and pharmaceutical applications" (leader Dr Emilia Witkowska Nery).

Research Profile: First Stage Researcher (R1)

Job description: Within the project the candidates will develop a versatile platform which enables cell growth and electrochemical analysis in various points of the three dimensional culture. 3D cell cultures play a critical role in real time studies of mammalian physiology at a cellular level and are postulated to become a bridge between 2D in vitro models and experiments on animals. Models of this kind are able to mimic the in vivo environment, including the histologic, physiologic and functional properties of the tissues in question, much better than traditionally used planar cultures. However, at present difficulties in analysis of such complex 3D structures and complete lack of possibilities of their automation restrain full emergence of this technology.

The main goal of this project is to develop a device with electrodes integrated at various points of the 3D cell culture scaffold, which allow viability (through measurements of oxygen and glucose consumption) as well as analysis of neurotransmission. Proposed prototype will be easy to use (at a level of commercial electrophysiology equipment), allow culturing of various cell types, with the use of different hydrogel scaffolds. The final device will address two main groups i.e. scientists applying cell cultures to develop basic research (collaboration with the Nencki Institute of Experimental Biology) and pharmaceutical companies (Adamed Group). As no similar device exists the outcome of this project could potentially revolutionize the market of 3D cell culture.

Responsibilities:

For position 1 (architecture of the system): Preparation of simple electrode arrays from prefabricated components; fabrication of multielectrode grids through photolithography; optimization of the architecture of the device (number of electrodes, positioning); co-supervision of the development of the detector system); tests of electrochemical sensors and biosensors; analysis of metabolism of immortalized cell line (hepatocytes); test and validation of the final device in collaboration with pharmaceutical companies;

For position 2 (biological application): tests of electrochemical sensors and biosensors; integration of sensors into cell culture; analysis of metabolism of primary astrocytes (neurotoxicity studies); development of neural co-cultures; application of electrochemical sensors for the analysis of neurotransmission; test and validation of the final device in collaboration with neurobiological research institutes;

Career perspectives: Opportunity to work in an interdisciplinary research department with strong support from chemistry and physics group within the Institute. PhD students will have the opportunity to participate and present research results in national and international conferences, consult the outcomes of the project with industry (collaboration with Adamed group within the project) and gather international experience through short term research visits at collaborating institutions abroad.

Benefits: We offer two PhD positions in the Institute of Physical Chemistry PAS with gross salary of around **4000 PLN per month** financed from the NCBiR Lider project n^o 0138/L-9/2017 (financing for 36 months). In case of very good outcome of the recruitment exam, the salary might be increased by an additional PhD scholarship of around 2000 PLN per month.

Requirements:

For this role, we seek motivated candidates who will develop hardware and analytical methods (position 1) able to revolutionize cell culture industry and apply them to answer relevant neurobiological questions (position 2). To succeed in those tasks candidates should possess strong manual skills (work in clean room, fabrication and application of microelectrodes), ability to think outside the box and should be oriented towards solving real life problems (collaboration with users from industry and basic research).

Specific:

1. MSc in Chemistry, Physics, Biology, Electronics Biotechnology, Medicine, Biomedical Engineering (or related fields).
2. Experience/interest in electrochemistry is desirable for both positions.

For position 1 (architecture of the system) experience in electronics and engineering will be welcome;

For position 2 (biological application) experience in cell culture and neurobiology will be a plus.

Application Details:

Envisaged Job Starting Date: Feb 1st, 2019

Deadline for application: Jan 13th, 2019

How to Apply: Applications and any questions regarding the position should be sent by e-mail to:

rekrutacja@ichf.edu.pl; **IMPORTANT: email title “ICHF 25/2018”**

Recruitment procedure:

• Complete application should include the following items:

1. Cover letter (maximum 3500 characters), please state if You are interested in the first, second or both positions.
2. Professional curriculum vitae with a list of scientific achievements (publications, patents, research projects, conference presentations, etc.).
3. a scan or a photocopy of the candidates MSc diploma
4. At least one letter of recommendation written by an independent researcher (MSc supervisor etc.).
5. For candidates coming from countries other than Poland –a copy of a language certificate (at least B2 level of English is required)

6. Consent regarding the collection and processing of personal data (http://ichf.edu.pl/RODO_doktorant_zgoda_PL_EN.doc).

IMPORTANT: applications without the consent will not be considered

- Employment will take place in accordance with the **Employment policy of the Institute of Physical Chemistry PAS** (http://ichf.edu.pl/employment_policy.pdf);
- Incomplete applications may be not considered;
- Short listed candidates must go through an interview (or conference call) that will be held **on the 18th of January 2019. Good command of English is required. We reserve the right to contact and reply only to selected candidates.**
- The following criteria will be taken into account:
 - a) competences of candidates for specific tasks in the research project.
 - b) previous scientific achievements of candidates.
 - c) awards and distinctions of the candidate resulting from conducted research.
- **The results** of the recruitment will be announced on **January 21, 2019**.
- The results of the competition are made public. A candidate that does not agree with the results of the recruitment procedure has the right to appeal to the Director of the Institute within 7 days after receiving information about results.