



# Institute of Physics of the Polish Academy of Sciences Scholarship for a PhD Student



**Job ID: #JOB12/2022**

## Job Description

**Job Title:** PhD student – scholarship holder

**Job Summary:**

The PhD student will use methods of statistical and computational physics to study models of bio-membrane adhesion on a mesoscopic scale.

**Job Description:**

The PhD student will join the Division of Theoretical Physics at the Institute of Physics, Polish Academy of Sciences, to participate in the research project entitled “Cooperative and collective phenomena in cell membrane adhesion”. This project is supported by the National Science Centre of Poland within the international program SHENG-2 and carried out in collaboration with Nanjing University, China.

Cell membranes contain fluctuating nanoscale molecular clusters, or domains, enriched in sphingolipids, cholesterol, and proteins. These nanodomains are commonly termed “lipid rafts” and perform diverse biological functions – mostly in membrane signaling and trafficking. The physical mechanisms that underlie changes in the spatial distribution and dynamics of lipid rafts are a subject of intense research.

The objective of the PhD project will be to study the effects of membrane adhesion on the distribution of lipid rafts in adhering membranes and on the aggregation of raft-associated membrane receptors. The PhD student will perform Monte Carlo simulations and mean-field calculations within a mesoscale model of membrane adhesion.

**Requirements:**

- Master’s degree in physics or an equivalent that qualifies one for PhD studies in physics in the country of issue;
- knowledge of classical statistical mechanics;
- programming skills and knowledge the Linux environment;
- interest in molecular biophysics;
- communicativeness and good command of spoken and written English;
- diligence at work and consistency in achieving results;
- experience in Monte Carlo simulations will be considered an asset;
- to be employed, the candidate must be accepted into the PhD school in which the Institute of Physics participates. Applications for the position are through recruitment to the School, online at [warsaw4phd.eu](http://warsaw4phd.eu).

**Main research field:** Physics

**Sub Research Field:** Theoretical Biophysics

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

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

**Type of Contract:** Fixed term (30 months)

**Status:** Full-time

**Salary:** grant funding of 5000 PLN per month, before subtracting obligatory employer and employee social security contributions (~15%).

## Contact

More information can be obtained from

Bartosz Różycki (e-mail: [rozycki@ifpan.edu.pl](mailto:rozycki@ifpan.edu.pl))

<https://sites.google.com/view/bartosz-rozycki-biomembranes/research>

Please make contact.

## Application details

**Application deadline: 04.06.2022** Late applications will not be considered.

### Required materials:

- Scientific *CV*
- Cover letter
- Scan of M.Sc. diploma or equivalent (or an explanation of when one is expected)
- Academic record (for finalized semesters)
- Recommended: contact emails of two academics who can submit recommendation letters

**All materials should be submitted in electronic form by application to the PhD school [warsaw4phd.eu](http://warsaw4phd.eu), choosing the project: “*Mesoscale simulations of bio-membrane adhesion*”. The application system will be active from 21 May 2021. Results regarding the position will be made available by 11 July 2022.**