UNIWERSYTET WARSZAWSKI

NAWA POLISH NATIONAL AGENCY FOR ACADEMIC EXCHANGE

COMPETITION ANNOUNCEMENT

The Faculty of Physics announces a competition for the position of engineering and technical employee[1] in the project financed by the Polish National Agency for Academic Exchange titled: **'From Coarse Grains to Atoms and Back: A Rigorous Multiscale Modeling Approach to Diffusion Under Macromolecular Crowding'**.

About the programme/project/undertaking:

Title of project	From Coarse Grains to Atoms and Back: A Rigorous Multiscale Modeling Approach to Diffusion Under Macromolecular Crowding
Type of project	Polish Returns
Funding institution	Polish National Agency for Academic Exchange
Duration of project	36 months
Head of project	Dr. Tomasz Skóra
Description of project	Biomacromolecules in biological cells move chaotically, driven by countless collisions with solvent molecules. This Brownian motion macroscopically leads to the well-known phenomenon of diffusion. Multiple experiments have shown that this motion, although sharing the same mechanism as the movement of particles suspended in pure water, deviates from simple models. The main difference between dilute solutions and cells is the sheer number of macromolecules in the latter, leading to the so-called macromolecular crowding. The main goal of this project is to understand the microscopic mechanism of deviations from the Stokes-Einstein relation in crowded environments and their observed cancelation in vivo. This project will employ a multiscale approach that combines the strengths of molecular dynamics — all-atom resolution, explicit water — with the strengths of coarse-grained approaches — computational efficiency and enhanced interpretability. Coarse-grained models will be rigorously constructed based on the results of molecular dynamics simulations using a bottom-up coarse-graining methodology. Understanding this physics is essential for predicting the rates of diffusion-limited reactions in cells, including drug delivery.

Position details:

Position title	Engineering and technical employee
Organisational unit	Faculty of Physics
Employment group	Engineering and technical
Position profile[2]	R1
Academic discipline[3]	Physical sciences
Number of positions	1

1 The nouns used in the announcement apply to people of all genders.

2 Complete only in the case of competition for the position in the research employment group or the research and teaching employment group.

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Form of employment and length of working time (proportionally to full-time employment)	Employment contract. full-time employment
Expected date of commencement of work and employment period	1/3/2026, 31 months
Remuneration	Basic remuneration PLN 5040 gross/month plus the additional annual remuneration, allowance for years of service, supplementary remuneration PLN 4800 gross/month.
Other working conditions	Workplace: University of Warsaw, Faculty of Physics, Institute of Theoretical Physics, Department of Complex Systems Modeling
Basic responsibilities and obligations	– Preparation, conducting and analysis of molecular dynamics simulations of macromolecularly crowded systems. – Bottom-up coarse-graining of simulated systems. – Preparation, conducting and analysis of coarse-grained Brownian dynamics simulations of macromolecularly crowded systems. – Disseminating research finding through scientific articles and conferences. – Actively monitoring scientific literature and collaborating with the research group.
Requirements	– Master's degree in physics, chemistry, or related disciplines. – PhD student status at a Doctoral School.
In addition, we expect[4]	– Mathematical intuition and critical thinking. – Experience in molecular dynamics simulations and/or high performance computing. – Experience in programming (preferably python) and fluency in using linux. – Very good written and spoken English.
Criteria for the assessment of candidates in a competition	- Expertise, experience and scientific achievements, - Experience in molecular dynamics simulations and high performance computing. - Experience in programming and using linux, - Scientific communication in English during the interview.
Position not related[5] to activities covered by the protection of minors.	

Competition rules:

Keywords	biophysics, diffusion, macromolecular crowding, molecular dynamics, coarse-grained models.

4 Additional conditions to be met; however, not meeting them will not lead to a negative formal assessment.

5 Delete as appropriate.

Deadline for submitting applications[6]	31/12/2025
Method of submitting an application	Please send the applications to: Tomasz.Skora@fuw.edu.pl with the following subject: APPLICATION: FIRST NAME LAST NAME.
Required documents	– Certificate of PhD student status. – Copy of diploma confirming Master's degree. – Cover letter in English. – Supporting letter from a supervisor. – CV highlighting scientific achievements, scholarships, and awards. Please ensure that your application is complete and submitted by the deadline indicated!
The competition is the first stage of the recruitment process, please read the Policy of Open, Transparent and Merit-Based Recruitment at the University of Warsaw *link*	
Anticipated date and method of notification of the competition outcomes	15/1/2026, e-mail
Contact for any questions relating to the competition	Tomasz.Skora@fuw.edu.pl

The University of Warsaw has implemented the procedure for whistleblowers reporting cases of law violation and for undertaking follow-up actions. For **more information** about this topic and the processing of candidates' personal data please follow the *link*

The University of Warsaw is a winner of the HR Excellence in Research award granted by the European Commission to institutions adhering to the European Charter for Researchers.

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6 Not sooner than 30 days from the date of publication of the announcement.