

**CeNT-11-2024**

Director of Centre of New Technologies of the University of Warsaw, with the Project Leader, announce opening of the competition for the position of PhD Student in the Chemical and Biological Systems Simulation Lab – Centre of New Technologies of the University of Warsaw.

JOB OFFER

Position in the project:	PhD Student
Laboratory:	Chemical and Biological Systems Simulation Lab
Scientific discipline:	Chemical sciences
Keywords:	Computation, biological assemblies, spectroscopies, drug delivery
Job type (employment contract/stipend):	stipend
Part-time/full-time:	full-time
Number of job offers:	1
Remuneration/stipend amount/month:	PLN 5 000 gross gross per month until the mid-term evaluation in the Doctoral School PLN 6 000 gross gross per month after the mid-term evaluation in the Doctoral School
Position starts on:	01/05/2024 or soon after
Maximum period of contract/stipend agreement:	36 months, with the possibility of extension up to 48 months
Institution:	Centre of New Technologies, University of Warsaw
Project leader:	Silvio Osella
Project title:	Biomimetic micelles to enhance efficient drug delivery for nanomedicine applications
Financing:	PhD Student position shall be financed on the basis of the Collaboration Agreement between the University of Warsaw and the Wenzhou Institute, University of Chinese Academy of Sciences.
Project description:	The goal of the project is to design stable micelles mimicking the natural lipid micelles for drug delivery. We aim at increasing the efficiency of delivery towards a specific target through functionalization of the outer layer of the micelles. This is a joint experimental and computational project, developed together with Prof Li Huaqiong from the Wenzhou Institute, University of Chinese Academy of Sciences (China). In this project we will use 1: multiscale computational methods to describe the chemical and physical properties of biomimetic micelles; 2: synthesis and characterization of the



final systems (Prof Li Huaqiong, WIUCAS, China).

The computational part of the project will focus on 1. the design of biomimetic micelles with different functionalization to target specific cells/tissues. 2. Detailed study of the micelle-cell/tissue interaction. 3. Diffusion mechanism of the micelle to the target tissue/cell. 4 drug release mechanism.

The candidate will have the opportunity to visit Prof Huaqiong and perform experimental research, focused on 1. The synthesis of functionalized biomimetic micelles with certain cell/tissue targeting ability. 2. Characterization of these as-prepared materials. 3. In-vitro and/or in-vivo experiments (including cell and/or animal experiments) for the confirmation of biological functions.

Key responsibilities include:

Candidate will be involved in the following tasks: (i) molecular dynamic simulations of different biomimetic micelles in biological relevant environments. (ii) preparation and characterization of functional biomimetic micelles (iii) Experiments on cells and/or animals for the study of biological effects of as-prepared materials (iv) analyses of the collected data. (v) Participation in preparation of scientific publications. (vi) Active participation in group activities (seminars, tutorials).

Profile of candidates/requirements:

Candidate must meet the requirements of recruitment to the Doctoral School of Exact and Natural Sciences of the University of Warsaw.

Please visit the Doctoral School website for recruitment schedule and more details:

<https://szkolydoktorskie.uw.edu.pl/en/chemical-sciences-recruitment-2023-2024/>

- MSc degree in chemistry or related discipline. The MSc degree should be obtained before the date of starting work in the project.

Other requirements:

- knowledge of quantum chemistry and soft matter
- experience with quantum chemistry calculations (ab initio and/or classical molecular dynamics simulations)
- experience with organic synthesis and cell culture is welcome
- ability to work in a group (possibility to work on-line), curiosity and motivation to learn
- willingness to work in interdisciplinary and international teams
- fluency in written and spoken English



	<p>In practice:</p> <ul style="list-style-type: none">- we use quantum chemistry software – mainly Gromacs, lammps and Gaussian- we do calculations on HPC clusters (Unix, Linux environments),- we write our own scripts and software (mostly in Python, bash, Fortran) for data analysis <p>The willingness to work in such environment is expected. Also, general interests in mathematics, data science and quantum chemistry, are very welcome.</p> <p>In order to receive the stipend, the Candidate must successfully complete the recruitment process to the Doctoral School of Exact and Natural Sciences of the University of Warsaw and hold the PhD Student status.</p>
Required documents:	<ol style="list-style-type: none">1. Cover letter2. Current curriculum vitae3. Copy of MSc certificate (or, if the MSc certificate has not been obtained yet, a certificate/document about the date of MSc defense);4. Document confirming the status of PhD Student (to be provided before starting work in the project);5. Signed information on the personal data processing, available from: https://cent.uw.edu.pl/en/wp-content/uploads/sites/5/2020/11/Information-clause_personal-data-processing.pdf
We offer:	<ul style="list-style-type: none">- possibility to work in a newly established research group- possibility to work in international and interdisciplinary teams,- Stimulating and friendly work environment, attractive stipend, opportunity to work in an innovative international project- possibility to gain practical skills essential for future job market- possibility to work on-line
Please submit the following documents to:	E-mail: s.osella@cent.uw.edu.pl
Application deadline:	5/04/2024
Date of announcing the results:	10/04/2024
Method of notification about the results:	Email, website: https://cent.uw.edu.pl/en/career/