

FULL-TIME ACADEMIC POSITION IN COMPUTATIONAL MODELLING OF BIOMOLECULAR SYSTEMS (M/F)

BRUSSELS SCHOOL OF ENGINEERING

Reference : 2023/A011

Application deadline: 08/01/2023

Start date: 01/10/2023

Job description

The School of Engineering (Ecole Polytechnique de Bruxelles) of the Université Libre de Bruxelles (ULB) offers a full-time academic position in computational modelling of biomolecular systems.

Context

A mechanistic understanding of complex biological systems requires the consideration of multiple spatial and temporal scales, and their integration into holistic models or networks. Fluctuations play a major role in the dynamics of many of these processes and have to be considered to obtain a realistic description of these systems and their evolution. The large amounts of high-throughput biological data that are currently being produced, from the molecule to the organism scales, are an unprecedented source of information and a steppingstone to advance these issues.

To address the key challenges of biomolecular modelling, innovative mathematical, computational, and modelling approaches need to be developed.

In this context, the candidate should be an expert in the modelling of:

- Biomolecular systems (proteins, DNA, RNA, ...)
- Biological networks (interactome, gene regulatory networks, disease networks, ...)

and this expertise should cover multiples molecular scales.

He/she should also have a solid expertise in several of the following techniques:

- Physics-oriented multi-scale modelling
- Structural bioinformatics and biomolecular design
- Dynamical and stochastic modelling of complex systems
- Data-driven modelling of biological networks
- State-of-the-art machine learning techniques
- Evolutionary and coevolutionary techniques

Area of research

Transdisciplinary – bioinformatics, computational molecular biophysics, computational biology

Educational and scientific goals

The successful candidate is expected to integrate into the existing teaching activities of the Schools of Engineering and Bioengineering, and to develop new, top-level, scientific activities in collaboration with other groups of the Schools of Engineering and Bioengineering and the Faculty of Sciences, in particular with the ULB/VUB Interuniversity Institute of Bioinformatics in Brussels ((IB)²).

Teaching workload

The appointed academic will take the responsibility of parts of the following courses:

- In the Master 1 in Bioengineering and in the Master 2 in Biomedical Engineering
 - *Introduction à la bioinformatique et à ses applications (partim of 18h in a 5 ECTS course)*
- In the Master 1 in Bioinformatics and Modeling
 - *Biophysics and structural bioinformatics I (partim of 18h in a 5 ECTS course)*
 - *Biophysics and structural bioinformatics II (partim of 12h in a 5 ECTS course)*

After one year, the appointed academic will also take responsibility of a part of the following course:

- In the Bachelor 1 in Bioengineering
 - *Connaissances fondamentales et éléments de physique (partim of about 48h in a 10 ECTS course)*

She/he will also have the opportunity in the future to contribute to other existing courses in the chemistry, bioengineering, physics, biomedical or informatics departments of the School of Engineering.

Qualifications required :

PhD Degree (with doctoral thesis) in Engineering or in Sciences.

Skills required

- Applicants should have at least 4 years of research experience at the time of their recruitment.
- Post-doctoral experience and an excellent scientific record are required.
- Exchange periods outside of the applicants' home institution (during or after their PhD) will be taken into consideration when evaluating applications.
- Experience in master and PhD thesis supervision, and grant submission and management are a plus.
- Applicants who do not speak French (level C1) may be granted a period of adaptation, but they must be able to teach in French at the end of the 3rd year following their appointment.
- Level C1 in English is expected. Candidates must be capable of teaching in English at the time of their appointment.

Interested ?

For more information, please contact Mr Frédéric Debaste (telephone: +32 2 650.67.56 – E-mail: frederic.debaste@ulb.be).

Applications must be sent by e-mail to the rectorate of the Université Libre de Bruxelles (rectrice@ulb.be) and to the faculty deanship (le-doyen-polytech@ulb.be).

They must include the following :

- an application letter
- a Curriculum vitae including a list of publications :
if you want you can complete a standard form via our website at <https://www.ulb.be/fr/documents-officiels/completer-votre-cv-en-ligne>. Once completed, it must be downloaded and attached to the application file.
- a 7,000-character report (4 pages) presenting the applicant's research activities and a research project, including how these will integrate into ULB's research teams
- a teaching dossier including a 7,000-character report (4 pages) on the applicant's previous teaching activities and a teaching project for the first five years in this position; these must be relevant to the faculty and to the teaching profiles for the programmes to which the applicant is to contribute
- a note on the applicant's international achievements and projects (no more than 4 pages)
- the names and e-mail addresses of five referees (respecting the gender balance) who may be contacted by those in charge of evaluating applications. These referees should not have conflicts of interest because of family or emotional ties.

The appointment to the academic staff of ULB is made at "Chargé de Cours" level. As of their appointment, members of academic staff are authorised to use the honorary title of "Professeur".

Equal opportunities policy

ULB's personnel management policy is geared towards diversity and equal opportunities.

We recruit candidates on the basis of their skills, irrespective of age, gender, sexual orientation, origin, nationality, beliefs, disability, etc.

Would you like to be provided with reasonable accommodation in the selection procedure because of a disability, disorder, or illness? Please contact Marie Botty, the person in charge of diversity aspects for the academic and scientific staff (marie.botty@ulb.be). Be assured of the confidentiality of this information.

More details on the ULB gender and diversity policy are available at [Diversity at ULB - ULB](#).

You will find all the regulations relating to academic careers on our site at <http://www.ulb.ac.be/emploi/academique.html>.