

FULL-TIME ACADEMIC POSITION IN NUCLEAR REACTOR PHYSICS AND SAFETY (M/F)

BRUSSELS SCHOOL OF ENGINEERING

Reference : 2024/A056

Application deadline: 06/11/2024

Start date: 01/10/2024

Job description

The School of Engineering (Ecole polytechnique de Bruxelles) of the Université libre de Bruxelles (ULB) offers a full-time academic position in nuclear reactor physics and safety.

Context

In the context of climate change and decarbonisation of the energy sector, nuclear energy is seen to be an essential ingredient of a future low-carbon energy mix (i.e. for the production of electricity, hydrogen, industrial heat...). Ongoing advances in nuclear reactor technology aim to develop and deploy a new generation of nuclear reactors, expected to be intrinsically safer and more sustainable in their efficient use of fuel resources and in their significantly reduced production of nuclear waste. Small Modular Reactors (SMRs) are recently receiving much interest, a.o. for their specific ability to contribute also to the decarbonisation of other sectors than electricity and for their expected replicability.

The Belgian federal government is funding a R&D effort on lead-cooled SMRs on the period 2023-2028, via the Belgian nuclear research centre SCK CEN that has gained a meaningful expertise in the lead technology. This effort also aims to strengthen the academic competences in nuclear engineering in Belgian universities. In this context, the ULB and VUB faculties of engineering, which are strongly collaborating in the joint organisation of several master programmes (see <http://www.bruface.eu>), decided to join forces in order to propose a joint full-time academic position for the period 2024-2028 as part of this large R&D effort. The candidate will be appointed at ULB, but he/she will be a focal point between the two faculties and SCK CEN, in order to mobilize research groups around various topics associated with this SMR R&D effort, to foster and drive joint research projects and to contribute to the educational programmes.

Additionally, the candidate will take part in regular joint meetings between SCK CEN and the partner universities in this R&D effort, in order to exchange information about the ongoing research and teaching activities at the different universities and SCK CEN, and to facilitate cross-fertilization and cooperation.

Considering the topic that has been selected for this full-time position, the candidate should be an expert in:

- Nuclear reactor physics
- Safety methodologies

He/she should also have additional expertise in several of the following domains:

- Multi-physics modelling for advanced reactor design
- Monte Carlo simulation for reactor core computations
- Nuclear fuel cycles
- Nuclear materials
- Nuclear waste management, decommissioning and dismantling

Area of research

Nuclear reactor physics, safety methodologies, with interest in some of the various topics listed above.

Educational and scientific goals

The successful candidate is expected to integrate into the existing teaching activities in nuclear engineering, to develop new, top-level, research activities within the department he/she will be attached to, and to mobilize other research groups from both ULB and VUB faculties around the SMR project.

Teaching workload

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

- In the Master 2 in Physics Engineering and in Electromechanical Engineering, option energy
 - *Advanced nuclear reactor multi-physics (partim in a 5-ECTS course)*
 - *Nuclear fuel cycles and reactor technologies (partim in a 5-ECTS course)*
- In the Master 1 in Physics Engineering and in the Master 2 in Electromechanical Engineering, option energy
 - *Monte Carlo methods (partim in a 3-ECTS course)*

She/he will also have the opportunity in the future to contribute to other existing courses related to nuclear engineering in the physics and electromechanical 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 the supervision of master and PhD theses, as well as in 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 in the medium term.
- 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 Pierre-Etienne LABEAU
(telephone: +32 2 650.20.60 – E-mail: pierre.etienne.labeau@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 articulate to ULB's and VUB's research teams and foster the scientific collaboration between ULB and VUB around the SMR research topic.
- 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 associé temporaire" 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>.