

! SOUS RESERVE DE L'APPROBATION DU CONSEIL ACADEMIQUE DU 24 FEVRIER 2025 !

CHAIR IN SUSTAINABLE ENGINEERING
FACULTY OF ENGINEERING (Ecole Polytechnique de Bruxelles)

Reference : 2025/A069

Application deadline: 14/03/2025

Start date: 01/10/2025

Job description

Occupancy: 100%

Description :

The chair is funded by the HELIOS Foundation ([Helios Foundation](#)), consisting of a 5-year funding with the possibility of stabilization as an Assistant Professor after the term. The chair will be part of the The SWIFT (Sustainable **W**orld Initiative & Fellowship for **T**ransformation) collective project (<https://swift.ulb.be/>) which aims the establishment of a multidisciplinary collective (https:

The chair's theme is centered on sustainable and integrated energy systems, encompassing the diverse range of technologies and approaches needed to achieve a carbon-neutral future. This includes the exploration of power-to-X technologies (like hydrogen or ammonia), alongside battery storage, grid integration of renewables, and sector-specific decarbonization strategies. The chair will be attached to the Ecole Polytechnique de Bruxelles (EPB).

The funding of two PhD students, under the co-supervision of the chair, is also provided by the HELIOS Foundation.

This position will leverage the advanced experimental equipment funded by the **EU's RePower program** at ULB in different departments of the EPB. This infrastructure includes a **PEM electrolyzer**, a **hydrogen piston engine** and **zero emission cycle**, a **fuel cell**, **battery test units**, a **DC-AC micro-grid**, and **electric mobility systems**, ... creating a unique platform for pioneering research. The chair will focus on optimizing the interaction between these technologies to enhance the global efficiency of future sustainable energy systems. Research will explore synergies and trade-offs between various energy carriers and technologies, such as hydrogen, batteries, and direct electrification, to identify optimal pathways for decarbonizing different sectors.

The chairholder will lead multidisciplinary initiatives, fostering collaboration with industry, academia, and policymakers to drive innovation in sustainable energy systems. This will involve bridging the gap between

experimental research and real-world applications, translating findings from the ULB's advanced energy research platform into practical solutions for decarbonizing various sectors. The chair will also play a key role in developing educational programs to train future engineers and researchers in the design, optimization, and management of integrated sustainable energy systems

This chair reflects a strong commitment to addressing the challenges of sustainable energy and positions ULB as a leader in the energy transition. The successful candidate will contribute to shaping innovative solutions that support the move towards a carbon-neutral energy future.

Position's Distinctive Features

Department Affiliation: The academic position will be attached to one of the electromechanical departments of the École Polytechnique, depending on the candidate's profile. Regardless of the specific affiliation, the candidate will be expected to leverage the advanced experimental equipment funded by the EU's RePower program at ULB, including a PEM electrolyzer, a hydrogen piston engine, a fuel cell, battery test units, a DC-AC micro-grid, and electric mobility systems, among others.

Teaching Load: No course tutorship is planned during the chair's 5-year term. However, the candidate could be asked to contribute to ex-cathedra courses, laboratory sessions, exercise classes and master thesis. The potential (non-exhaustive) list of courses includes Piston Engines (MECA-H420), Turbomachines (MECA-H402), Sustainable Energy (MECA-H417), Heat Transfer and Combustion (MECA-H418), Control System Design (MATH-H407), Renewable Energy Technology (MECA-H414), Electric Power Systems (ELEC-H413).

Qualifications required :

PhD in Engineering with a PhD thesis in one of the following areas: energy systems, hydrogen (or e-fuels-based) systems, renewable energy technologies, energy storage, power systems, electrical engineering with a focus on energy applications, or a closely related field.

Skills required

- Capability to teach in English (English C1).
- Fluency in French is an asset for this position. Candidates with a strong interest in further developing their French language skills while on the job are also encouraged to apply.
- At least four years of scientific experience (including the PhD) by the time of employment.
- Excellent scientific record in the field of power-to-hydrogen based energy systems or energy systems in general, possibly with results in both fundamental and applied research.
- Strong capacity to work as part of a team, as the chair will complement existing research at the EPB, aims at bridging expertise in the different departments
- Good capability to collaborate with colleagues, also from different fields and background.
- Commitment to work on attracting research funds to create an autonomous research group.
- Good teaching and pedagogical capabilities are a plus

Interested ?

For more information, please contact Prof. Alessandro PARENTE (telephone: +32 2 650.26.80 – E-mail: alessandro.parente@ulb.be). For information about the gender equality politics of the Faculty, please contact Prof. Alessia Cuccurullo (E-mail: alessia.cuccurullo@ulb.be).

Application Procedure

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

The applications must include the following documents:

- A motivation letter.
- A Curriculum Vitae including a list of publications : *(the CV type can be download at the URL: <https://www.ulb.be/fr/documents-officiels/emplois-academiques-et-scientifiques-cv-type>).*
- A research statement (4 pages maximum) presenting the applicant's research activities and a research project, including how these will integrate into ULB's research teams.
- A teaching dossier including (4 pages maximum) 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 programs to which the applicant is to contribute.
- A note on the applicant's international achievements and projects (4 pages maximum).
- The names and e-mail addresses of three 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.

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>.