



Job Posting

Recruiting organisation

University of Chemistry and Technology, Prague
(UCT Prague)
Laboratory of Energy Storage

Subproject title

Electrocatalytic activation of porous electrodes for redox flow batteries

Starting date

1st April 2026 (or earlier if preferred)

Salary

The Doctoral Network "SPACER" is financed by the European Union under the framework of the program HORIZON Europe, Marie Skłodowska-Curie Actions. The doctoral candidate will be hired for 36 months under contract by University of Chemistry and Technology, Prague, with a monthly gross salary of approx. 3350,8 € (including mobility allowance, but excluding other allowances that depend on eligibility, e.g. family allowance, special needs allowance).

Background Information

Marie Skłodowska-Curie Doctoral Networks are joint research and training projects funded by the European Union. Funding is provided for doctoral candidates from both inside and outside Europe to carry out individual project work in a European country other than their own. The training network "SPACER" is made up of 21 partners, coordinated by Fraunhofer ICT in Germany. The network will recruit a total of 17 doctoral candidates for project work lasting for 36 months.

SPACER aims to develop new architectures for porous electrodes to improve the power density and energy efficiency of redox flow batteries (RFB), enabling affordable and durable long-duration energy storage. The approach is to use hierarchical structures, i.e. complex material layers that can be optimized to specific battery chemistries and flow phenomena from the microscale up. The developed technologies will be validated in half-cells and full working batteries at industrial partners at TRL 6.

Our objectives

- Multiscale **modelling** to better understand RFB behavior and identify optimal hierarchical shaped pore- and electrode-structure to encounter optimum electrolyte as well as electrical flow.
- **Prototyping** of the identified structures via stereolithographic, 3D printing and textile techniques like tufting, machine-based embroidery techniques or non-interlaced 3D pre-forming.
- Development of **advanced imaging and characterization technologies** (X-ray micro tomography, EPR imaging and spectroscopy) to evaluate performance of electrodes and to map electrolyte chemical composition in micrometer resolution, allowing validation of the model predictions.
- **Validation and evaluation** of the RFBs with optimized hierarchical electrodes.

Job Description

The advertised subproject is fully funded by the Marie Skłodowska-Curie European Training Network "SPACER". It will be carried out by one doctoral candidate at the University of Chemistry and Technology, Prague, over a period of 36 months.

The doctoral candidate will be enrolled in a PhD programme Chemical and Process Engineering. The PhD research will be carried out under the supervision of Dr. Petr Mazúr, with the following objectives: 1) Design and validation of a complex electrochemical/ physicochemical methodology for RFB electrode characterization reactivity of carbon electrode materials/ activation of electrodes (felts, papers), 2) Testing of novel electrode materials developed within the ETN project using the validated methodology, 3) Studies on in situ electrochemical procedures for electrode activation and regeneration of catalytic activity fades due to battery operation (re-activation).

As part of the research, the doctoral candidate will be seconded for 1-2 months to three SPACER partner institutions: Fraunhofer ICT, Technical University of Denmark (DTU) and University of Innsbruck (UIN).



Job Posting

Benefits

The recruited researcher will have the opportunity to work as part of an international, interdisciplinary team of 17 doctoral candidates, based at universities and industrial firms throughout Europe. She/he will be supported by two mentors within the SPACER project, and will have multiple opportunities to participate in professional and personal development training. Through her/his work she/he will gain a unique skill-set at the interface between modelling and prototyping of electrode materials, including characterization of electrodes using spectroscopical and electrochemical techniques at different levels from micro-scale to macro-scale.

She/he is expected to finish the project with a PhD thesis and to disseminate the results through patents (if applicable), publications in peer-reviewed journals and presentations at international conferences.

UCT Prague is one of the largest higher education institutions devoted to teaching and research in a wide range of chemistry areas, including material science and (electro)chemical engineering. The host group Laboratory of Energy Storage at Department of Chemical Engineering deals with the research and development in the field of flow electrochemical converters, particularly redox flow batteries.

The recruited researcher will be enrolled in a PhD programme at the Faculty of Chemical Engineering, one of the four UCT faculties, and employed full-time for 36 months in the framework of the SPACER project. The employment contract includes 40-hour working week, flexible working hours, 6 weeks of vacation, meals allowance, access to in-house language courses and also to institutional childcare. Assistance with relocation and other formalities is provided by experienced staff of the Welcome Centre.

UCT facilities, including labs, are located in the city of Prague, with excellent transport connection to the city centre (just three metro stations off the Old Town) and the airport.

Requirements

Qualifications/experience

- In accordance with the European Union's funding rules for doctoral networks, applicants must NOT yet have a PhD.
- Degree allowing for enrolment in a PhD programme (at the latest on the expected starting date of employment) in chemical technology, chemical

engineering, material science, nano-materials or related areas.

- Very good command of written and spoken English.
- Motivation, communication and cooperation skills, pro-active and responsible attitude.

Mobility:

The applicant must not have resided or carried out her/ his main activity (work, studies etc.) in the Czech Republic for more than 12 months in the past 3 years.

How to apply

Please send the following in a single pdf file, by e-mail to Dr. Petr Mazúr and also in CC to prof. Juraj Kosek, quoting the reference "PhD position SPACER" in subject of the email: mazurp@vscht.cz and jkk@vscht.cz.

1. CV providing details of your education and research interests, 2 reference contacts and, if applicable, also any professional experience, contribution to publications and other relevant achievements;
2. Motivation letter of max. 1 page, covering the reason for application, relevant skills and abilities, professional interests and expectations;

Online interviews will be held with shortlisted candidates in October 2025. All candidates will be informed about the outcome of the preselection. A second round of interviews may be organized with selected candidates.

By providing your personal data in your application, you give consent to the University of Chemistry and Technology Prague to process and file the provided documents for the purposes of this selection procedure. At the same time you confirm that your personal data in the submitted documents is true and accurate.

Application deadline: 30th September 2025