Job Posting

Recruiting organisation

Pinflow energy storage, s.r.o.

Subproject title

Fast characterisation and demonstration of optimised electrodes

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 Pinflow energy storage, s.r.o., with a monthly gross salary of approx. 3350 € (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 Pinflow energy storage, s.r.o., (PhD supervision at University of Chemistry and Technology, Prague) over a period of 36 months.

The Pinflow energy storage, s.r.o. is a Czech startup commercializing flow electrochemical systems, founded after more than 9 years of development of vanadium-based flow batteries at prestigious Czech universities. Pinflow develops and manufactures vanadium redox flow battery components and systems, with stacks operating at a current density of 250 mA cm^{-2} with 80% DC-DC efficiency. Pinflow also supplies proven R&D and quality-control systems (over 80 installations worldwide) and provides expert advisory in electrochemistry and electrochemical engineering. The multidisciplinary team of 20+ colleagues is based in Pilsen, just 100 km from Prague, combining a friendly startup atmosphere with high-level technical expertise.

Job Posting

The doctoral candidate will receive training through formal courses held by UCT Prague. The doctoral candidate will complete 3 compulsory relevant subjects in the field of chemical engineering which are relevant to his/her thesis and attend an internation conference. This training is offered by UCT Prague and the Academy of Science of Czech Republic in Prague. Further training will be provided by other project partners.

The individual project of the doctoral candidate *Fast characterization and demonstration of optimized electrodes* has subsequent objectives:

- Innovative cell assembly for rapid screening
- CFD models for description of cell assemblies with different electrode materials
- Optimised internal cell structure for different electrode materials
- Demonstration of batteries with optimised electrodes

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.

Be part of Pinflow offers friendly startup atmosphere, flexible working hours, advantages of living in a vibrant mid-sized city and possibilities of subsequent collaboration.

Requirements

Qualifications/experience

- In accordance with the European Union's funding rules for doctoral networks, applicants must NOT yet have a PhD
- Master's degree in chemistry, material science, chemical process engineering, mathematical modelling or a related discipline
- Experience with CFD modelling
- Interest in experimental electrochemistry (lab work)
- Willingness to cooperate with project partners, who perform modelling and data management, to report results in conferences and project meetings
- Self-motivation, ability to manage multiple priorities, active approach, well-structured working style as well as ability to contribute effectively to the cross-disciplinary team
- Fluency in English

Mobility

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

How to apply

Please send your CV by e-mail (preferred) or by post, quoting the reference SPACER-DC5-PIN:

Kateřina Vránová

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Application deadline: 31st October 2025