



Job Posting

Recruiting organisation

Elestor BV

Subproject title

Electrodes for hydrogen-iron flow batteries

Starting date

April 1st 2026, or earlier if possible

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 Elestor BV, with a monthly gross salary of approx. € 3.059 - € 3.881 (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, such as Elestor, 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 Elestor BV, with PhD supervision at TU/e *Department of Chemical Engineering and Chemistry*, over a period of 36 months.

The goal of this doctoral thesis is to investigate new porous electrodes to improve the power density and energy efficiency of **hydrogen-iron flow batteries**. You'll investigate the influence of electrode composition and morphology on the performance and durability properties of Elestor's electrodes.

Specifically, your research will focus on:

- 1) Enhanced protection of the electrocatalyst on the hydrogen side to increase lifetime, e.g. by an ionomer nanostructure or protective coatings.
- 2) Investigation of the mass transport - surface area trade-off to enhance performance.
- 3) Once there is measured proof of improved robustness and performance in hydrogen-iron flow battery cells, the optimized electrodes will be prepared using a scalable mass electrode production process with reduced energy consumption to reduce cost.



Job Posting

Benefits

You'll have the opportunity to work as part of an international, interdisciplinary team of 17 doctoral candidates, based at universities and industrial firms throughout Europe. You'll be supported by two mentors within the SPACER project, and will have multiple opportunities to participate in professional and personal development training. Through your work you'll gain an 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.

You're expected to finish the project with a PhD thesis and to disseminate the results through patents, publications in peer-reviewed journals and presentations at international conferences.

As one of the most innovative companies in The Netherlands, Elestor offers exciting and competitive career opportunities with plenty of scope for both personal and professional development! Elestor is an **equal opportunities** employer: We believe diversity aids creativity and innovation, so whatever your race, colour, nationality, national or ethnic origin, sex, gender, marital status, religion, age, sexual orientation or disability, you are welcome to join our ranks. We actively promote inclusion and we abhor discrimination. We treat all our employees, contractors, workers, job applicants, suppliers, clients and everyone else with respect. Elestor offers an open, action-oriented and exciting working environment in a diverse and international team of highly skilled professionals. The company has a flat management structure and offers many opportunities to excel and grow. Terms of employment include participation in a **Stock Appreciation Rights** (SAR) program. When we succeed, we all benefit. Especially in caring for what we share the most: a healthy planet.

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 Materials Science, Chemical Engineering, Chemistry, Physics or a related discipline.
- Experienced and interested in working in a **laboratory**. Familiarity with instrumental analytical

techniques in electrochemistry, surface chemistry and chemistry.

- Knowledge about fuel cell, electrolyser and/or **flow battery** systems.
- Self-motivation, well-structured **working style** as well as ability to contribute effectively to the team.
- Good networking skills. Next to working with the Elestor team, you're given the opportunity to work as part of an international, interdisciplinary team of in total 17 doctoral candidates, based at universities and companies throughout Europe. Using your **'people skills'**, you can build a highly valuable professional network in a short amount of time. We're looking for a candidate with team spirit and the ability to help create and extend this pan-European network.
- An **entrepreneurial** mindset. This is an in-company PhD position, with a clear aim to bring the new technology to the market soonest. So if you're able to think science and business at the same time, this is the right PhD opportunity for you!
- The ideal candidate is eager to learn and thrives effortlessly in the Elestor culture (with a positive mindset, agility, and proactiveness). You possess technical **creativity**, curiosity, and a drive to investigate, translate and implement best practices and solutions from other (non-)established industries.
- Excellent written and oral **communication** skills in English are a prerequisite.
- You're given the opportunity to **work abroad** at two of our project partners during planned secondments at Fraunhofer ICT for one month, and at Prague University of Chemistry and Technology for two months.

Mobility

You must not have resided or carried out your main activity (work, studies etc.) in The Netherlands for more than 12 months in the past 3 years.

How to apply

Please send your application by e-mail to **hrm@elestor.com**, quoting the reference SPACER-DC4-ELE. Your application should include:

- a motivation letter.
- a curriculum vitae (including contact details of at least two references).
- a list of BSc and MSc courses and grades.

We look forward to receiving your application and will screen it as soon as possible.

Application deadline: 24th November 2025