

Job title :	Post-doctoral researcher on AEM water electrolysis modelling (M/W)
Reason for the request :	Job creation
Source of funding :	Mines – from own funds
Recruitment type :	Mobility within the company and external hire
The job :	<p>The production of low-carbon hydrogen is crucial for the decarbonization of both existing and emerging uses of hydrogen in the industry and transport sectors. Water electrolysis allows the production of hydrogen from low-carbon electricity. Anion exchange membrane electrolysis (AEMWE) is a less mature technology which is expected to combine the advantages of both alkaline (AWE) and proton exchange membrane (PEMWE) water electrolysis. As AWE it does not require platinum-group metals, and it is compact and can be operated flexibly as PEMWE. However, the durability of AEMWE components is still an obstacle towards the deployment of this technology.</p> <p>Your environment:</p> <p>You will join the Material and Processes team of the PERSEE research center of Mines Paris – PSL. This team has been working on hydrogen technologies for more than 30 years, with activities on the development of advanced materials and new system architectures, supported by experimental characterization and modelling capabilities.</p> <p>Your challenges and responsibilities:</p> <ul style="list-style-type: none"> • Conduct a comprehensive literature review on AEMWE modeling and degradation to understand the state-of-the-art and identify gaps on degradation modeling. • Develop and refine 0D physics-based models to simulate AEMWE processes in Python, including transient mass transfer, heat transfer, electrochemical reactions, and degradation mechanisms, with a particular attention to model calibration and validation. • Gather and analyze experimental data from project partners to build a robust database for model training and testing. • Contribute to the development and maintenance of the open source modeling platform marapendi, ensuring that the developed models are integrated, documented and accessible. • Support the development of data-driven and hybrid models by project partners by providing extended training data and insights from physics-based models, as well as exploring innovative ways to couple physics-based and data-driven models. • Document the development process and results, contributing to the writing of project reports and scientific publications.

<p><u>The Profile :</u></p>	<p>The main skills required for this position are:</p> <p>Knowledge and skills:</p> <ul style="list-style-type: none"> • Strong knowledge in electrochemical and/or heat and mass transfer processes, with a focus on modelling. • Experience with electrochemical systems, especially electrolysis systems. • Knowledge of Python for scientific computing, data analysis and data visualization. • Knowledge of version control systems, particularly Git. <p>Soft skills:</p> <ul style="list-style-type: none"> • Strong analytical and problem-solving abilities. • Ability to work on multidisciplinary topics. • Ability to manage time effectively and prioritize tasks. • Excellent communication skills, both written and verbal. <p>...And about us! Working at Mines Paris - PSL also means:</p> <ul style="list-style-type: none"> • Joining a prestigious institution with a rich history. • Playing a part in the digital transition and the transition to carbon neutrality to tackle the climate emergency. • Belonging to PSL University, ranked 33rd in the Academic Ranking of World Universities. <p>Mines Paris – PSL is committed to supporting and promoting equality, diversity, and inclusion through an open and transparent recruitment process.</p> <p>Mines Paris – PSL is also committed to promoting the professional integration and career development of people with disabilities.</p>
<p><u>Management :</u></p>	<p><i>(Specify whether the position involves hierarchical management)</i></p> <p><input checked="" type="checkbox"/> No <input type="checkbox"/> Yes</p>

	If yes, how many direct reports will be managed ? : <input checked="" type="checkbox"/>
<u>Job location :</u>	Centre Persée 1 Rue Claude Daunesse, 06904 Sophia-Antipolis
<u>Contract type :</u>	Post-doctoral If fixed-term, duration: 12 months
<u>Starting date :</u>	01/09/2025
<u>Working time :</u>	Full-time day rate
<u>Specific working conditions :</u>	
<u>Teleworking :</u>	Partial teleworking

To apply : job-ref-zd1oqiqque@emploi.beetween.com