



Postdoc/Research Engineer Position:
Development of Thermo-electrochemical Cell Based on Ionic Liquids and Ferrofluids

Location: Condensed Matter Physics Department (<http://iramis.cea.fr/spec/SPHYNX/indexEN.php>)
CEA-Commissariat à l'Énergie Atomique et aux Énergies Alternatives, Saclay, France.

Field(s): Electrochemistry, Physical Chemistry, Material Sciences, Energy Science

Duration: 18 months or until Dec. 31, 2020

Starting date: As soon as possible

We invite applications from recent PhD's and experienced engineers with electrochemistry or physical chemistry background to investigate various aspects of thermo-electrochemical (liquid) cell development. The position is part of a European research project MAGENTA (<https://www.magenta-h2020.eu>) to develop novel thermo-electrochemical technology based on ionic-liquid based ferrofluids* for waste-heat recovery applications. The project will focus on the characterization and optimization of electrode materials, redox couples, cell geometry and their compatibility with the ionic-liquid ferrofluids developed within the project. Only the serious candidates with hands-on experience in electrochemical characterization techniques applied to liquid electrolytes (redox chemistry, impedance spectroscopy, electrode development, etc.). The applicant must possess proficiency in written/oral communication skills in English (and French, if possible) and the ability to publish and disseminate high-quality research in peer-reviewed journals.

*ferrofluids: dispersions of magnetic nanoparticles in liquid media

ESSENTIAL RESPONSIBILITIES:

- Characterize electrochemical and thermoelectric properties of ionic liquids and ferrofluids.
- Optimize electrode materials, redox couples, electrolytes and their combinations to maximize the thermoelectric efficiency of liquids.
- Collect and analyze experimental data, prepare research publications in peer-reviewed scientific journals, and communicate results at professional meetings and conferences.
- Develop prototype thermo-electrochemical cells

QUALIFICATIONS:

- Ph.D. in Physical Chemistry, Electrochemistry, Materials Science, or related field.
- Knowledge of liquid electrochemistry and experimental tools commonly used in the field.
- Experience in ionic liquids and/or electrode material development is a definite plus.
- Ability to communicate results effectively, both oral and written in the frame work of multi-partner collaborative research.
- Ability to address both fundamental and applied science questions and to devise creative solutions outside of established scientific fields.

HOW TO APPLY:

Interested candidate should submit application via email (CV, cover letter and reference information) to Dr. Saco Nakamae (sawako.nakamae@cea.fr).

CEA is located in Saclay, 25km south of Paris, France. CEA is an equal opportunity employer.