

Postdoc Position: Thermoelectricity in Ferrofluids and Ionic Liquids

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

Duration: 1.5 year + 0.5 year (upon renewal)

Starting date/Application deadline: Feb 15th, 2017/Open until filled

Condensed Matter Physics division (SPEC) of Commissariat à l'Énergie Atomique (French National Atomic Energy Center in Saclay, <http://iramis.cea.fr/spec/>) invites applications from recent PhD's for a postdoctoral research associate position to investigate the thermoelectric, thermal and electrical transport properties of ionic liquid-based ferrofluids. The position is part of a European research project to achieve high *figure of merit* (*i.e.*, the measure of heat-to-electric energy conversion efficiency) in ionic-liquid based ferrofluids for waste-heat recovery applications. The post-doctoral project will focus on the characterization of transport properties (thermal, electrical and thermoelectrical) and on understanding the fundamental aspects of entropy and charge transports in ferrofluids and their implementation in prototype devices.

The ideal candidate will have a strong experimental background in Physical Chemistry, Electrochemistry, Materials Science or Physics with hands-on experience on liquid electrolytes, ionic liquids and/or nanofluids. In addition to technical skills, we seek a candidate who can work both independently and collaboratively in both academic and industrial settings. The applicant must have good linguistic skills and readiness in English (and French, if possible) effective written/oral communication skills, demonstrated ability to publish and disseminate high-quality research in peer-reviewed journals.

ESSENTIAL RESPONSIBILITIES:

- Develop and characterize thermal, electrical and thermoelectric transport properties in conducting liquids.
- Optimize solvent/ion 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.
- Devise alternative and creative solutions to meet project goals.

QUALIFICATIONS:

- Ph.D. in Physical Chemistry, Electrochemistry, Materials Science, or related field.
- Knowledge of liquid electrochemistry and experimental tools commonly used in the field.
- Significant experience in conducting liquids (experimental).
- Ability to communicate results effectively, both oral and written.
- Ability to work outside established field of expertise.
- Demonstrated ability to work independently.

HOW TO APPLY:

Please submit in a single attachment; your resume/CV and a cover letter describing your research background and interests via email to [Dr. Saco Nakamae \(sawako.nakamae@cea.fr\)](mailto:Dr. Saco Nakamae).

The Commissariat à l'Énergie Atomique (CEA) is the French Atomic Energy Commission located in Saclay, France, 25km south of Paris. (<http://iramis.cea.fr/spec/SPHYNX/indexEN.php>)