SLAC NATIONAL ACCELERATOR LABORATORY
2575 Sand Hill Road Menlo Park, CA 94025 slac.stanford.edu
Operated by Stanford University for the U.S. Department of Energy

Postdoctoral Scholar - Characterization of Emerging Anodes for Solid Oxide Electrolysis Cells

Position Overview:

The Stanford Synchrotron Radiation Lightsource (SSRL), a directorate of SLAC National Accelerator Laboratory, and research facility operated by Stanford University, seeks a Ph.D. Postdoctoral Scholar to work within the research group of Dr. Nicholas Strange (https://web.slac.stanford.edu/strangegroup). The candidate will be expected to apply synchrotron X-ray diffraction to characterize the crystalline structures of high entropy perovskite oxides (HEPOs) and identify structural changes associated with thermal processing and high temperature electrolysis-based aging. The candidate will also be tasked with characterizing ionic and electronic conductivities of newly developed HEPOs.

The postdoctoral scholar position will be supported by a project funded through the DOE Hydrogen Fuel Cell Technologies Office (HFTO). This is a two-year appointment effective immediately, with the possibility of an extension for one additional year. The postdoc will work within a rich scientific environment at SLAC and Stanford University. This role will support a multi-laboratory project involving SLAC (SSRL and SUNCAT), the Zheng group (https://zhenglab.stanford.edu/) at Stanford University, and Lawrence Berkeley National Laboratory. They will have opportunities to author collaborative manuscripts and present results at conferences/project meetings.

Desired Qualifications:

The candidate should possess experience leveraging scattering techniques (X-ray, neutron, or electron-based) for characterizing crystalline structures and performing quantitative phases analyses using the Rietveld method OR experience determining oxide and electronic conductivities of metal oxides (preferably as a function of temperature).

Specific Responsibilities:

- Perform and analyze X-ray diffraction measurements at SSRL associated with as-synthesized and thermally aged HEPOs, and assembled/operated SOEC button cells
- Thermally age HEPO powders with solid electrolyte and Cr-poisoning materials
- Perform and analyze high temperature (~750 °C) electrochemical impedance spectroscopy (EIS) measurements to derive electronic and ionic conductivities from new HEPOs.
- Routine documentation of results and analysis including summaries for reports, contributions to manuscript drafts, and project or conference presentations

Application Instructions:

Interested candidates should contact Nicholas Strange, nstrange@slac.stanford.edu, with “SOEC postdoctoral scholar application” in the subject heading. Applicants should also include a cover letter, a curriculum vitae, a list of publications, and names of three references for letters of recommendation with the application.

SLAC employee competencies:

- Effective Decisions: Uses job knowledge and solid judgment to make quality decisions in a timely manner.
- Self-Development: Pursues a variety of venues and opportunities to continue learning and developing.
- Dependability: Can be counted on to deliver results with a sense of personal responsibility for expected outcomes.
- Initiative: Pursues work and interactions proactively with optimism, positive energy, and motivation to move things forward.
- Adaptability: Flexes as needed when change occurs, maintains an open outlook while adjusting and accommodating changes.
- Communication: Ensures effective information flow to various audiences and creates and delivers clear, appropriate written, spoken, presented messages.
- Relationships: Builds relationships to foster trust, collaboration, and a positive climate to achieve common goals.

Physical requirements and working conditions:

- Consistent with its obligations under the law, the University will provide reasonable accommodation to any employee with a disability who requires accommodation to perform the essential functions of the job.

Work Standards:

- Interpersonal Skills: Demonstrates the ability to work well with Stanford colleagues and clients and with external organizations.
- Promote Culture of Safety: Demonstrates commitment to personal responsibility and value for environment, safety and security; communicates related concerns; uses and promotes safe behaviors based on training and lessons learned. Meets the applicable roles and responsibilities as described in the ESH Manual, Chapter 1—General Policy and Responsibilities: http://www-group.slac.stanford.edu/esh/eshmanual/pdfs/ESHch01.pdf
- Subject to and expected to comply with all applicable University policies and procedures, including but not limited to the personnel policies and other policies found in the University's Administrative Guide (http://adminguide.stanford.edu)