
Postdoctoral Scholar –Fast Charging Battery Materials X-ray Characterization

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 with a strong background in powder diffraction to develop time-resolved, multimodal X-ray characterization applied to fast charging batteries within the research group of Dr. Molleigh Preefer. The role includes applying pseudo-simultaneous synchrotron X-ray diffraction and X-ray absorption spectroscopy to understand complex charge storage mechanisms in exploratory fast charging battery materials under realistic operating conditions, with the ultimate goal of implementing *in situ* resonant diffraction.

The postdoctoral scholar position is a two-year appointment supported by the Laboratory Directed Research & Development program at SLAC. This is a collaborative role within a diverse team of scientists involving multiple directorates at SLAC (SSRL and Energy Sciences) and the Griffith group at UC San Diego, working together to execute a closed-loop accelerated materials discovery platform. The postdoctoral scholar will have opportunities to publish lead-author manuscripts and present results at conferences toward building a career in energy science, X-ray science, and/or professorship.

Desired Qualifications:

The candidate should have experience leveraging scattering and/or spectroscopy techniques (X-ray or neutron). Experience characterizing crystalline structures, performing quantitative phase analyses using the Rietveld method, and experience analyzing large datasets are highly desired. Battery/electrochemistry experience is not required, and there will be opportunities to cross-train in this area.

Specific Responsibilities:

- Perform and analyze X-ray diffraction and X-ray absorption spectroscopy measurements at SSRL on operating pouch cell batteries fabricated in-house.
- Method development of multimodal X-ray characterization toward simultaneous XRD/XAS measurements and resonant diffraction.
- Develop data analysis pipelines for large, correlated datasets using Python or similar.
- Collaborate closely with experimental and computational collaborators.
- 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 Molleigh Preefer, molleigh@slac.stanford.edu, with "Postdoc application: fast charging batteries" in the subject heading. Applicants should include a cover letter in the body of the email, include names of three references who can be contacted for letters of recommendation, and attach a curriculum vitae with a complete list of publications.

To be successful in this position you will bring:

- PhD in materials science, chemistry, physics or related field.
- Research experience with synchrotron and/or neutron characterization.
- Experience in electrochemistry is helpful but not required.
- Strong experimental, analytical and computation skills.
- Broad scientific interests and willingness to learn new skills.
- Effective written and verbal communication skills.
- Ability to work and communicate effectively with a diverse population; good interpersonal skills are essential.
- Ability to work independently and in a team environment.

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 their job.
- Given the nature of this position, SLAC will require onsite work.

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>)