Postdoctoral Scholar - Modulation Excitation X-ray Spectroscopy

The Stanford Synchrotron Radiation Lightsource (SSRL) at SLAC National Accelerator Laboratory is seeking immediately a **Postdoctoral Scholar** to join an ambitious **LDRD-funded project**. This role focuses on advancing **Modulation Excitation X-ray Absorption Spectroscopy (ME-XAS)** to redefine catalysis research, particularly for clean energy technologies.

Expertise in electrocatalysis is highly desirable, as the project aims to uncover mechanistic insights into catalytic pathways, such as CO_2 reduction. Equally critical are **exceptional programming and data analysis skills**, as the successful candidate will develop and apply advanced analytical tools to process large datasets, extract kinetic information, and interpret operando experimental results. Candidates should have **extensive daily exposure to coding and data analysis** during their Ph.D. research, demonstrating the ability to solve challenges through computational methods.

Position Overview

The selected candidate will:

- Develop advanced data acquisition systems and implement real-time processing algorithms for **modulation X-ray absorption spectroscopy**.
- Design and execute experiments to analyze transient interfacial species and kinetics with sub-millisecond resolution.
- Build and optimize experimental setups, including custom electrochemical cells, tailored for modulation excitation techniques.
- Apply **advanced analytical programming techniques** to interpret large, complex datasets and extract meaningful insights.
- Collaborate with a multidisciplinary team to streamline ME-XAS capabilities across SSRL beamlines for synchrotron user programs.

Key Attributes

We are looking for candidates who excel under pressure and are dedicated to delivering high-quality work within constrained timelines. Candidates must be:

- Have **daily, hands-on programming experience** applied to data analysis and experimental workflows.
- Proven experience with **X-ray Absorption Spectroscopy**.
- Excel in **high-intensity research environments** and are committed to delivering results within demanding timelines.
- Are passionate about combining experimental science with data-driven techniques to advance clean energy technologies.

Qualifications

- **Required**:
  - Ph.D. in **Physics, Chemistry, Materials Science, Chemical Engineering**, or a related field.
  - Extensive experience in **programming** (e.g., Python, MATLAB, or similar languages) applied to data acquisition, real-time processing, or data analysis.
  - Proven ability to apply **advanced data processing techniques** to large datasets as a routine part of research.

  - Background in **X-ray spectroscopy**, **electrochemistry**, or related experimental techniques.
  - Demonstrated ability to work independently and collaboratively in a fast-paced, multidisciplinary environment.
- **Preferred**:
  - Knowledge of electrocatalysis, especially in CO_2 or CO reduction pathways.
  - Extensive X-ray absorption spectroscopy experience
  - Experience with operando experimental setups, including custom electrochemical cells.

Why Join Us?
This role offers:
- A unique opportunity to lead the development of state-of-the-art spectroscopy methods for clean energy research.
- Access to **world-class facilities** and a collaborative, high-performance research environment at SLAC National Accelerator Laboratory and the Stanford University ecosystem.
- A challenging and rewarding position designed for individuals who thrive in data-intensive, high-stakes projects.

Appointment Terms
- This is a 1+1 year position, with the possibility of renewal based on performance and funding availability.
- The position is based at SLAC National Accelerator Laboratory, Menlo Park, CA.

How to Apply
Please submit:
1. A cover letter detailing your research experience and suitability for this role.
2. A curriculum vitae, including a list of publications.
3. Contact information for three professional references.

Applications will be reviewed on a rolling basis until the position is filled. For inquiries, contact **Dr. Dimosthenis Sokaras** at **dsokaras@slac.stanford.edu**

About SLAC
At SLAC National Accelerator Laboratory, our mission is guided by five core values:
- **Excellence**: Committing to the highest standards in safety, science, and operations.
- **Integrity**: Acting with honesty, accountability, and transparency.
- **Collaboration**: Fostering teamwork to achieve shared goals and maximize impact.
- **Respect**: Valuing the contributions of every individual and maintaining a welcoming culture.
- **Creativity**: Embracing new ideas and innovation with optimism and determination.

These values define who we are and drive our success in advancing scientific discovery and technological innovation.