Postdoctoral Position at SSRL for *in-situ/operando* Catalyst Characterization for Upcycling of Polymers

The Stanford Synchrotron Radiation Lightsource (SSRL), a Directorate of the SLAC National Accelerator Laboratory, Stanford University, and a national user facility, seeks a Ph.D. Postdoctoral Scholar with research interest and experience in Synchrotron based X-ray spectroscopy and theoretical tools for spectral interpretation.

Plastics have revolutionized modern life, but our reliance on these fossil-based materials that persist for centuries is causing a pollution crisis and contributing to anthropogenic greenhouse gas (GHG) emissions. To develop new technologies to address this problem, SLAC is participating as a partner laboratory within a consortium titled Bio-Optimized Technologies to keep Thermoplastics out of Landfills and the Environment, or BOTTLE. The vision for BOTTLE is to deliver selective, scalable technologies to enable cost-effective recycling, upcycling, and increased energy efficiency. The BOTTLE consortium brings together an interdisciplinary team of leading experts to enable consistent comparisons of chemical and biological catalysis for plastics deconstruction and upcycling, innovative new ideas for RBD plastics, and internally consistent analyses for plastics upcycling.

The successful 2-3 year postdoctoral candidate will work as an integral member of the BOTTLE team at SLAC to study the geometric and electronic structure of homogeneous and heterogenous catalytic systems using a combination of *in-situ/operando* hard- and soft-X-ray absorption spectroscopy, EXAFS, X-ray emission spectroscopy, resonant inelastic X-ray scattering, etc. and density functional theory methods. The overarching goal is to leverage the structural/electronic insights to better understand and facilitate polymer upcycling.
The candidate will participate with other BOTTLE team members to design *in-situ/operando* experimental characterization tools and utilize these tools to deeply understand the electronic transformations of catalytic systems that facilitate catalysis and use theoretical tools to predict and design improved, next generation catalysts.

Qualifications:

- Ph.D. in physics, chemistry, biomimetic and bioinorganic chemistry, materials sciences or related fields.
- Experience with all aspects of synchrotron X-ray absorption spectroscopy is a must, including demonstrated ability in data analysis, modeling and interpretation of XAFS data and its correlation to electronic structure from XANES and other spectroscopic techniques.
- Knowledge of how electronic properties tune catalysis and the ability to translate this knowledge to rational catalyst design is preferred. Understanding of *ex-situ* and *in-situ* advanced characterization techniques outside of, and in addition to synchrotron-based X-ray techniques will be preferred.
- Willingness to learn and bridge knowledge/experience gaps.
- Ability to work independently and in a team environment.
- Strong organizational skills is a must.

- Ability to work and communicate effectively with a diverse population; good interpersonal skills are essential.
- Effective written and verbal communication skills.

Please send a letter with CV and list of publications, and names of two references, to the address below:

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