

Postdoctoral Position at SSRL for *Advancing Plastics Circularity Through Advanced Characterization*

The Stanford Synchrotron Radiation Lightsource (SSRL), a Directorate of the SLAC National Accelerator Laboratory, Stanford University, and a national user facility, is seeking a postdoctoral scholar with research interest and experience in developing fundamental understanding of the polymer physics, through advanced characterization, which underlay end-use performance of novel circular commodity polymers or control process outcomes for chemical and biological recycling for current commodity polymers. A primary focus of this end use inspired research program is to translate fundamental understanding to improve functional properties of novel polymers or improve process outcomes, providing the opportunity to clearly link discovery to impact.

The postdoctoral scholar will work as part of the BOTTLE consortium team at SLAC. SLAC is a partner in the multi-institutional DOE consortium Bio-Optimized Technologies to keep Thermoplastics out of Landfills and the Environment (BOTTLE, www.bottle.org). The BOTTLE consortium brings together an interdisciplinary team of leading experts to develop scalable, cost-effective, and efficient processes to deconstruct and upcycle currently used plastics and to design new chemistries to create the recyclable-by-design plastics of the future. The consortium works with industry and other research organizations to combine efforts from the public and private sectors.

As a part of this consortium SLAC's role is to develop advanced multimodal characterization approaches in order to for the rational design of processes which improve process outcomes for both the processing of novel inherently circular polymers, as well as for the deconstruction. In this role we anticipate that the postdoctoral scholar will be utilizing a combination of x-ray scattering, and imaging approaches, rheology, mechanical testing, and electron microscopy in order to characterize polymer structure and its evolution during processing. We anticipate that an aspect of this work will include the collaborative development of forefront x-ray methods, such as x-ray photon correlation spectroscopy, total scattering methods and coherent imaging methods.

Qualifications:

- Ph.D. in chemistry, chemical engineering, physics, materials sciences, or related fields.
- Experience with polymer characterization (e.g TGA, GPC, Rheology, Mechanical Testing, IR)
- Experience with X-ray scattering experiments including data analysis, modeling, and interpretation of results.
- Understanding of principles of polymer physics, including molecular structure and dynamics, thermodynamics and phase behavior, mechanical properties, rheology and flow dynamics, and polymer solutions and interactions.
- Willingness to learn and to bridge knowledge/experience gaps necessary for the project.
- Ability to work both independently and in a team environment.

- Good interpersonal skills and ability to collaborate across teams and organizations.
- Effective written and verbal communication skills.
- Strong organizational skills.

This is a 2-year appointment with a start date of May 2024.

Please send a letter with CV, a list of publications, and the contact info for two references to Christopher J. Tassone, PhD tassone@slac.stanford.edu