Position Title: Researcher, Beamline Affiliate

Location: Advanced Light Source (ALS), Lawrence Berkeley National Laboratory, Berkeley, CA

Context: The "Synchrotron Earth and Environmental Science" or SEES project is funded by the National Science Foundation to support Earth and Environmental Science (EES) research at U.S. Department of Energy synchrotron facilities. At the Advanced Light Source, the "SYnergy of Soft and Tender X-rays for Earth Research" or SYSTER project will focus on soft and tender X-ray spectromicroscopy and ptychography for EES applications. The SYSTER program will be funded through a sub-contract to the University of Minnesota-Twin Cities.

The Researcher hired for this new position will be an employee of the University of Minnesota stationed at the Advanced Light Source in Berkeley, CA. The Researcher hired will be supervised by Dr. David Shapiro (Advanced Light Source Microscopy Program Lead) and Dr. Brandy Toner (University of Minnesota).

The Researcher will be responsible for EES user support and instrument development aspects of the SYSTER program and will contribute to: (1) EES and general user support; (2) EES applications of a high resolution coherent imaging endstation at beamline 7.0.1.2; (3) the development of a conventional nano-probe endstation; (4) readiness for the reopening of Advanced Light Source microscopes after the accelerator upgrade; (5) the development of a workshop series designed to support EES researchers in scientifically productive use of X-ray microscopes and complementary methods (e.g. transmission electron microscopy); (6) following workplace best practices for Integrated Safety Management (ISM); and (7) practicing and promoting BAJEDI Belonging, Accessibility, Justice, Equity, Diversity, and Inclusion (BAJEDI).

Duties (estimated percentages of time on tasks provided)**:**

- (40%) Maintain, upgrade, and develop instrumentation and software for X-ray microscopy and ptychography as required to support EES users and to meet emerging needs of the user community.
    - Coordinate activities with subject matter experts and technicians, such as safety, mechanical, electrical, vacuum, and experiment controls.
- (35%) Collaborate with existing EES users and develop new partnerships for performing state of the art X-ray experiments.
    - Communicate with users to plan and prepare for upcoming experiments.
    - Support users during SYSTER and related beamtime.
    - Develop a workshop series to support EES researchers in scientifically productive use of X-ray microscopes.
- (20%) Conduct and communicate your research.
    - Publish results in peer-reviewed scientific and technical journals.
    - Present findings at workshops and conferences.
    - Participate in ALS, SEES, and related project meetings.
- (5%) Serve the broader scientific community as an expert resource for advisory/organizational committees, journals, and scientists at other institutions.

Required Qualifications:

Credentials

- Ph.D. in the physical or chemical sciences, engineering, or equivalent experience as demonstrated by broad knowledge of and experience in synchrotron radiation science and instrumentation.
- Strong record of scientific research and peer review publications.
- Strong record of technical and scientific communication, both oral and written.

Technical skills

- Well-developed analytical and quantitative skills.
- Understanding of soft X-ray techniques.
- Demonstrated experience in the operation of complex research equipment.
- Advanced experience in programming for data analysis and instrument controls.

Organizational skills

- Ability to manage competing priorities and provide quality work on schedule.
- Excellent organizational and problem-solving skills.
- Flexibility to perform other duties as assigned/needed.

Communication skills

- Ability to teach effective and safe operation of scientific instruments.
- Ability to work with and maintain effective professional relationships with scientific staff, technical staff, and with people from diverse backgrounds.
- Demonstrated effective communication skills in a variety of settings (daily workplace interactions, project planning and outcomes, collaborative interactions).

Preferred Qualifications:

- Experience with coherent X-ray spectromicroscopy and its applications.
- Experience in other experimental techniques used in a relevant research area, such as transmission electron microscopy, X-ray diffraction, and X-ray spectroscopy.
- Experience in developing and troubleshooting experimental instrumentation, with emphasis on nano-motion controls, high vacuum systems, and X-ray detectors.
- Two or more years of experience working with X-ray beamlines and endstations.
- Ability to lead and drive projects in an interactive team setting.
- Ability to write and maintain Python software packages.

Salary and Benefits: The annual salary for this full-time position is $85,000 to $100,000 depending on qualifications. See additional information about benefits at the official application website (https://hr.myu.umn.edu/jobs/ext/358826). At the University of Minnesota, this position is a “Researcher 6” appointment.

Duration: The funding for this position is currently set at 5 years. The Researcher will be evaluated according to University of Minnesota policies each year for satisfactory progress.

To Apply: All applications must be submitted online. To apply, visit this website https://hr.umn.edu/Jobs/Find-Job and access Job Opening ID 358826.

Application Date: For full consideration, apply by December 15, 2023

Anticipated Start Date: Approximately February 15, 2024

Questions About the Position: Contact Professor Brandy Toner at toner@umn.edu.