

Assistant/Associate/Full Specialist - X-ray and Neutron
Scattering - Department of Chemistry
University of California Berkeley

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Posted Oct. 7, 2024, set to expire Nov. 7, 2024

Job Title	Assistant/Associate/Full Specialist - X-ray and Neutron Scattering - Department of Chemistry
Department	Chemistry
Institution	University of California Berkeley Berkeley, California
Date Posted	Oct. 7, 2024
Application Deadline	11/07/2024
Position Start Date	Available immediately
Job Categories	Research Scientist/Associate
Academic Field(s)	Chemistry - General
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Job Description	

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Position overview

Salary range: The UC academic salary scales set the minimum pay determined by rank and step at appointment. See the following table(s) for the current salary scale(s) for this position:

https://www.ucop.edu/academic-personnel-programs/_files/2024-25/july-2024-scales/t24-b.pdf The current base salary range for this position is \$61,300 - \$188,200. "Off-scale" salaries, which yield compensation that is higher than the published system-wide salary at the designated rank and step, are offered when necessary to meet competitive conditions.

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Percent time: 100%

Anticipated start: Winter 2024

Position duration: 1 year with reappointment dependent on funding and performance

Application Window

Open date: October 2, 2024

Next review date: Thursday, Oct 17, 2024 at 11:59pm (Pacific Time)

Apply by this date to ensure full consideration by the committee.

Final date: Thursday, Nov 7, 2024 at 11:59pm (Pacific Time)

Applications will continue to be accepted until this date, but those received after the review date will only be considered if the position has not yet been filled.

Position description

The Department of Chemistry at the University of California, Berkeley seeks applications for an Assistant, Associate, or Full Specialist, who will work closely with Professor Jeffrey Long.

The primary responsibilities of this position will be to lead x-ray and neutron scattering experiments relevant to the mission of the Early-stage Materials Testing Laboratory within the Institute for Decarbonization Materials, involving multiple research groups internal and external to UC Berkeley.

Research in the Long Group focuses on the design and controlled synthesis of novel inorganic materials and molecules toward the fundamental understanding of new physical phenomena, with applications in magnetism, conductivity, catalysis, molecular separations, and gas storage. We employ a range of physical methods to analyze and characterize our materials comprehensively, including by SQUID magnetometry, x-ray and neutron diffraction, various spectroscopic techniques, and gas adsorption analysis.

The key duties of the position and majority of time will be spent on active and creative research using in situ x-ray and neutron scattering measurements to characterize materials-based gas adsorption systems. Successful applicants must have a strong track record of obtaining beamtime at international facilities to perform in situ gas-dosed x-ray and neutron powder diffraction and inelastic scattering experiments. Expertise is expected in applying methods to solve gas-dosed crystal structures and performing Rietveld refinements for parametric data. In addition, successful applicants need a strong

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record in gas-dosed inelastic and quasielastic neutron scattering measurements or other neutron and optical spectroscopies for characterizing candidate gas sorption materials.

Candidates must be able to synthesize the knowledge gained here with data from other sources to develop insights into the underlying chemistry and physics of gas-materials interactions and communicate these results in peer reviewed publications and at international conferences. Leadership experience mentoring graduate students and postdoctoral researchers will strengthen applications. The Specialist will use broad knowledge and competencies to identify opportunities for adsorbents to be used in industrial processes, and will use specialized expertise to design and perform specific experiments for evaluating novel adsorbent materials relevant to decarbonization. Particular emphasis will be placed on emulating conditions relevant to the targeted industrial separations toward optimizing process efficiency. Such optimization will be guided by process design calculations performed in-house.

As these tasks cannot be carried out with off-the-shelf commercial instrumentation, the design, testing, benchmarking, and operation of the novel instrumentation will be important to the creative research endeavors. As such, the Specialist should have experience establishing gas dosing capabilities at x-ray or neutron facilities.

The general position duties include:

- Performing in situ gas-dosed powder x-ray or neutron diffraction measurements of candidate materials, and analyzing the data using structure solution and Rietveld refinements to determine the crystal structures of the gas dosed materials to guide materials characterization and optimization
- Performing advanced x-ray or neutron scattering measurements such as INS, QENS, neutron imaging, or prompt gamma analysis to characterize gas sorbing materials.
- Designing and performing gas adsorption experiments to analyze adsorbent materials, probing characteristics such as uptake, cycling stability, structure, mechanism of adsorption, selectivity, thermodynamics, and kinetics.
- Working closely with group members to help build scattering expertise in the group.
- Working closely with group members to train them in experimental practices, Rietveld refinements and related data analysis practices, scientific writing, and presentation of their findings.
- Maintaining active knowledge and familiarity with research ongoing in the Long Group and relevant literature to best mentor group members as described above.
- Coordinating proposals to funding agencies, including assisting with seeking new funding opportunities as needed.
- Coordinating the dissemination of collaborative research with various groups at UC Berkeley and

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with external research groups, including manuscript preparation and formal reporting to various funding agencies as needed.

- Coordinating outreach activities within and outside of UC Berkeley to improve public literacy of materials research tailored for decarbonization.
- Assisting the principal investigator in the mentorship of postdoctoral, graduate, and undergraduate researchers, writing articles for publication in scholarly journals, and presenting research findings at meetings and conferences.

Union contract: <https://ucnet.universityofcalifornia.edu/resources/employment-policies-contracts/bargaining-units/academic-researchers/contract/>

Qualifications

Basic qualifications (required at time of application)

Bachelor's degree (or equivalent international degree)

Additional qualifications (required at time of start)

- Master's degree (or equivalent international degree) or five years of experience demonstrating expertise in the relevant specialization

Preferred qualifications

- PhD or equivalent international degree.
- A minimum of 5 years of experience conducting in situ gas-dosed powder neutron and x-ray diffraction and neutron spectroscopy experiments resulting in peer-reviewed publications
- Expertise in powder structure solution and application of Rietveld refinements
- A minimum of 5 years of experience conducting synchrotron x-ray scattering experiments under in situ or complex experimental conditions
- Broad background in materials chemistry and engineering, including, but not limited to, the synthesis and characterization of molecules and extended solids for applications in areas such as gas separations, storage, and catalysis.
- Broad background in gas adsorption instrumentation, including, but not limited to, the design, construction, validation, and operation of in situ and in operando instruments with spectroscopic and diffractive probes.
- Extensive experience in in situ and in operando experimental design.
- Ability to work independently.

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- Extensive experience in scientific writing and editing.
- Strong record in publications.

Application Requirements

Document requirements

- Curriculum Vitae - Your most recently updated C.V.
- Cover Letter (Optional)
- Statement of Research
- Statement of Teaching (Optional)
- Statement on Contributions to Diversity, Equity, Inclusion, and Belonging - Statement on your contributions to diversity, equity, inclusion, and belonging in research, teaching, and service, including information about your record of activities to date, and plans for contributing if hired at UC Berkeley. [More Information and guidelines.](#)

Reference requirements

- 3-5 required (contact information only)

Apply link: <https://aprecruit.berkeley.edu/JPF04634>

Help contact: kevina.mao@berkeley.edu

About UC Berkeley

UC Berkeley is committed to diversity, equity, inclusion, and belonging. The excellence of the institution requires an environment in which the diverse community of faculty, students, and staff are welcome and included. Successful candidates will demonstrate knowledge and skill related to ensuring equity and inclusion in the activities of their academic position (e.g., teaching, research, and service, as applicable).

The University of California, Berkeley is an Equal Opportunity/Affirmative Action Employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability, age, or protected veteran status.

Please refer to the [University of California's Affirmative Action Policy](#) and the [University of California's Anti-Discrimination Policy](#)



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In searches when letters of reference are required all letters will be treated as confidential per University of California policy and California state law. Please refer potential referees, including when letters are provided via a third party (i.e., dossier service or career center), to the [UC Berkeley statement of confidentiality](#) prior to submitting their letter.

As a University employee, you will be required to comply with all applicable University policies and/or collective bargaining agreements, as may be amended from time to time. Federal, state, or local government directives may impose additional requirements.

Job location

Berkeley, CA

To apply, visit <https://aprecruit.berkeley.edu/JPF04634>

Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

Contact

N/A

University of California Berkeley