X-Ray Crystallographer, Department of Chemistry, Faculty of Science

Job ID: 16914
Updated: November 19, 2018
Location: Main Campus

Position Overview

The Department of Chemistry in the Faculty of Science is currently seeking a Full-time Regular X-Ray Crystallographer.

Reports to the Manager, Technical Services. Provides expert advice, support and direction to the teaching, research and service missions of the department. Effectively manages the X-ray crystallographic structure service in consultation with the departmental X-ray Users Committee. This position will assist and collaborate with faculty members on various research problems, and be involved with the development of new methodology. This role requires a high level of technical expertise in the operation and maintenance of the three X-ray diffractometers in the X-ray Facility and applications thereof. Ensures optimal performance and operation of instruments by enforcing regular preventative maintenance routines. Deals effectively with complex issues using judgment and initiating resolutions; ensures integrity of service. Promotes and facilitates collaborative project management; technical complexity varies with requests received from different departmental and Faculty teaching and research programs. Ensures clients are provided with accurate crystal structure results within strict timelines. Provides hands-on training to graduate students to operate the instruments and analyze their results. Manage department license for crystal structure database. The work is in an environment where exposure to X-ray radiation is a possibility, and strong magnetic fields, radio frequency, high vacuum systems, and high background noise may be present. Practices and enforces safe handling of chemicals, cryogens (liquid nitrogen), compressed gases and a variety of solvents. Enforces safety measures to minimize exposure from X-ray radiation. Flexibility in working hours may be required.

This position requires a very broad and high level of technical and professional expertise in the specialized area of X-ray crystallography (herein "X-ray crystallography" encompasses both single-crystal and powder / reflectometry techniques). The primary purpose of the position is to provide technical assistance to researchers in the preparation of samples for X-ray diffraction analysis; the collection of crystallographic data; the solution and refinement of structures; assistance in the preparation of manuscript material for the publication of research results; training of graduate students in the techniques and procedures of X-ray analysis; and the maintenance and assistance in upgrading of equipment and software (including assisting in the preparation of grant applications) which are needed for a modern crystallographic service. Project management, team-based planning, and development of technical support for the Chemistry Department with a strong understanding of the University environment is required.

The facility is equipped with three X-ray diffractometers: a Nonius Kappa APEXII CCD and Bruker Smart APEXII CCD for single crystal work and a Bruker D8 Advance (ECO) system equipped with three sample stages, including two variable temperature stages; these sample stages allow a broad temperature range of -190oC to 1600oC. Routinely discuss status of instruments and other relevant issues so problems can be promptly addressed as needed. Troubleshoot instrument problems when they arise: hardware, software, etc. Offer regular group and one-on-one X-ray crystallography training to students and researchers within Faculty of Science and beyond. Offer workshops on crystal growing, crystal selection, and other topics of interest to users.
of the X-ray Facility. Handle email correspondence and external enquires related to X-ray Crystallography Facility. Provide external data acquisition and structural analysis services.

**Position Description**

**Summary of Key Responsibilities** (job functions include but are not limited to):

**Technical Expertise/Leadership/Training:**
- Leadership within and coordination of the X-ray Crystallography Facility that enable successful management of operations and services.
- Managing the operation and maintenance of University X-ray diffractometers and determine crystal structures of their compounds.
- Familiarity with hardware and related accessories of instrumentation in the X-ray Facility to allow the safe assembly/disassembly for specialized experiments.
- Training of undergraduate and graduate students, faculty, postdoctoral fellows, and research associates in hands on operation of the diffractometers and comprehensive data handling, analysis, and interpretation.

**Communication/Relationship Building:**
- Courteous and professional manner in dealing with faculty, staff and students.
- Positive relationships and productive liaisons are promoted and maintained with other units on campus and externally.
- Provide assistance and/or supervision of X-ray crystallography users.
- Accommodate requests for various analyses in consultation with other members of the Department.
- External enquires are handled in a timely and positive manner.

**Qualifications / Requirements:**
- Ph.D. degree in Chemistry or the equivalent.
- Several years of experience in crystallographic structure determinations.
- Project and budgetary management experience required.
- Hands-on experience and current knowledge with any or all of the following:
  - Enraf-Nonius Bruker APEXII CCD four-circle diffractometer or the equivalent
  - Bruker Smart APEXII CCD three-circle diffractometer or the equivalent
  - Bruker D8 Advance diffractometer or the equivalent
  - Variable temperature sample stages; assembly, installation, and operation
  - Cambridge Structural Database Structure refinement methods (for single-crystal and/or powdered samples).
- Knowledge of publication standards and preparation of documentation associated with reporting crystallographic data.
- Fully understand the detailed design, documentation and environment of moderately complex technical systems.
- Demonstrated ability to troubleshoot many different types of technical problems.
- Strong understanding of the University culture and context regarding teaching and research.
- Exceptional interpersonal, supervisory and organizational skills.
- Ability to teach, lead, direct, and manage staff.
- Ability to interact with faculty, students, co-workers and the general public in a professional manner.
- Excellent working knowledge of Microsoft Office applications.
- Demonstrated ability to maintain currency in their field, broadly defined.
- Full working knowledge of safety regulations.
**Application Deadline:** December 31, 2018

*We would like to thank all applicants in advance for submitting their resumes. Please note, only those candidates chosen to continue on through the selection process will be contacted.*

**Additional Information**

This position is part of the AUPE bargaining unit, and falls under the *Technical Job Family, Phase III.*

To find out more about management and staff opportunities at the University of Calgary and all we have to offer, view our [Management and Staff Careers website](#). For more information about the Faculty of Science visit [Careers in the Faculty of Science](#).

**About the University of Calgary**

The University of Calgary is Canada’s leading next-generation university – a living, growing and youthful institution that embraces change and opportunity with a can-do attitude. Located in the nation’s most enterprising city, the university is making tremendous progress on its Eyes High journey to be recognized as one of Canada’s top five research universities, grounded in innovative learning and teaching and fully integrated with the community it both serves and leads. The University of Calgary inspires and supports discovery, creativity and innovation across all disciplines. For more information, visit [ucalgary.ca](http://ucalgary.ca).

*The University of Calgary recognizes that a diverse staff/faculty benefits and enriches the work, learning and research experiences of the entire campus and greater community. We are committed to removing barriers that have been historically encountered by some people in our society. We strive to recruit individuals who will further enhance our diversity and will support their professional success while they are here. We encourage all qualified applicants to apply, however preference will be given to Canadian citizens and permanent residents of Canada.*