

**2016 WEEKLY BULLETIN**  
**DEPARTMENT OF CHEMISTRY, NORTHWESTERN UNIVERSITY**  
**EVANSTON, ILLINOIS**

July 11, 2016

*For full schedule, including Center events, please see the Department Calendar:*  
<http://www.chemistry.northwestern.edu/events/calendar.html>

**BIP**

BIP meets every Friday 10-11:00am in Tech K140

**Arrivals**

Xia Chen joined the Marks Group

**Opportunities**

**Technische Universität München (TUM) Research Opportunities Week** March 20 – 24, 2017

Take this unique opportunity to experience the Technische Universität München (TUM) and its research environment firsthand.

TUM invites you to come to Munich for a fully-funded one-week stay. Afterward, all candidates interested in pursuing a postdoc at TUM will be eligible to apply for a one-year TUM University Foundation Fellowship.

Are you a young researcher looking to launch your career in Munich? Send in your application for one of the 50 Postdoc Mobility Travel Grants at the Technische Universität München.

For the application form and further information on TUM's Research Opportunities Week:

[www.tum.de/postdoc](http://www.tum.de/postdoc) Contact: TUM ForTe: [postdoc@tum.de](mailto:postdoc@tum.de)

**Powgen Instrument Scientist with The Neutron Sciences Directorate (NScD) at Oak Ridge National**

**Laboratory (ORNL)** operates the High Flux Isotope Reactor (HFIR), the United States' highest flux reactor based neutron source, and the Spallation Neutron Source (SNS), the world's most intense pulsed accelerator based neutron source. Together these facilities operate 30 instruments for neutron scattering research. Each year, these facilities carry out in excess of 1,000 experiments in the physical, chemical, materials, biological and medical sciences for more than 3,000 visiting scientists. HFIR also provides unique facilities for isotope production and neutron irradiation. To learn more about Neutron Sciences at ORNL go to: <http://neutrons.ornl.gov>. Posting end date is July 31, 2016.

***Major Duties/Responsibilities***

The Chemical and Engineering Materials Division (CEMD) of the NScD at Oak Ridge National Laboratory is seeking a highly motivated Instrument Scientist for the POWGEN diffractometer at the SNS.

The Instrument Scientist will report to the Chemical Crystallography Group Leader in CEMD, and will participate in research activities using POWGEN across a diverse range of fields such as but not limited to: physics, in particular magnetic materials; chemistry; materials science; and mineralogy and earth/planetary science using powder diffraction experimental and analysis techniques. This will involve safe operation and user support for the beamline, which includes user assistance as local contact, helping

with experimental setup, data acquisition and data analysis. The incumbent will champion developments in instrumentation, sample environment, and software to help maintain and further develop the performance of POWGEN and expand its user base. The candidate is also expected to develop a high-quality personal research program using neutron powder diffraction, publish research results in scientific journals, maintain a strong commitment to the implementation and perpetuation of values and ethics, and ensure compliance with environmental, safety, health and quality program requirements. This position supports programs and facilities at SNS that are operational 24 hours a day and seven days a week. This position will require flexibility in work schedule, and support will be needed during off duty hours and weekends, in many cases, to assist with user experiments.

**Brandeis University** seeks an X-ray Diffraction Facility Director to manage and lead day-to-day technical operations. This person will ensure compliance with the Massachusetts requirements for radiation safety and general University operations. The person will also teach students and researchers to safely operate instruments and become self-sufficient in instrument operation, structure solution, and data analysis, will maintain single crystal and powder X-ray diffraction instruments and computers for users, and will manage billing and other administrative duties such as web-based scheduling and keeping records of equipment use, condition, and maintenance.

#### Examples of Key Responsibilities:

- Direct day-to-day operation of the instruments in the X-ray Crystallography laboratory. Duties include crystal handling and mounting, data collection, solution and refinement of structures, data storage and archiving.
- Collaborate with faculty, postdoctoral fellows, and graduate and upper-level undergraduate students in carrying out advanced state-of-the-art experiments. Provide supporting data for publication. Assist in the analysis of data and interpretation of structure. Conduct experiments which require special expertise: studies of temperature-dependent phase transitions, photocrystallography, incommensurate and twinned structures.
- Train students in the operation of the diffractometers and in data analysis. Supervise technical personnel and students using the equipment. Contribute to Departmental instrumentation courses. Teach X-ray Structure Determination (CHEM 129) at least every other year, and provide one-on-one instruction in years when the course is not offered.
- Maintain the Diffractometers with the support of the engineers in the Physics and Chemistry Department. Work with the Brandeis Radiation Safety Officer to maintain a safe environment.
- Assist in the preparation of instrument proposals to be submitted to various foundations, local and federal agencies and in the evaluation of proposed acquisitions in order to keep the capabilities of the X-ray Crystallography Laboratory at a state-of-the-art level.
- Maintain expertise in state-of-the-art computer software used for structure solution and refinement. Upgrade hardware and software as needed.
- Attend professional meetings and workshops to interact with other professionals in X-ray crystallography.

#### Qualifications:

PhD in Chemistry. Minimum 3 years crystallographic experience with CCD and/or CMOS detectors. Considerable knowledge and experience with small molecule X-ray crystallography and X-ray diffraction techniques is required. Knowledge and experience with powder X-ray diffraction is desirable. Considerable knowledge of operational and maintenance requirements of an experimental/scientific facility and state/federal radiation safety protocols.

#### How to Apply:

The committee will begin reviewing applications in on 01 August 2016. The search will remain open until the position is filled. Submit cover letter, resume, and the names and contact information of three references as a single document at: <http://www.brandeis.edu/humanresources/jobs/external.html>. Elect

option for "External Applicant". Sort the job listing by clicking the Job ID column heading. Locate the desired job listing. Click the job title and then Apply Now.

**Smith College is accepting applications for a Postdoctoral Fellow in the Chemistry Department** to conduct research into the use of modified DNA molecules as chemical reagents to selectively modify one compound in a complex mixture. This is a full-time, 1 year grant-funded position in the laboratory of David J. Gorin with the possibility of renewal. The desired start date is February 1, 2017, but is negotiable.

**Position Summary:**

Conduct research into the use of modified DNA molecules as chemical reagents to selectively modify one compound in a complex mixture.

**Duties and Responsibilities:**

Conduct research within the framework of the NSF grant "CAREER: DNA-Catalyst Conjugates for Site-Selective Transformations in Biological Contexts," which includes stipend, fringe benefits, and professional development funds for this position

The goal of the proposed research is to develop DNA-based reagents for the selective chemical modification of one target molecule in a complex biological mixture. Specific experimental goals include the synthesis of hybrid molecules containing DNA and small molecule catalyst moieties, the development of fluorogenic assays for chemical reactions of interest, and the discovery of functional DNA molecules by SELEX.

Other responsibilities include participation in weekly lab meetings and mentoring of undergraduate researchers in the laboratory. Participation in undergraduate courses is possible.

**Qualifications:**

Education/Experience: Ph.D. in chemical biology, organic chemistry, or related discipline.

**Skills:** Experience working with biomolecules (nucleic acids or proteins) is an essential qualification for the position. Technical expertise in the evolution of functional nucleic acid (SELEX) is highly desirable as is familiarity with HPLC, ESI-MS, organic synthesis, DNA-linked chemical libraries, and/or fluorescence assays.

**Additional Information:**

Please attach your resume, cover letter, list of references and a 2-page research summary. This is a full-time, 1 year, grant-funded position with the possibility of renewal.

<https://smithcollege.hiretouch.com/job-details?jobID=32751&job=ad0901-postdoctoral-fellow>

**McNeese State University** invites qualified applicants and nominations for the position of Assistant Professor of Chemistry in the Department of Chemistry and Physics. This is a full time, 9-month, unclassified, tenure-track position. The appointment begins in August 2016.

**Position Description and Responsibilities:**

The assistant professor is required to perform duties in accordance with the department's needs. The successful candidate is responsible for functions related to teaching, advising, scholarly activity, and contributions to the development of the department and university. The standard teaching load is 12 credit hours per semester. The successful candidate will teach organic chemistry as well as organic chemistry laboratories. Teaching assignments include upper level courses in the area of the candidate's expertise and departmental instructional needs. In addition, the assistant professor is expected to be involved in the maintenance of the department's chemical instrumentation (NMR, GC, GC-MS, LC etc.). As a member of a cooperative and collegial campus community, the successful candidate will also serve on university-wide committees and is expected to be an active scholar to help successfully meet the goals of the department.

**Qualifications:**

Required:

- PhD with significant progress in organic chemistry or a closely related field
- Evidence of successful involvement with chemical instrumentation

Preferred:

- Involvement with the maintenance of chemical instrumentation
- Experience in and commitment to teaching
- A demonstrated record of research

Salary: \$51,000

**Deadline:**

Review of applications will begin immediately and will continue until position is filled.

**Application Materials and Contact:**

Applicants should electronically submit: Cover Letter, Curriculum Vitae, Research Plans, References (name, phone number, and e-mail address of at least three), and Unofficial Transcripts for the application process. Please electronically submit the required documents to: Chris Douvris at [cdouvris@mcneese.edu](mailto:cdouvris@mcneese.edu)

**The University of Virginia Department of Chemistry** invites applications for a Postdoctoral Research Associate position in the group of Professor Charles W. Machan. The field of study will be development of catalysts for the electrochemical activation of water and oxygen with a focus on bimetallic molecular electrocatalysts. This research project will include the design of new materials for immobilizing these catalysts on electrodes and photoelectrodes. The projects are highly interdisciplinary and focused on important energy-related problems. Further information about Professor Machan and his research can be found at [cwmachan.com](http://cwmachan.com).

Questions should be addressed to Professor Machan at [machan@virginia.edu](mailto:machan@virginia.edu).

More information about applying can be found [here](#).

**The Camille and Henry Dreyfus Foundation** seeks to further the development of scientific leadership in the field of environmental chemistry with a postdoctoral fellowship program. The Postdoctoral Program in Environmental Chemistry provides a principal investigator with an award of \$120,000 over two years to appoint a Postdoctoral Fellow in environmental chemistry.

**Eligibility**

The Postdoctoral Program in Environmental Chemistry is open to all academic and other not-for-profit organizations in the States, Districts, and Territories of the United States of America. Applications are accepted from **principal investigators** who have well-established research efforts in environmental science or engineering. These research activities need not be located in traditional departments in the chemical sciences, and collaboration across departments and institutions is encouraged. The postdoctoral fellow is usually not already identified nor in the principal investigator's lab at the time of application. Note: award recipients must wait two years from the conclusion of an award before being eligible to reapply.

**Research Areas of Interest**

Applications most likely to be of interest should describe innovative fundamental research in the chemical sciences or engineering related to the environment. The importance of the research should be explained. Examples include but are not limited to the chemistry associated with: the climate, the atmosphere, aquatic or marine settings, toxicology, soil or groundwater. Also of interest are chemistry-related energy research (renewable sources, sequestration, etc.), and new or green approaches to chemical synthesis and processing, both with a clearly stated relation to the environment.

## **Selection**

Applications come from the principal investigator. Recommendations for awards are based on several factors: assessment of the proposed research, the arrangements for the interdisciplinary educational broadening of the Fellow, and an assessment of the ability to both attract the best young Ph.D. candidates and subsequently place them in high level independent starting positions. Applications are reviewed by distinguished scientists in the environmental and chemical sciences.

## **Budget**

The Postdoctoral Program in Environmental Chemistry provides a \$120,000 award, payable in two \$60,000 installments. Funds are normally expended over a period of two years after the appointment of the Fellow. Charges associated with indirect costs or institution overhead are not allowed. Of the total annual award amount, the stipend support of the Fellow is no less than \$48,000 (stipends may be supplemented from institutional or other sources). Fringe benefits of the Fellow taken from this award may not exceed \$12,000 annually.

## **Application Procedure**

All application materials must be received at the Foundation office by August 1st. Applications recommended for approval are presented to the Foundation's Board of Directors in time for award announcements by early November.

## **Required Information:**

*Application package.* The application should be formatted on 8 1/2 x 11-inch paper, using 12-point font size. Assemble it as:

1. The online application form ([HERE](#))
2. A research proposal that would be judged as likely to advance environmental science in important ways (limited to four pages, including references)
3. A CV (limited to five pages) for each of the key professional personnel that includes ten or fewer relevant publications
4. A one-page description of the educational opportunities and institutional strengths in environmental science, and how the Fellow would be involved in them

**Send all above materials as a PDF to:** [programs@dreyfus.org](mailto:programs@dreyfus.org).

## **Reports**

The first-year award of \$60,000 will be paid after the Foundation has been provided with the Fellow's CV and anticipated start date. The second-year award of \$60,000 will be paid upon request, after completion of the first year. The request should be accompanied or preceded by a financial report and a progress report from the project director that contains highlights of accomplishments under the award and the research plan for the coming year.

**Send all above materials as a PDF to:** [programs@dreyfus.org](mailto:programs@dreyfus.org).

**The National Research Council of the National Academies** sponsors a number of awards for graduate, postdoctoral and senior researchers at [participating federal laboratories and affiliated institutions](#). These awards include generous stipends ranging from \$42,000 - \$80,000 per year for recent Ph.D. recipients, and higher for additional experience. [Graduate](#) entry level stipends begin at \$30,000. These awards provide the opportunity for recipients to do independent research in some of the best-equipped and staffed laboratories in the U.S. Research opportunities are open to U.S. citizens, permanent residents, and for some of the laboratories, foreign nationals.

Detailed program information, including online applications, instructions on [how to apply](#) and a [list of participating laboratories](#), is available on the NRC Research Associateship Programs [Website](#) (see link above).

Questions should be directed to the NRC at 202-334-2760 (phone) or [rap@nas.edu](mailto:rap@nas.edu).

There are four annual review cycles.

Review Cycle: **February**; Opens December 1; Closes February 1

Review Cycle: **May**; Opens March 1; Closes May 1

Review Cycle: **August**; Opens June 1; Closes August 1

Review Cycle: **November**; Opens September 1; Closes November 1

Applicants should contact prospective Adviser(s) at the lab(s) prior to the application deadline to discuss their research interests and funding opportunities. More detailed information and an online application can be found at [www.nationalacademies.org/rap](http://www.nationalacademies.org/rap).