

2019 WEEKLY BULLETIN
DEPARTMENT OF CHEMISTRY, NORTHWESTERN UNIVERSITY
EVANSTON, ILLINOIS
August 19, 2019

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

- Tuesday August 20th: GLC Faculty Research Colloquium by Professor Emily Weiss
Tech LR3
2:00-3:00pm
- Wednesday August 21st: The James A. Ibers Summer Lectures:
Daniel R. Gamelin, University of Washington
Tech L211
4:00-5:00pm
- Thursday August 22nd: The James A. Ibers Summer Lectures:
Daniel R. Gamelin, University of Washington
Tech L211
4:00-5:00pm
- Friday August 23rd: The James A. Ibers Summer Lectures:
Daniel R. Gamelin, University of Washington
Tech LR5
11:00am-12:00pm

Arrivals

Nak Cheon Jeong joined the Farha Group

BIP

BIP is on summer vacation and will resume in the fall.

Opportunities

Assistant Scientist Position with Argonne National Laboratory

<https://www.anl.gov/hr/external-applicants>, search requisition # 406724.

Position Description

The Time-Resolved Research group in the X-ray Science Division of Argonne National Laboratory utilizes state-of-art laser-pump, X-ray probe time-resolved X-ray diffraction, spectroscopy and imaging capabilities to investigate multiple time- and length-scale dynamics in the fields of physics, chemistry and material science. Typically this is accomplished via pump-probe methods where the excitation pump is an ultrafast laser pulse. We seek an Assistant Physicist to be part of a multidisciplinary team to perform and support the application of time-resolved methods to a wide variety of x-ray scattering and spectroscopy techniques. A substantial aspect of this position will be to enhance and maintain safe and reliable operation of the laser systems of the group.

The successful candidate will develop and conduct collaborative and independent experimental work in the field of time-resolved x-ray science. This includes providing support to users in planning, implementing, and conducting pump-probe experiments, as well as data processing and analysis. The candidate will also be responsible for conceiving, planning, and implementing novel pump-probe instrumentation and techniques. Results will be reported in appropriate forms: publishing results in refereed journals and making oral presentations at meetings, conferences, symposia, and seminars. Within 5 years of the appointment, the candidate will develop all or part of an R&D program of interest to and in line with the strategic goals of the Division.

Position Requirements

This level of scientific knowledge and sophistication required is normally associated with a Ph.D. in physics, chemistry, materials science, or related disciplines.

Considerable: Skill and experience in maintaining, operating, and applying high-power ultrafast laser systems. Experimental skills to develop scientific applications and advanced instrumentation for pump-probe x-ray techniques. Knowledge and experience in using and operating a user-orientated synchrotron radiation beamline. Skill and knowledge in understanding and applying theoretical models. Advanced understanding of abstract concepts, and synthesizing results within current experimental and theoretical frameworks. Ability to work well in a team environment.

Good: Written and oral communication skills. Communicate effectively with the beamline user community, potential beamline users, and scientific collaborators. Skill in advanced data analysis algorithms and methods. Knowledge of beamline components in terms of design, operation and maintenance. Advanced knowledge and extensive experience with x-ray scattering measurements and data analysis.

Postdoctoral position with Argonne National Laboratory

Here is the link, <https://www.anl.gov/hr/postdoctoral-applicants>, search the requisition ID: 406339.

Position Description

The research project will be focused on investigating electronic and structural dynamics of photovoltaic perovskite materials using time-resolved X-ray absorption spectroscopy and diffraction. You will also participate in the development of laser pump X-ray probe techniques for thin films and solid/liquid interfaces. The project is based in the Structural Science group at the APS. The successful candidate will join a diverse multidisciplinary team with expertise in chemistry, physics, and materials.

Position Requirements

A background in time-resolved physical chemistry.
Experience with ultrafast lasers.
Experience on synchrotron X-ray experiments.
Strong oral and written communication skills.
Experience with XAS data analysis.
Knowledge on pump-probe laser and X-ray techniques.
Requires a PhD in physics, chemistry, materials science and related disciplines.

American Society for Mass Spectrometry – Postdoctoral Research Associate/Ion mobility mass spectrometry

Description

We seek a postdoc with a desire to tackle applied research questions utilizing high-resolution ion mobility mass spectrometry instrumentation platform (Agilent 6560 IMMS). The postdoc will have the opportunity to broaden research experience, will have excellent opportunity for publication and instrument access on a daily basis is typical.

The successful candidate will explore various applications of ion mobility and mass spectrometry analytical measurements focused on environmental and clinical applications. In addition to addressing current projects, the successful candidate will be encouraged to develop novel, data-driven research concepts and participate in grant-writing as the opportunity arises.

We are particularly interested in candidates with strong mass spectrometry experience. Having experience on using LC/MS and ion mobility techniques is preferred.

Requirements

The candidate will hold a Ph.D. in chemistry or a closely related discipline and have strong mass spectrometry expertise. The candidate will have demonstrated experience in sample preparation, analysis and data interpretation. The candidate will possess the ability to work independently and summarize data findings for dissemination. Additionally, the ability to work collaboratively across disciplines, strong interpersonal, excellent communication skills, and the ability to self-direct a research project are required

Pacific Northwest National Laboratory (PNNL) is a world-class research institution powered by a highly educated, diverse workforce committed to collaboration and work-life balance. Every year, scores of dynamic, driven postdocs come to PNNL to work with renowned researchers on meaningful science, innovations and outcomes for the U.S. Department of Energy and other sponsors; here is your chance to be one of them!

Contribute to PNNL's goals in catalysis as part of the Lab's Physical Sciences Division (PSD). As an experimental postdoctoral researcher in the Catalysis Science group, you will join a multi-investigator team focused on the design of molecular catalysts for the hydrogenation of CO₂, carboxylic acids, and related species, with an emphasis on the impact of solvent on catalysis. You will be mentored by prominent researchers, including Aaron Appel, Eric Wiedner, and John Linehan, as you develop your experimental research, seeking to understand design concepts for molecular catalysts, often in close collaboration with heterogeneous catalysis colleagues.

The Ideal Candidate

If you are interested in becoming a postdoctoral researcher in catalysis at a national laboratory widely recognized for its work in catalysis, we want to connect with you. Details are below; you do not need to meet all of the preferred qualifications to be considered.

What you will do:

- Conduct independent research and work on team assignments
- Lead manuscript development and maintain a strong overall publication record in the peer-reviewed scientific literature
- Interact, communicate, and solve problems with a diverse team of co-workers in the Catalysis Science group, PSD and across PNNL
- Present research at technical conferences and project review meetings

PNNL is committed to diversity and inclusion; applications from women, minorities, individuals with disabilities, and veterans are strongly encouraged.

Email PNNL Recruiter Fred Bond at Fred.Bond@pnnl.gov for details, or share this opportunity with someone you know today.

Minimum Qualifications: Candidates must have received a PhD within the past five years (60 months) or within the next 8 months from an accredited college or university.

Preferred Qualifications

Minimum Qualifications:

- Ph.D. in Chemistry
- Experience in experimental catalysis research

Preferred Qualifications:

- Strong verbal and written communications skills
- Experience with synthesis, characterization, and mechanistic chemistry
- Synthesis and manipulation of air-sensitive materials (drybox and Schlenk techniques)
- Proficiency with a range of spectroscopic techniques, particularly NMR spectroscopy
- Functional knowledge of thermodynamic and kinetic concepts

https://careers.pnnl.gov/psc/hrmsx/EMPLOYEE/HRMS/c/HRS_HRAM_FL.HRS_CG_SEARCH_FL.GBL?Page=HRS_APP_JBPST&PostingSeq=1&SiteId=1&FOCUS=Applicant&jobopeningid=309626&

Colorado School of Mines: Post-doctoral researcher sought for full-time position at the Colorado School of Mines, in collaboration with our research sponsor. The project would focus on molten salt and materials chemistry of uranium, zirconium and lithium. Electrochemistry, materials science, molten salt and/or glovebox experience preferred. Ph.D. Required. Our group has a demonstrated history of exciting research in areas of nuclear security, materials management and fundamental f-element science. Publications can be found here: <https://www.shafer-radiochemistry.com/publications/> and more information on the group can be found here: <https://www.shafer-radiochemistry.com/>

Responsibilities include: designing experiments and process flow; examination of solution effects in plating chemistry using electrochemical and spectroscopic methods electroplating; material characterization through SEM and other forms of microscopy, preparing biweekly progress update presentations and quarterly updates to research sponsor; collaborating effectively with sponsor partners through sample exchange, co-development of processes, and materials characterization; providing mentorship to a graduate student and undergraduate student on the project; maintaining excellent lab safety and a diverse, accepting work environment; and assisting our Assistant Research Professor with research group management (total of 10 graduate students, 1 undergraduate student, 1 technician).

How to Apply: Applications should email Professor Shafer (jshafer@mines.edu) with a CV, references and cover letter describing relevant skills and availability date (required). Desired start date is October 1, 2019, but flexibility exists regarding this. References will not be contacted until later in the selection process and you will be informed before that contact is made.

Total Rewards: Starting salary will be determined by the qualifications of the selected applicant balanced with project budget availability and available market information. Mines provides an attractive benefits package including fully paid health and dental insurance. Part of Mines' mission is to create a family-friendly environment supported through our dependent tuition benefits, parental leave benefits, and dependent care assistance plan, as well as in special events, camps, and programming. For more information visit: family.mines.edu

About us: The Colorado School of Mines is located in picturesque Golden, in the foothills of the Rockies, 15 miles west of Denver and 20 miles south of Boulder. The Shafer Research Group focuses on both the fundamental and applied aspects of actinide science and related technologies. Dr. Shafer's group is a high-quality, well-funded research program (\$750,000 in annual research awards) with support from DTRA, DOE-NNSA, DOE-SC, DHS, and NSF. The research group is highly interdisciplinary and matriculates' students with both Applied Chemistry and Nuclear Engineering graduate degrees.

City University of New York, Research Associate – Photonics Initiative in New York, New York

GENERAL DUTIES

Conducts academic research in connection with CUNY programs; may assist faculty, staff, and students in conducting research and lead research efforts involving others.

- Develops research plans and proposals and participates in acquiring funding
- Collects, analyzes, and assures validity of data
- Writes progress reports; writes and publishes findings
- Collaborates with internal and external colleagues
- Adheres to standards for safety and hygiene and ethical conduct as defined by the University and relevant outside parties

A Research Associate (Post-doctoral Fellow) position is currently available under the supervision of Professor Matthew Sfeir at the ASRC's Photonics Initiative. Our group explores novel electronic phenomena in nanoscale and molecular materials with ultrafast and other broadband optoelectronic probes. The research project will include the design and fabrication of photonic structures incorporating organic spin materials, as well as a determination of their magnetic, nonlinear optical, and transient properties.

It is expected that the incumbent will independently pursue new research ideas, publish outstanding papers and publicize his/her work at conferences, mentor graduate students, and participate in fundraising efforts.

The lab is part of a dynamic and multidisciplinary research environment at the Photonics Initiative of ASRC, in which multiple groups share mixed labs, structures and facilities. Along this line, we truly value and promote the genuine exchange of ideas and expertise. The CUNY Advanced Science Research Center provides sophisticated equipment and staff support to researchers, including a state-of-the-art Clean Room/NanoFabrication Facility, Imaging facilities, Visualization Room, and a Rooftop Observatory. For more information about Professor Sfeir's lab, visit <https://sfeirlab.ws.gc.cuny.edu>. This position is for one year and is renewable for a second and third year, with an end date no later than August 2022.

Duties include but are not limited to:

- Develops ideas and experimental concepts in the field of nanophotonics and organic electron spin materials.
- Develops and fabricates new experimental ultrafast optical techniques for the characterization of nanoscale and molecular photonic structures.
- Runs experiments and simulations, performs data analysis, and writes scientific reports for publications and grant proposals.
- Assists and mentors students in conducting research.
- Conducts independent research within the guidelines of the group and in collaboration with other members of the lab, the Photonics Initiative and ASRC.
- Adheres to standards for safety and hygiene and ethical conduct as defined by the University and relevant outside parties.
- Performs other duties as assigned.
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MINIMUM QUALIFICATIONS

Doctoral Degree in a related field and demonstrated research ability.

OTHER QUALIFICATIONS

A preferred candidate should have:

- Ph.D. degree in Physics, Chemistry, Photonics, or Engineering.

- 2 years of research experience in the field of ultrafast optics and/or integrated photonics and/or nanomaterials and/or electron spin phenomena.
- Experience with electron spin resonance, nanophotonics, electronics, and new technique development.

<https://cuny.jobs/new-york-ny/research-associate-photonics-initiative/A534F29BDDD84CB989D23F287EAC0127/job/>

Informal inquiries can be sent to msfeir@gc.cuny.edu.

CLOSING DATE

Open until filled with review of applications to begin on July 22, 2019

University of Calgary, Postdoctoral Positions: In 2016, the University of Calgary was awarded \$75 million, over seven years, from the [Canada First Research Excellence Fund \(CFREF\)](#) for its initiative entitled: “[Global Research Initiative in Sustainable Low Carbon Unconventional Resources](#)”. The goal of this research is to dramatically reduce the impact of energy extraction and energy use on the environment.

As part of the implementation of its CFREF scientific strategy and to address the Grand Challenge aiming to develop next generation of CO₂ conversion catalysis, a project in the production climate neutral synthetic fuels through electrocatalytic carbon dioxide reduction is seeking up to three team members at the Postdoctoral level to join the project.

The successful candidates will work within a multidisciplinary team of synthetic chemists, electrochemists, surface scientists and engineers consisting of 5-7 PI's, 5 PDFs and a similar number of graduate students. The primary aim will be to develop new, selective CO₂ conversion catalysts supported on novel conducting materials. While initially CO has been targeted as a product, other potential fuels will also be within scope.

Accordingly, we seek applications from qualified candidates within 2-4 years of their Ph.D. degree to fill Postdoctoral Fellow positions with the following specific qualifications:

1. **Synthetic inorganic chemistry (2):** Ph.D. in inorganic chemistry with an emphasis on the synthesis and characterization of organometallic and coordination compounds, particularly of the first row transition series. The ability to prepare and manipulate air and moisture sensitive compounds, and characterize them using a suite of modern spectroscopic and analytical techniques. Working knowledge of electrochemistry and electrocatalysis is also strongly desired.
2. **Electrochemistry and catalysis:** Ph. D. in electrochemistry with an emphasis on electrocatalysis, including homogenous and surface electrochemistry on novel electrode materials. Experience in the evaluation and benchmarking of new CO₂ reduction catalysts, liquid/gas phase product analysis, surface and materials characterization techniques, and mechanistic analysis would be assets.

The appointments will be for 2 years with a \$55,000/year salary (CND dollars); the positions also come with sufficient research support to be managed by the candidate in consultation with the PI members of the team. In addition, the candidates will be required to work within a team environment and so excellent communication skills and the ability to work effectively with a diverse group of interdisciplinary researchers is a must. As PDF team members, strong leadership in project management is also expected.

In assembling the CFREF research teams, aggressive diversity and equity targets are in place and so applications from under-represented groups are especially encouraged

Applications should be sent directly to Prof. Warren Piers, wpiers@ucalgary.ca, and should consist of a current CV, a list of 2-3 referees with contact information and a cover letter indicating you are applying for a position with the *Synthetic Fuels* team as a synthetic inorganic chemist or an electrochemist. Please also indicate your availability. The search will continue until the position is filled, preferably by January 1, 2020.

To be eligible as a Postdoctoral scholar at the University of Calgary, the candidate must have been awarded a PhD or equivalent within the five (5) years immediately preceding the appointment. Please review the [Eligibility](#) page for more information prior to applying for this position.

Postdoc position available at Dartmouth College with David Glueck 1-year position, may be renewed for another half year Start date January 2020 (some flexibility possible)
ACS-PRF funded “Metal-Catalyzed Enantioselective Hydration of Nitriles”
Requires experience in inert-atmosphere synthesis/characterization techniques
Also valuable: expertise in catalysis, NMR, phosphine chemistry

Please send (to glueck@dartmouth.edu) cover letter, CV, and 3 letters of recommendation, and contact me with any questions
David Glueck, 6128 Burke Laboratory, Department of Chemistry, Dartmouth College,
Hanover, NH 03755 USA
glueck@dartmouth.edu
dartmouth.edu/~glueck

Kester, An Illinois Tool Works Company, Itasca, Illinois - The Product Development Chemist will conduct materials research and experiments to develop electronic interconnection assembly materials. The successful candidate will develop new soldering materials at the lab level and will also lead the effort to ready new products for mass production through a manufacturing scale-up process.

Primary Duties and Responsibilities

- Develop new and improve current solder paste, liquid flux, tacky flux and cored wire products
- Interface with customers and sales team regarding VOC and evaluations of new products
- Determine new product performance specifications
- Contact suppliers to obtain new raw materials and technical information for evaluation
- Develop new test methods to differentiate new products from previous products and/or competitive products
- Manage new product design process
- Work with scale-up process engineers to bring new materials into mass-production
- Assist Product Management team with data collection for brochures, supplemental data packages, and other
- marketing materials
- Work on specific customer issues and solve internal manufacturing problems
- Perform routine maintenance of equipment and work area
- Support other departments as needed (QC, Engineering, Manufacturing, Sales & Marketing)
- Train less experienced staff in the department
- Occasional travel may be required
- Additional duties and tasks as assigned

Leadership Expectations – ITW

- Strategically Positions Business to Win in Markets. ITW leaders understand what is required to win. They are strategic and anticipate future trends. They bring an outside-in perspective to drive innovation in the organization. They demonstrate a strong enterprise mindset and do what is right for ITW.
- Delivers Results. ITW leaders execute and deliver. They exhibit exceptional business acumen and excellent project management skills. They are stewards of the ITW Toolbox. They hold themselves accountable for consistently meeting ITW's earnings targets.

Qualifications: To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

- Minimum of a bachelor's degree in Chemistry. A related technical graduate degree is highly desired
- Minimum of five (5) years professional chemistry experience with chemical/materials synthesis and test experiences.
- Have good knowledge of the soldering materials, electronics assembly process, electronic industrial standards & test methods, DOE design, statistical analysis, DFM and dFMEA methodologies, and proven application of this knowledge through professional experience.
- Strong project management skills to consistently meet deadlines
- Proven problem-solving skills, open minded for new knowledge and work methodology
- Strong verbal and written communication with excellent presentation skills; ability to effectively interact with customers and employees within all levels of the organization
- Ability to handle multiple tasks and work in a fast-paced environment
- Proficient computer skills - MS Office (PowerPoint, Excel, Word, Outlook, etc.); JMP and/or Minitab is a plus
- Must be a team player with excellent interpersonal and relationship building skills
- Takes initiative; able to function independently and make independent decisions
- Applicants must be authorized to work in the U.S. as a precondition of employment
- Sponsorship is not available for this position
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Travel Requirements

Must be willing to travel domestically and internationally as necessary to fulfill the job responsibilities. Travel estimate for this position is estimated to be up to 10%.

Contact: Shawn (Xiang) Wei xwei@kester.com<<mailto:xwei@kester.com>>
www.kester.com