

**2019 WEEKLY BULLETIN**  
**DEPARTMENT OF CHEMISTRY, NORTHWESTERN UNIVERSITY**  
**EVANSTON, ILLINOIS**  
**May 20, 2019**

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

- Monday May 20<sup>th</sup>:                      *Chemistry Department AbbVie Lecture:*  
   *Vy Dong, University of California - Irvine*  
   Pancoe Auditorium  
   4:00-5:00pm
- Tuesday May 21<sup>st</sup>:                      *Faculty Lunch Seminar: Neil Kelleher*  
   Tech K140  
   12:00-1:00pm
- Thursday May 22<sup>nd</sup>:                      *Marple-Schweitzer Lecture:*  
   *Professor Karen Wooley, Texas A&M University*  
   Tech LR3  
   4:00-5:00pm
- Friday May 24<sup>th</sup>:                      *Department of Chemistry Colloquium:*  
   *Jeffrey Rinehart, University of California – San Diego*  
   Tech LR3  
   4:00-5:00pm

**Arrivals**

We did not have any new arrivals

**BIP**

BIP every Friday at 10:00 am in Tech K140

**Opportunities**

**MicroLink Devices** is seeking a Senior Process Engineer to support the development and sustaining of manufacturing processes for the production of GaAs-based solar cells for space, UAV, and terrestrial applications. MicroLink's current device technologies are focused on ultra-thin, GaAs-based multi-junction solar cells fabricated using an epitaxial lift-off (ELO) technology. The successful candidate will be responsible for:

1. Developing processes for GaAs ELO solar cell fabrication (photolithography, wet and dry etch, metallization, AR coating)
2. Transitioning processes from laboratory demonstration to production scale
3. Providing process engineering support for ongoing solar cell manufacturing

Prior experience in the fabrication of solar cells or related optoelectronic components is required.

Duties and Responsibilities:

- Carry out new process development as part of the Process Engineering team.
- Implement improvements to existing manufacturing processes to increase yield and throughput.

- Work with semiconductor tool vendors to evaluate, purchase and qualify new tool sets.
- Carry out root cause analysis of manufacturing yield issues.
- Establish and monitor statistical process control (SPC) control charts for production processes.
- Create and update work instructions to document processes.
- Assist in the training of production technicians.
- Establish regular preventative maintenance procedures for production tool sets.
- Assist in the troubleshooting and repair of process equipment.
- Contribute to report and proposal preparation as required.

Education and qualification:

- M.S. or Ph.D. in Physics, Electrical Engineering, Chemistry, Materials Science, or related field is desired
- Experience in semiconductor device design and process development
- Must be able to read, speak, write, and understand the English language

Additional requirements:

- Strong aptitude for laboratory experimental work
- Capable of working on multiple tasks and projects
- Possess excellent verbal and written communication skills, strong analytical and problem solving abilities, and organizational skills
- Highly detail oriented and self motivated
- Able to work with minimum supervision
- Job offer will be contingent upon completing a successful limited background investigation.
- Must be eligible to work in the US, no sponsorship provided for this position.

About MicroLink Devices

MicroLink Devices is an exciting, dynamic new business specializing in the design, development and manufacture of solar cells for spacecraft, aircraft, and terrestrial applications. The company possesses a core competence in the design and growth of high performance semiconductor materials, which it has leveraged to enter the solar cell market in the last few years. MicroLink's staff possesses more than 100 years of combined experience in world-class, high-volume semiconductor manufacturing companies. With a limited number of firms meeting the increasing demand for high performance solar cells and semiconductors, MicroLink's outlook is very promising.

As a young company with a bright future, the opportunities for employees are unrestricted. The philosophy of MicroLink Devices is to allow every employee the opportunity to mature into a position that is rewarding both to the individual and to the company. At MicroLink Devices, Inc., you will gain a wealth of experience.

Located in the northern Chicago suburbs, MicroLink has an attractive and pleasant working environment. The company offers a full package of benefits, including paid vacation, health insurance, dental insurance, 401(k) with employer match, and disability insurance.

Please contact: Christopher L. Stender Ph.D. Process Engineering Manager [cstender@mldevices.com](mailto:cstender@mldevices.com)

**The Sensor Technology Group, part of Ecolab's Global Sensors and Equipment Group**, has an opening for a Principal Chemist/Scientist/Engineer focused on new sensor development and computational sensing. The successful candidate must have a background in Experimental Physics or related field (see below). In addition, an advanced understanding of the full life-cycle of a sensor from design to prototyping and characterization of novel sensor and control systems. Candidates with a background in experimental physics or designing analytical equipment are encouraged to apply. This associate will work in teams with associates across Ecolab RD&E to provide Sensor solutions for

research and product development and will support manufacturing, intellectual property and regulatory efforts.

**What You Will Do:**

- Assess divisional teams' sensor needs and recommend, use, and/or develop sensor solutions to meet new product development needs
- Adapt and integrate commercially available sensor technologies for Ecolab applications
- Develop sensor technologies to meet Ecolab's product requirements and customer needs
- Collaborate with cross-functional teams to develop new products
- Document and publish research results
- Hands-on responsibilities for building prototypes and testing in the lab, "maker" mindset

**Minimum Qualifications:**

- MS in Applied or Experimental Physics, Physical or Analytical Chemistry, Electrical Engineering or related field with 3 years of experience
- High-level of self-motivation, with a passion for the complexity of market driven, multidisciplinary based sensor/control system development
- Experience in defining, implementing, characterizing and/or managing end-to-end sensing systems development or analytical instrumentation development
- Experience developing performance metrics for the evaluation of sensor systems
- Knowledge of, or experience in, sensor enabled control theory
- Proven problem-solving skills with innovative and creative solution generation
- Ability to manage a variety of technical projects and respond to shifting priorities
- Excellent technical writing and verbal communication skills and ability to present results clearly and concisely to variety of audiences
- The ability to work independently and to work collaboratively with colleagues from other groups to develop partnering relationships
- Experience in measurement and/or design tools for the planning, analysis and development of sensor systems

**Preferred Qualifications:**

- PhD in Applied or Experimental Physics, Physical or Analytical Chemistry, Electrical Engineering or related field
- Ability to develop Software and design electrical boards for prototyping new sensor technologies
- Mathematics and statistics background
- Knowledge of emerging sensor technology trends and the up-and-coming field of computational sensing in increasingly instrumented environment
- Computational sensing experience
- Broad-based expertise developing one or several sensor technologies: Optical, Opto-electronic, Electro-chemical, Electro-mechanical, Biological, and/or Acoustic Sensor Design and or Complex Analog and Digital Signal Processing
- High level of aptitude related to principles of design-for-manufacturability and agility in design sustainability (meeting global regulatory compliance standards)

[https://ecolab.wd1.myworkdayjobs.com/Ecolab\\_External/job/USA---Illinois---Naperville/Principal-Chemist-Scientist-Engineer--Sensor-Technology--RD-E\\_R00085151](https://ecolab.wd1.myworkdayjobs.com/Ecolab_External/job/USA---Illinois---Naperville/Principal-Chemist-Scientist-Engineer--Sensor-Technology--RD-E_R00085151)

**Global Product Manager - Energy Materials**

Materials Science is a rapidly growing product area within MilliporeSigma's Lab and Specialty Chemicals business. The product management team operates as the hub to coordinate product development, innovation, marketing, and commercial efforts. Our products include monomers, polymers, nanomaterials, electronic chemicals, thin-film materials, and the advanced chemicals used to make them.

Your Role: Manage the Energy Materials product line and drive its growth through collaboration with internal partners in R&D and Business Development and external partners in academics and industry to identify, develop, and commercialize innovative technology and products for energy and inorganic nanomaterials research.

The Energy Materials product line includes materials used for energy storage and energy harvesting and but also inorganic nanomaterials for bioassay development, diagnostics and imaging applications. In this role, you will manage the product portfolio, develop marketing campaigns, set competitive pricing strategy, and expand the product portfolio.

Who you are:

The successful candidate will have a strong background in materials science, energy and/or inorganic nanomaterials research coupled with scientific curiosity and keen interest in market analysis and product marketing. Further, the ability to recognize and cultivate technology areas that address unmet customer needs in energy and nanomaterials research- and to develop meaningful revenue-are crucial for this role.

Minimum Qualifications:

- Ph.D in in Chemistry, Materials Science, or Engineering and 1+ years of experience.
- Or a B.S. in Chemistry or Materials Science with 5+ (five) years of product management and business development experience directly related to the energy and nanomaterials product line(s).
- Fluency in English is required; other languages are a distinct advantage
- Ability to travel domestically (approx. 25% of time) and internationally (approx. 5% of time).

Preferred Qualifications:

- Post-doctoral experience is ideal, but recent graduates with exemplary record will be considered. MBA is preferred but not required.
- Ability to work with a variety of teams, including product management, marketing teams and operational professionals
- Technical understanding of the principles and techniques used in nanomaterials and energy storage materials research
- Excellent communication skills, both written and verbal.
- Ability to communicate with customers, present technical proposals, training or reports, to all organizational levels inside and outside MilliporeSigma.

[https://jobs.vibrantm.com/emd/job/Milwaukee-Global-Product-Manager-Energy-Materials-WI-53209-3645/526120401/?locale=en\\_US](https://jobs.vibrantm.com/emd/job/Milwaukee-Global-Product-Manager-Energy-Materials-WI-53209-3645/526120401/?locale=en_US)

**Loyola University Chicago (LUC), College of Arts and Sciences, Department of Chemistry and Biochemistry** invites applications for a non-tenure-track position at the Lecturer rank in General Chemistry and Quantitative Analysis, beginning in Fall 2019. The Department offers Ph.D., M.S., and ACS-approved BS degrees. For more details about the department, visit <http://www.luc.edu/chemistry>. The position involves teaching sections of General Chemistry and Quantitative Analysis in both semesters of the academic year. Candidates for the position must demonstrate the potential for distinguished teaching and student mentorship or possess a record of such accomplishments.

**QUALIFICATIONS** Candidates holding a M.S. degree or higher in Chemistry or in a closely related field are highly preferred. Candidates should have experience teaching Chemistry to students majoring in Chemistry, Biochemistry and Biology, and others who aspire to careers in the health sciences. The successful candidate will have a strong commitment to excellence in teaching. In addition, candidates also must be willing to support the mission of LUC and the goals of a Jesuit Catholic Education.

**MINIMUM EDUCATION AND/OR WORK EXPERIENCE** Candidates holding a M.S. degree or higher in Chemistry or in a closely related field are highly preferred. Candidates should have experience teaching Chemistry to students majoring in Chemistry, Biochemistry and Biology, and others who aspire to careers in the health sciences. The successful candidate will have a strong commitment to excellence in teaching. In addition, candidates also must be willing to support the mission of LUC and the goals of a Jesuit Catholic Education.

**SPECIAL INSTRUCTIONS TO APPLICANTS** Candidates should submit a current Curriculum Vitae, a teaching statement, and a cover letter to [www.careers.luc.edu](http://www.careers.luc.edu). They also must provide the names and email addresses of three individuals prepared to speak to their professional qualifications for this position. Referees will not be contacted immediately but might be at subsequent points in the review process. Candidates may forward samples of materials related to teaching excellence to: Chair of the Search Committee Department of Chemistry and Biochemistry Loyola University Chicago 1068 W. Sheridan Road Chicago, Illinois 60660

**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 to explore the design, synthesis, characterization, and mechanistic studies of molecular catalysts for the hydrogenation of CO<sub>2</sub>, carboxylic acids, and related species. You will be mentored by prominent researchers, including Morris Bullock and Aaron Appel, 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
- Participate in the development of research proposals

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](mailto:Fred.Bond@pnnl.gov) for details, or share this opportunity with someone you know today.

About PNNL

At PNNL, you will find an exciting research environment and excellent benefits including health insurance, flexible work schedules and telework options. PNNL is located in eastern Washington State—the dry side of Washington known for its stellar outdoor recreation and affordable cost of living. The Lab's campus is only a 45-minute flight (or ~3 hour drive) from Seattle or Portland, and is serviced by the convenient PSC airport, connected to 8 major hubs.

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
- Synthetic and mechanistic organic/inorganic 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

**Woodberry Forest School** announces a search for a compelling, passionate and innovative Upper School Chemistry Instructor, to begin teaching in August of 2019. The preferred candidate has meaningful teaching experience in the chemistry classroom, and an advanced degree in Chemistry or related field in the sciences or engineering. The ability to teach an additional course in Biology, Physics, or Environmental Science is a plus, but is certainly not required. This person will be joining an already talented and stable science department and will be tasked with infusing the science department with expertise and excellence in chemistry. Creating opportunities to make chemistry exciting for the boys is paramount.

Woodberry Forest is a “physics-first” school. Students begin the science curriculum with Conceptual Physics, a required course for third formers (freshmen.) For students entering Woodberry in the third-form year, the normal sequence of courses is to take Conceptual Physics in the third form, Chemistry in the fourth form, and Biology in the fifth form — completing the required sequence. Sixth formers looking to enhance their science experience can take on Biology Research or Physics Research courses, or electives in engineering or environmental science. Boys who come to Woodberry in their fourth-form year, and who have taken biology in a previous school, will normally take chemistry as fourth formers and physics as fifth formers.

The Manning Family Science Building, opened in the Fall of 2012, was designed largely by Woodberry Forest Science Teachers. The building is one of the school’s more prominent buildings on campus, rising three stories above ground. It blends the school’s traditional red-brick-and-column style with modern glass expanses. Among the exterior instructional details are two greenhouses on the southern side of the building, one attached to each biology lab.

Woodberry’s physics first science curriculum inspired the arrangement of the classrooms and labs. The carpeted top floor hosts third formers learning about physics, the study of chemistry is housed one floor down, and then biology on the ground floor. The second floor of the building holds two chemistry classroom/laboratories, and other collaborative areas. Some of the collaborative spaces are enclosed and outfitted with mini-labs, conference tables, and white boards.

The Chemistry Instructor will teach three sections of chemistry and be comfortable with leading laboratory work. The school’s weekly schedule offers a 3-course teaching load; one 45-minute class and two 90 min. blocks/week (for a total of 225 min./week). The school is contemplating a “3 course Plus” model to create collaborative teaching opportunities for faculty to work together on a science research course or an elective course. The 90 min. blocks taught across the department allow ample time to engage in hands-on classroom and laboratory activities. A familiarity with a Modeling teaching approach is attractive, but not required. The Science department has plentiful funding to promote the development of lab-centered inquiry and activities. The ideal candidate will be eager to contribute to an academically vibrant science department and school community.

All teachers at Woodberry Forest School are asked to advise 6-8 students. Teachers in their first year at the school are generally asked to advise 3-4 students. Other responsibilities will include dormitory duty, as almost all faculty reside on campus, which requires “on-duty” dormitory and study hall supervision one out of every nine days. Association and participation in the afternoon program, including coaching two of three seasons, and/or leading the Science Olympiad program, Debate or other extracurricular clubs/activities at the school, will be expected. As an all-boarding community, that embraces the power of meaningful relationships, the school holds three community seated dinners/week and an all school chapel service on Monday evenings.

Woodberry Forest School is an equal opportunity employer.

To Apply

If interested, please email a letter of interest and updated resume to Mr. Todd Gochman, Placement Associate, [tgochman@carneysandoe.com](mailto:tgochman@carneysandoe.com) or Ms. Seliat Dairo, Placement Counselor, [seliat.dairo@carneysandoe.com](mailto:seliat.dairo@carneysandoe.com)

Please include “Woodberry Forest School- Chemistry Instructor” in the subject of your email. Please feel free and call (617) 933-3452 with any questions.

### **Oak Ridge National Laboratory, Coordination Chemist**

**Overview:** We are seeking a research chemist with a strong background in coordination chemistry to investigate and apply principles of molecular-recognition and supramolecular chemistry to problems in separations for energy applications. The successful candidate will focus on fundamental questions related to thermodynamics and solution structure as also applied to the recovery and recycle of critical materials, desalination, carbon capture, environmental remediation, recycle of used nuclear fuel, treatment of waste, and sensing of trace contaminants. You’ll also be deeply involved in developing new and exciting ideas for proposals and participating in the planning and execution of experimental chemistry within the context of a multidisciplinary ecosystem including specialists in theory and computations, organic synthesis, separations, thermodynamics, spectroscopy, X-ray and neutron scattering, and materials characterization. This position resides in the Chemical Separations Group in the Chemical Sciences Division, Physical Sciences Directorate at Oak Ridge National Laboratory (ORNL).

#### **Major Duties/Responsibilities:**

- Work with a diverse team of scientists seeking to advance the scientific understanding of coordination and supramolecular chemistry to achieve chemical recognition by design and to put this understanding to use in real-world applications
- Perform experiments to elucidate the thermodynamic and structural basis of molecular recognition manifested in crystallization, solvent extraction, ion exchange, membranes, and other methods to meet fundamental and applied project goals
- Take responsibility for operation of a separations laboratory and associated equilibration devices and analytical instrumentation
- Independently formulate research problems and design research strategies, working with computational chemists and experimentalists to guide the design of new receptors and characterize their separation properties
- Develop and lead new research directions and contribute to research proposals to compete for internal and external funding
- Train group postdocs, students, and visiting scholars in thermodynamic, solution-structure, and separations methodologies developed in the group
- Present and report research results and publish scientific results in peer-reviewed journals in a timely manner
- Ensure compliance with environment, safety, health and quality program requirements
- Maintain strong dedication to the implementation and perpetuation of values and ethics

**Basic Qualifications:**

A PhD in Chemistry or a closely related science discipline

**Preferred Qualifications:**

- A solid foundation in inorganic, physical, and analytical chemistry and in the principles of thermodynamics, solution structure, kinetics, and mechanism
- Expertise in coordination chemistry
- Experience in using at least one of the following techniques: solvent extraction, ion exchange, adsorption, membranes, or crystallization
- Working knowledge of basic instrumental techniques such as ICP-AES, ion chromatography, potentiometric titrimetry, and radiometric methods, as well as NMR, FTIR, and UV-vis spectroscopies
- Experience in X-ray spectroscopy (EXAFS), small-angle X-ray scattering (SAXS), or neutron scattering (SANS)
- Expertise in the chemistry of actinides, lanthanides, and fission products
- Excellent record of productive and creative research as demonstrated by publications in peer-reviewed journals
- Experience in proposal development and leading research projects
- Excellent written and oral communication skills and the ability to communicate to an international, scientific audience
- Motivated self-starter with the ability to work independently and to participate creatively in collaborative teams across the laboratory
- Ability to set priorities to accomplish multiple tasks within deadlines, and adapt to changing project needs

**Special Requirement:**

Please provide a list of publications when applying for this position. Three letters of reference are required and can be uploaded to your profile or emailed directly to [PSDrecruit@ornl.gov](mailto:PSDrecruit@ornl.gov). Please include the title of the position in the subject line.

**Benefits at ORNL:** UT-Battelle offers a quality benefits package, including a matching 401(k), contributory pension plan, paid vacation, and medical/dental plan options. Onsite amenities include a credit union, medical clinic, cafeteria, coffee stands, and fitness facilities.

**Relocation:** Moving can be overwhelming and expensive. UT-Battelle offers a generous relocation package to ease the transition process. Domestic and international relocation assistance is available for certain positions. If invited to interview, be sure to ask your Recruiter (Talent Acquisition Partner) for details.

For more information about our benefits, working here, and living here, visit the “About” tab at [www.jobs.ornl.gov](http://www.jobs.ornl.gov)

This position will remain open for a minimum of 5 days after which it will close when a qualified candidate is identified and/or hired.

We accept Word (.doc, .docx), Adobe (unsecured .pdf), Rich Text Format (.rtf), and HTML (.htm, .html) up to 5MB in size. Resumes from third party vendors will not be accepted; these resumes will be deleted and the candidates submitted will not be considered for employment.

If you have trouble applying for a position, please email [ORNLRecruiting@ornl.gov](mailto:ORNLRecruiting@ornl.gov).

ORNL is an equal opportunity employer. All qualified applicants, including individuals with disabilities and protected veterans, are encouraged to apply. UT-Battelle is an E-Verify employer.

<https://career4.successfactors.com/sfcareer/jobreqcareer?jobId=883&company=utbattelleP&username=>