

2015 WEEKLY BULLETIN
DEPARTMENT OF CHEMISTRY, NORTHWESTERN UNIVERSITY
EVANSTON, ILLINOIS
March 2, 2015

Tuesday March 3rd: *3rd Year Organic Seminar: Yuping Wang*
Ryan Hall 4003
11:00am – 12:00pm

Faculty Lunch Seminar: Joseph Hupp
Tech K140
12:00 – 1:00pm

Special Inorganic Colloquium: Jeffrey Stryker
Ryan Hall 4003
2:00 -3:00pm

Friday March 6th: *Chemistry Colloquium: Colin Nuckolls*
Tech LR 3
4:00 – 5:00pm

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

BIP

Meets every Friday at 2:45pm in Tech K140

Arrivals

Woo-Bin Jung joined the Odom group

Opportunities

The Department of Chemistry and Biochemistry at Seton Hall University invites applications for a tenure-track Assistant Professor position in the area of Organic Chemistry beginning August 2015. Candidates must possess the degree of PhD and have postdoctoral training. The successful candidate will be expected to develop and maintain a high quality, extramurally funded research program. The candidate will also be expected to demonstrate excellence in the teaching of undergraduate and graduate courses in chemistry, while providing service to the Department, the College of Arts and Sciences, and the University.

The search is open to all areas of organic chemistry, however, preference will be given to candidates with research expertise in the employment of catalysis in organic synthesis, synthetic methods, and/or organometallics. Candidates with the appropriate expertise may become a member of the Department's existing Center for Applied Catalysis.

Interested candidates should upload a cover letter, curriculum vitae, statement of teaching philosophy, three letters of recommendation, and a concise research plan made up of a one page summary and at least two research proposals at: <https://jobs.shu.edu>

The Department of Chemistry and Biochemistry is a teaching oriented and research inspired department, supported by the Catholic mission of Seton Hall University. The Department offers programs leading to the BS, MS and PhD degrees and maintains a large inventory of open access research instruments including high-field NMR, chromatography and spectrometry equipment, and mainframe and cluster high performance computing. Located in northern New Jersey and 30 minutes from Manhattan, the Department has long-standing collaborative relationships with local industrial laboratories. The University has recently announced its plans to open a medical school in 2017, increasing possibilities for research collaborations. For more information about the Department and faculty research interests, please visit <http://www.shu.edu/academics/artsci/chemistry/>. For full consideration applications should be submitted by March 15, 2015.

Seton Hall University is an Equal Opportunity/Affirmative Action Employer and especially encourages applications from women and minority groups.

The Purdue University Center for Drug Discovery currently has an opportunity for a postdoctoral researcher in the research group of Professor Philip S. Low. We are seeking a highly motivated candidate to join a multidisciplinary team that aims to discover, develop and translate promising new candidates into the drugs of tomorrow.

Research experience in biochemistry, molecular biology or hematology is required. Research experience in human erythrocyte biochemistry is preferred. Experience in cloning, site-directed mutagenesis, expression/purification and characterization of recombinant proteins is preferred. Experience with the routine culturing of mammalian cells is also strongly desired. Candidates with a strong background in erythrocyte characterization, hematology and a strong background in standard biochemistry techniques are especially encouraged to apply.

The successful candidate should be able to use their discretion and independent judgment in all areas of research including experimental design, project management, and implementing strategies for cross-functional teamwork and collaboration. They will be responsible and accountable for the design of lab experiments, be able to delegate and manage day-to-day research procedures efficiently. Furthermore, excellent oral and written communication skills in English are essential.

Responsibilities will also include preparing data for both publication and grant application purposes, participation in formulating ideas and concepts for grants, writing manuscripts for peer review publication, presenting research results at conferences and major meetings, and participating in discussions with international scientists to lead and support research. Knowledge of all applicable NIH and OSHA safety rules, as well as ensuring that all safety regulations and proper methods for handling potentially dangerous chemicals, pathogens, substances and materials are followed is also required.

Requirements:

Applicant must have a PhD and a track record of accomplishment and creative scientific contributions as evidenced by publications and/or presentation at scientific meetings.

How to apply:

Please submit a cover letter, CV, a research summary of 2 pages or less, and contact information for 2 references combined into a single PDF file by email to: lowreserachgroup@gmail.com

Green Plains Renewable Energy, Inc is taking applications for an Environmental, Health, Safety and Security Assistant. This EHSS entry-level, career development position supports programs concerning ethanol plant EHSS compliance. This position works under immediate supervision of the regional Senior EHSS Manager. Responsibilities include assisting with employee training, using monitoring and test

equipment, gathering data, preparing reports, and updating environmental management plans. While the position is largely focused towards environmental compliance, some overlap into safety and health can be expected.

Essential Functions:

- Conduct/coordinate/support Environment, Health, Safety, and Security (EHSS) training in accordance with applicable regulatory requirements.
- Conduct Leak Detection and Repair monitoring, data input and report generation at assigned plants to ensure compliance with applicable Subpart VV and VVa monitoring and reporting requirements.
- Conduct inspections using established checklists to document compliance with environmental or safety requirements
- Collect environmental samples (soil, air, water, waste, etc) as directed.
- Collect safety compliance information, conduct equipment inspections, and provide employee safety support.
- Promote EHSS awareness at the plant and monitor for EHSS compliance.
- Provide support for the EHSS committees at sites where needed.
- Communicate with the EHSS Manager and follow through with their directions, suggestions and concerns.
- Assist Senior EHSS Manager in developing and implementing policies and procedures to go above and beyond those required by local, state, and federal regulations pertaining to EHSS.
- Provide support for investigations for EHSS related incidents and near misses.
- Follow-up and track corrective actions for incidents in a timely manner.
- Maintain up-to-date records at all times to comply with inspections by state and federal agencies.
- Keep all regulatory related records and reports on file for the required amount of time.
- Willingness to learn the process of an ethanol plant, the associated environmental permits and regulations, and work in a team atmosphere.
- Other tasks as necessary to support the EHSS department

Knowledge, Skills and Abilities

- Basic knowledge of federal, state, and local regulations dealing with environmental permitting, air and water quality (Title V a plus), hazardous waste, emergency response and mitigation, water use and discharge, storm water, leak detection and repair, spill prevention controls and countermeasures, risk management and facility response plans. Knowledge of process safety management and OSHA general industry standards a plus but not mandatory.
- Detail-oriented; proficiency for accuracy; dependable; positive attitude; team player
- Strong MS Office experience and proficiency with developing and using spreadsheets and/or databases.
- Ability to multi-task and take ownership of assigned projects
- Ability to lead by example
- Good communication skills, both written and verbal
- Ability to travel to at least 2 other facilities on a monthly basis to perform essential functions such as LDAR inspections
- Ability to traverse rough ground, climb or descend stairs and ladders while carrying equipment (weighing up to 25 lbs) and to work at heights or in enclosed spaces
- Work includes both an office and outdoors in all seasons.

Essential Requirements

- Bachelor degree in science, engineering, or related field required and 0-3 years experience in related field. Transcripts required, 3.0 GPA minimum required.

- Must be willing to relocate
- Travel up to 25%

Green Plains Renewable Energy offers competitive pay; a generous benefit package; paid holidays, vacation and sick time; retirement savings plan; flexible spending accounts; and more. Interested applicants please send resume via email to: careers@gpreinc.com

Green Plains Renewable Energy, Inc is accepting applications for an Environmental, Health, Safety, & Security Manager

Summary: This position outlines and implements programs concerning environmental regulatory compliance, employee EHSS procedures and accident protection and prevention. Responsibilities also include training on educational materials, inspecting company facilities, and recommending corrections or additional precautions to ensure compliance to established regulations. A strong environmental background is required, and Title V experience is a plus. This position works under immediate supervision of the Senior EHSS Manager and works closely with the Plant Manager at the location.

Essential Functions:

- Manage Environmental Regulatory Compliance of a Title V facility
- Manage facility air permits, SWPP, SPCC, FRP, TRI, Tier II, HazWaste, FCC, FDA, FAA, HazMat, and other Regulatory Compliance records and reports
- Conduct Environment, Health, Safety, and Security (EHSS) training in accordance with applicable regulatory requirements
- Promote EHSS awareness at the plant and monitor for EHSS compliance
- Elect and provide leadership for the EHSS committee
- Communicate with the EHSS committee and follow through with their suggestions and concerns
- Implement and enforce policies and procedures to go above and beyond those required by local, state, and federal regulations pertaining to EHSS. Support GPRE programs as defined
- Conduct investigations for all EHSS related incidents and near misses
- Implement containment and corrective actions for all incidents in a timely manner
- Maintain up-to-date records at all times to comply with inspections by state and federal agencies using GPRE file structure
- Keep all regulatory related records and reports on file for the required amount of time
- Maintain inventory on all EHSS supplies and PPE
- Assist production/maintenance team with, but not limited to; housekeeping, testing
- Willingness to learn the process of the plant and work in a team atmosphere

Knowledge, Skills and Abilities

- Working knowledge of federal, state, and local regulations dealing with EPA Title V regulations, NPDES, process safety management, OSHA general industry and construction standards, air and water quality, hazardous waste, emergency response and mitigation, water use and discharge, storm water, leak detection and repair, spill prevention controls and countermeasures, risk management and facility response plan
- Detail-oriented; proficiency for accuracy; dependable; positive attitude; team player
- Knowledge of root cause analysis techniques
- Strong MS Office experience and proficiency with developing and using spreadsheets and/or databases.

- Ability to multi-task and take ownership of assigned projects
- Ability to lead by example
- Good communication skills, both written and verbal
- Exceptional organizational skills as they pertain to record keeping and reporting

Essential Requirements

- Bachelor degree in science, engineering, or related field required
- 5 Years experience in Environmental Management or advancement through EHSS Assistant position required
- Some travel is required, seasonally, and to support company growth

Green Plains Renewable Energy offers competitive pay; a generous benefit package; paid holidays, vacation and sick time; retirement savings plan; flexible spending accounts; and more. Interested applicants please send resume via email to: careers@gpreinc.com

Green Plains Renewable Energy, Inc is accepting applications for a PSM Coordinator

Green Plains Renewable Energy, Inc., North America's fourth largest ethanol producer, recently ranked 8th on Fortune's 100 Fastest Growing Company list has an immediate need for a Temporary PSM Coordinators at our ethanol facilities in Atkinson, Nebraska, Fairmont, Minnesota and Wood River, Nebraska.

Green Plains currently operates a total of twelve ethanol plants. We also market and distribute ethanol for independent third-party ethanol producers, and we operate grain storage facilities and complementary agronomy and petroleum businesses. We are a growth company and we seek to continue our growth by adding grain storage facilities, ethanol plants, fueling terminals and more.

Summary of Position:

The PSM Coordinator will ensure company compliance with OSHA Process Safety Management (PSM) and EPA Risk Management Plan (RMP) rules by developing and implementing tools and management systems necessary to improve the basic elements.

Responsibilities include but are not limited to the following:

- Gather and centrally organize information pertaining to the elements in support of Green Plains ethanol plants
- Work with each process department to gain insight into the activities, processes, hazards, and risk prevention mechanisms for each task.
- Improve existing company PSM program elements, including, but not limited to:
 - Confined Space Profiles
 - Standard Operating procedures (SOPs)
 - LOTO Profiles
- Implement a point of use library containing all process safety information in accordance with OSHA 1910.119 following EHS&S Director's guidance
- Organize PHAs and Compliance Audits and track progress on Corrective Actions
- Work to develop databases for safety inspections, self assessments, and incident investigations
- Assist with Safety program administration to include: training, conducting walk-throughs and PSM committee participation

Skills and Requirements:

- Ability to climb ladders and stairs with heights exceeding 100 ft
- Ability to work outdoors in various weather conditions
- Ability to wear PPE
- Ability to travel when required for business (about 25%)
- Excellent time management and organization skills
- Solid communication skills both verbal and written to communicate with all levels of organization
- Computer skills, particularly Microsoft Word and Excel
- Previous background in safety, health, engineering or industrial emergency response
- Bachelor's degree in related field preferred (Engineering or Hard Science)
- PSM background/experience or safety experience preferred

This is a temporary, project based position, anticipated to last approximately 9 months. Green Plains offers competitive pay and incentive(s).

Interested applicants, please send resume with salary expectations via email to: careers@gpreinc.com

School of Chemistry and Materials Science at the University of Science and Technology of China

We are pleased to announce the “Future Chemist International Summer Camp (FCISC)” on **June 28-July 13, 2015**, organized by University of Science and Technology of China (USTC). The summer camp will be held in the **USTC campus in Hefei, China**. We cordially invite the undergraduate students in chemistry or materials science majors in your prestigious institution to submit their applications to this newly launched program. Once admitted, for outstanding students and students who have financial difficulties, their expenses (including **round-trip flight tickets of economy class, boarding and meal costs during the camp**) will be covered by the USTC.

The camp program will include research seminars and lab tours, hands-on research, and culture courses on campus. The School of Chemistry and Materials Science, Hefei National Laboratory for Microscale Sciences, and National Synchrotron Radiation Laboratory at the USTC will provide a platform for the activities. About 20 international students from US and European universities together with 20 domestic students from top China universities will be selected as the participants. We anticipate that the camp will provide the participants with an exceptional opportunity to combine high-quality learning and hands-on research experience with unforgettable summer experience. International students can immerse themselves in a multicultural environment and gain insights into Chinese culture. USTC and other Chinese students can have a taste of cultural exchange with international students without going abroad. The students can find more details and have their applications **submitted at <http://fcisc.ustc.edu.cn/>**. The application deadline is **March 15, 2015**.

The USTC (<http://en.ustc.edu.cn/>) was established by the Chinese Academy of Sciences (CAS) in September 1958. Its establishment was regarded as a major event in China's history of education and science. Since its very beginning, CAS has adopted a policy of “running the university with resources of the entire CAS and integrating each of its departments with relevant CAS research institutes.” Led by a group of most renowned Chinese scientists of the time, USTC set up a series of programs that creatively encompassed the frontiers of science and emerging technologies to meet the needs of the nation for developing science and technology. The University emphasized the teaching of fundamental courses and provided its students with a wide range of high-level training that incorporated newly-emerging as well as interdisciplinary fields of study. In its second year, USTC quickly rose to the status of a national key university. Its high-quality educational work, characterized by ground-breaking studies, combination of teaching and research and integration of theory with practice, has produced a large number of highly accomplished people and many significant, internationally-recognized, original research breakthroughs.

The USTC School of Chemistry and Materials Science (<http://en.scms.ustc.edu.cn/>) embraces four departments and one center – Department of Chemistry, Department of Chemical Physics, Department of Materials Sciences and Engineering, Department of Polymer Science and Engineering, and Chemical Experimental Teaching Center. The school comprises two disciplines (chemistry, and materials science) and ten sub-disciplines (i.e. Inorganic Chemistry, Analytical Chemistry, Organic Chemistry, Physical Chemistry including Chemical Physics, Applied Chemistry, Polymer Chemistry and Physics, Renewable and Clean Energy, Materials Physics and Chemistry, Materials Science, and Materials Processing Engineering). Now there are about 2020 students studying in the school, including roughly 880 undergraduates and 1140 postgraduates. Apart from curriculum study and experimental ability training in USTC, students have the opportunity to perform research in some institutes of CAS. More than 80% of undergraduates pursue advanced education in universities and institutes in China and abroad.

Carus Group's search for the innovators of our second century Scholarship/Internship

Opportunity Are you interested in using chemistry to create a cleaner, safer, greener Earth? Carus Group is offering a scholarship plus a paid internship opportunity* to a student who proposes an innovative idea using chemistry to solve an environmental problem.

Prize: \$10,000 scholarship to the accredited school of your choice plus an opportunity to intern at Carus Group's Illinois research laboratory

What we do: Carus Group is a leading global supplier of environmental solutions for water treatment, air purification, and soil remediation. Carus has a 100-year history of identifying customers' needs, and innovating new ways to solve them using chemistry. Our products help clean drinking water and waste water in communities around the world, remove pollutants from air, and eliminate toxins from soil. We want to do more! This year, Carus Group turns 100, and we are looking to collaborate with you, the innovators of our *second* century, to discover new ways to protect the environment.

How to apply: Carus will accept written proposals through March 22, 2015. Qualifying submissions will present an innovative, marketable, practical, new environmental solution using one or more of the following:

- Potassium Permanganate (KMnO₄)
- Sodium Permanganate (NaMnO₄)
- Hopcalite Catalyst (Manganese and Copper Oxides)
- Manganese dioxide (MnO₂)
- Polyphosphates (e.g., orthophosphate, tetrapotassium polyphosphate, sodium hexametaphosphate)

Submissions must include at least one of the target compounds for the proposed environmental application. Possible compounds could include, but are not limited to, the following:

- Air pollutants: mercury, carbon monoxide, ozone, sulfur dioxide, hydrogen sulfide, greenhouse gases (e.g., carbon dioxide)
- Inorganic water pollutants: selenium, arsenic, hexavalent chromium, lead, barium, radium
- Organic ground water and municipal water pollutants: carbon tetrachloride, chlorinated alkanes/alkenes, polychlorinated biphenyls, dichloromethane, pesticides, cyano toxins, N-nitrosodimethylamine, pharmaceuticals, endocrine disruptors
- Emerging contaminants: perchlorate, perfluoroalkyls (e.g., perfluorooctane sulfonate, perfluorooctanoic acid, 1,4 dioxane, cesium and strontium (e.g., Cs 137, Sr 90))

Proposals will be judged by a panel of Carus scientists based on the above criteria, on the evidence of innovative thought, and on the presentation of ideas and supporting information. All decisions of the panel are final. No purchase is necessary to enter the contest. (Additional rules and requirements apply.)

* For complete rules, eligibility, and downloadable application forms, visit the careers section of our website, www.caruscorporation.com. To learn more about Carus and what our products already do, visit our website, connect with us on LinkedIn, and follow us on Facebook and Twitter!

Additional rules and requirements:

Proposals must be original work, submitted in English as a Word document, double-spaced, in 12-point Times New Roman font. Entries must not exceed eight (8) pages. Any charts or tables used must be embedded within the document and will be counted toward the eight-page maximum. All sources must be cited. Peer-reviewed journal references are preferred. Suggested online resources include Google Scholar, ResearchGate, Scifinder, ScienceDirect, and Elsevier. Submissions must include a bibliography (which does not count toward the 8 page maximum). Do not place your name or other identifying information on any pages of your proposal. Identifying information should only go on the application form. Eligible applicants must be currently enrolled in a college or university, and must submit a completed Agreement on Conditions for Submission of Ideas. Current employees of Carus Group or any of its subsidiaries are ineligible. All entries will become the property of Carus and will not be returned. If no applicant meets qualification guidelines, Carus reserves the right in its sole discretion not to select a scholarship/internship winner.

For your safety: In order to qualify for an internship position, applicants must have a scientific or technical background, must have sufficient mobility to access all areas of the plant site in support of assigned work, and must otherwise comply with Carus requirements for employees at Carus Group locations.

Internship qualifications, availability, and preference will not be considered when selecting a scholarship winner. A follow-up application form and/or interview may be used to determine internship qualification. If the selected winner is unable or does not meet all qualifications to participate in a lab internship, said winner is still eligible to receive the \$10,000 scholarship.

Entries must be submitted, with an application form, via email to submissions@caruscorporation.com or via fax to 815-223-4486, and must be received no later than 11:59 pm CST on March 22, 2015. Applications submitted after the deadline for submission, or containing zipped or compressed files will not be accepted.

University of Twente – the Netherlands (Doctoral Student Opportunity) Professor Jurriaan Huskens at the University of Twente in The Netherlands is seeking a PhD student to work on multivalent interactions on surfaces as part of a European Union network (<http://www.utwente.nl/tnw/mnf/vacancies/>). He is hoping that someone can start the project soon after he completes the selection process. Candidates should possess an MSc degree in Chemistry, Chemical Engineering, or Materials Science by the time of employment. Extensive pre-existing and hands-on experience with organic synthesis, surface functionalization and the appropriate analytical techniques is also required. Please indicate your interest by sending a CV to Professor Huskens at: j.huskens@utwente.nl

Description: For the European project “Multivalent Molecular Systems for Innovative Applications” we are looking for an enthusiastic PhD student. In this project, we will develop surface gradients of biologically relevant receptors and ligands. The gradient display, i.e., the spatial variation of surface

density of the receptor/ligand, will allow variation of and unified assessment of the binding properties of these interactions. The project has both important fundamental and practical implications. Gradient-wise multivalent recognition allows the detection of so-called superselectivity, i.e. the non-linear response of binding partners in their multivalent recognition to the immobilized receptor/ligand. When combined with proper signal transduction mechanisms in an integrated device, this will offer new opportunities in biosensing.

The Department of Energy's (DOE) Office of Science is pleased to announce that the Office of Science Graduate Student Research (SCGSR) program is now accepting applications for the 2015 solicitation. Applications are due 5:00pm ET on Tuesday April 14, 2015.

The SCGSR program supports supplemental awards to outstanding U.S. graduate students to conduct part of their graduate thesis research at a DOE national laboratory in collaboration with a DOE laboratory scientist for a period of 3 to 12 consecutive months—with the goal of preparing graduate students for scientific and technical careers critically important to the DOE Office of Science mission.

The SCGSR program is open to current Ph.D. students in qualified graduate programs at accredited U.S. academic institutions, who are conducting their graduate thesis research in targeted areas of importance to the DOE Office of Science. The research opportunity is expected to advance the graduate students' overall doctoral thesis while providing access to the expertise, resources, and capabilities available at the DOE laboratories. The supplemental award provides for additional, incremental costs for living and travel expenses directly associated with conducting the SCGSR research project at the DOE host laboratory during the award period.

The Office of Science expects to make approximately 100 awards in 2015, for project periods beginning anytime between October 2015 and September 2016.

The 2014 program solicitation resulted in awards to 65 graduate students from 50 different universities to conduct thesis research at 15 DOE national laboratories. Detailed information about the program, including eligibility requirements and access to the online application system, can be found at: <http://science.energy.gov/wdts/scgsr/>.

The SCGSR program is sponsored and managed by the DOE Office of Science's Office of Workforce Development for Teachers and Scientists (WDTS), in collaboration with the six Office of Science research programs offices and the DOE national laboratories, and the Oak Ridge Institute of Science and Education (ORISE).

For any questions, please contact the SCGSR Program Manager, Dr. Ping Ge, at sc.scgsr@science.doe.gov.

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.
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.