The Minnesota Chemist

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Greetings from the Chair

Greetings,

The June Summer Social was a great kick-off to summer. We enjoyed food, drink, and good company at Norseman Distillery. Pictures from the event and private tour can be found on our Facebook page by searching for “American Chemical Society - Minnesota Local Section” or on Twitter @MinnesotaACS.

Events will ramp back up in September, starting with our Fall Family/Chemistry with Kids day on September 8th (below). On the following Tuesday, Bethel University will host Professor Amy Prieto of Colorado State. In her talk, she will discuss batteries and starting her own company. Thanks to a Local Section Partnership Mini-Grant, Dr. Joe Vinson will be touring mid-October to the Stevens Point, Winona, and Twin Cities sections. His topic will be on either the chemistry of chocolate or coffee. November will yield new job prospects at our annual Career Fair at St. Catherine University. We are already planning for December and beyond. More details to come!

We are always looking for suggestions and volunteers to help promote the events and mission of the ACS. Please contact me for one-time or long-term opportunities. Like the National Chemistry Week theme says, “Chemistry is Out of this World”, so let’s share it with others!

Regards,

Arianna Ahl
amkooyman@gmail.com

September 8 – Chemistry with Kids

The Minnesota Local Section of the American Chemical Society and the Mommy Chemists are pleased to announce our upcoming event: **Chemistry with Kids**, an event specially put on for adults who are also chemists to share their love of chemistry with their children while networking with other moms, dads, and professionals in chemistry!

Enjoy a fun filled afternoon with your children, grandchildren, nieces and nephews, or any other children in your life. The event will give both children and adults the chance to experience chemistry on both the micro- and macro-scale. The afternoon will have many fun and safe

demos and activities your children can do on their own or with some help. There will be kids as atoms, SLIME, magic sand, chemistry art projects, a pool of oobleck, snow in September, and much more! For a break, liquid nitrogen ice cream will be made and used to test the kids' knowledge of what they have learned. The event will close with a raffle for science-related prizes so that the fun can continue at home!

When: Saturday, September 8th, 2018
1:00 – 1:10 pm: Arrival/sign In
1:10 – 1:40 pm: Kids activities and demos
1:40 – 2:00 pm: Liquid nitrogen ice cream
2:00 – 2:30 pm: Kids activities and demos
2:30 – 3:00 pm: Closing demo, future events announcement, and raffle

Where: Mendakota Park Picnic Shelter
2171 Dodd Road
Mendota Heights, MN 55120

Ages: Target age: around 2-12 years old

Cost: **Free Will Donation for Project SEED**
https://www.acs.org/content/acs/en/education/students/highschool/seed.html

RSVP: Please email Arianna Ahl at amkooyman@gmail.com with the number of adults and children attending or with any questions by **September 4th**. Volunteers are needed and welcome!

September 11 Meeting – Inexpensive, Efficient Approaches for Energy Production and Storage

The Minnesota Local Section of the American Chemical Society is pleased to announce the upcoming September 11th, 2018 Meeting: **Inexpensive, Efficient Approaches for Energy Production and Storage**

Presenter: **Dr. Amy L. Prieto**, Professor, Department of Chemistry, Colorado State University

We are interested in developing new synthetic methods for nanoscale materials with applications in energy conversion and storage. We work in three general areas: photovoltaics, hydrogen storage, and Li-ion rechargeable batteries. For this talk, I will focus on our work developing new architectures for rechargeable Li-ion batteries, with an eye toward the commercialization of this technology.

There are two main limitations to the rate of charging Li-ion batteries: slow diffusion of Li^+ into the electrodes and slow diffusion *between* them. The synthesis of high surface area electrodes has been shown to dramatically enhance performance because reducing the particle size of the electrode material reduces the distance the Li^+ ions have to diffuse. *The problem of decreasing the Li^+ diffusion length between electrodes has not yet been solved.* We are working to incorporate high surface area structures of a novel anode material into a new battery architecture wherein the current collector is conformally coated with an electrolyte made by electrochemical deposition, then surrounded by the cathode electrode. The significant advantage is that the diffusion length for Li^+ between the cathode and anode will be dramatically reduced, which should lead to much faster charging rates.

When: Tuesday, September 11th, 2018
5:00-6:00pm- Executive Meeting
6:00-7:00pm- Social & Dinner
7:00pm-8:00pm- Talk

Where: Bethel University
3900 Bethel Dr., St. Paul, MN 55112
Meeting building and room TBA

Cost: **$20 Meal Ticket/$5 Student Meal Ticket**

Talk- Free. Please RSVP online

RSVP: To purchase a meal ticket, go to the Web Store at http://mnacs.sites.acs.org/. To RSVP to only the talk, go to the RSVP tab. Send any questions or comments to Arianna Ahl at amkooyman@gmail.com. Deadline to register is **September 4th**.

Bio: Dr. Prieto is a Professor in the Department of Chemistry at Colorado State University. In addition to her research in Li-ion batteries (high capacity anode materials, 3D battery architectures), she has active projects developing nanoparticles inks for photovoltaics, light metal nanoparticles for hydrogen storage, and novel nanowire structures. Prof. Prieto founded Prieto Battery, Inc. in 2009 with the goal of commercializing a novel three dimensional high power density lithium-ion battery made from aqueous based electroplating baths; her company's strategic partners are Intel Corporation and Stanley Black & Decker. In 2011 she was named the ExxonMobil Solid State Chemistry Faculty Fellow (an American Chemical Society award), a Presidential Early Career Awardee for Scientists and Engineers (PECASE, an honor she received from President Barack Obama) and won the Excellence in Storage Technology Commercialization Award from the Colorado Cleantech Industry Association. In 2012 she was awarded the Margaret B. Hazaleus Award at Colorado State University in recognition of her mentoring efforts, and in 2014 she received the Agnes Fay Morgan Research Award from Iota Sigma Pi. She is an Associate Editor for Chemical Communications, and has recently been inducted as a Fellow of the Royal Society of Chemistry. Her batteries are currently on display at the Smithsonian Institute, Lemelson Center in the "Places of Invention" exhibit.

She was a Chemistry and Philosophy double major at Williams College. She then earned a Ph.D. in Inorganic Chemistry from the University of California, Berkeley, where she was a Cooperative Research Fellow supported by Bell Labs, Lucent Technologies. Her postdoctoral work was performed at Harvard University, where she measured the electronic properties of single molecules and nanoparticles. While at Harvard she was named one of the first L'Oréal USA for Women in Science Fellows.

A short video overview of the battery technology can be found at https://www.youtube.com/watch?v=4KAlNKd3xio

ACS-Minnesota Travel Grants

The Minnesota Section of the American Chemical Society is pleased to announce the availability of:

Two travel grants at $500 each for graduate students to attend the fall ACS meeting in Boston (Aug 19-23).

One $500 grant available for postdoctoral scholars for this meeting. Preference will be given to those active in the local section and a short presentation at the local section will be required of the grant recipient. The local section website is: http://mnacs.sites.acs.org/

You must already be registered for the national meeting.

Application materials are here:

http://nmr.chem.umn.edu/GradTravelGrantApp.doc
http://nmr.chem.umn.edu/PostDocTravelGrantApp.doc

Deadline for applications is: Jul 27 at noon.

Please note that some users have reported issues downloading these files via the Chrome browser, especially on Mac-based computers.

2018 Winchell Undergraduate Research Symposium

The Minnesota ACS Section was a co-sponsor, with the Minnesota Academy of Science

(MAS) of the Winchell Undergraduate Science Research Symposium held on the campus of the University of St. Thomas on April 21, 2018. The ACS Section paid the registration fees of $3,150 (and a $300 co-sponsorship fee) for 42 chemistry/biochemistry undergraduates who displayed posters or made oral presentations. These students represented: Bemidji State University (3), Bethel University (7), Concordia University-St. Paul (6), Macalester College (3), Rochester Community and Technical College (2), St. Catherine University (5), St. Olaf College (4), University of St. Thomas (6), and Winona State University (6).

Christy Haynes, Elmore H. Nordley Professor of Chemistry at the University of Minnesota, gave the keynote address on "*Design and Redesign of Sustainable Engineered Nanomaterials*."

All student presentations were judged by a set of MAS-selected judges, and the following were recognized as particularly outstanding.

Best of Session—Oral Presentations

Chemistry-Physics: Ashley Roux and J. Thomas Ippoliti (Advisor), "Novel Synthesis of New Oxazolidinone Antimicrobial Agent", University of St. Thomas

Biochemistry—Molecular Biology: Stephanie Peterson and Joyce Doan (Advisor), "Anti-Inflammatory Effects of *Helichrysum italicum* on RAW 264.7", Bethel University

Judges' Choices—Poster Presentations

Tierra Bender, Rondell Graham, Linda Hasadsri, Lauren Magnuson, Desiree Reding, Michael Torbenson, and Mary Ann Yang (Advisor), " Differential Protein Expression of Fibrolamellar Hepatocellular Carcinoma (FL-HCC)", Concordia University-St. Paul and Mayo Clinic

Joseph A. Romo and Dennis D. Cao (Advisor), "Self-Assembly of Pentameric Macrocycles Through Alkene Metathesis of Bis(4-Vinylbenzene)Methyl Derivatives", Macalester College

Alexandra Ward and Graeme R.A. Wyllie (Advisor), "Bioplastic: Combining Sea Weed and Lobsters to Create a New General Chemistry Laboratory Pedagogy", Concordia College-Moorhead

Maria Neuzil and William Ojala (Advisor), "Isomorphism in Heteropentacycles: Crystal Structure of a 1,2,4-Oxadiazole and Comparison to Its Isosteric Analogues", University of St. Thomas

Shelby Auger and Mark Distefano (Advisor), "Utilizing Protein Prenylation to Modify EpCAM-Targeting DARPins with an Azide-Containing Isoprenoid Analog", St. Catherine University

Congratulations to all participants and winners. Finally, a big thank you to all the volunteers!

Wayne C. Wolsey, Liaison between MN-ACS and Minnesota Academy of Science

2018 Lyle Hall Senior Chemist Award

Kenyon (Ken) S. Latham has been chosen as the 2018 recipient of the MN-ACS Lyle Hall Senior Chemist Award. Lyle Hall was a long-time Faculty member at the University of Wisconsin-River Falls, as well as an active member of the MN-ACS Section. For over 20 years, he served as co-chair of the Senior Chemists Committee and was active in the selection of retired chemists for this honor; a criterion is being active professionally and/or volunteer activities since formal retirement.

Ken received his chemistry B.A. (*Magna cum laude*) from Westminster College (Missouri) in 1962 and his Ph.D. in Organic Chemistry under Professor Richard Schowen at the University of Kansas in 1967. They published on base-catalyzed silicon-oxygen bond cleavage. After a two year stint at the U.S. Army Artillery School as a staff officer, he joined Dow Corning where he worked on high temperature syntheses of organosilicon compounds. In 1969, he moved to Minnesota where he became a Research Chemist at the 3M Company, working on imaging and graphic arts systems. After three years, he decided that his future was really in Academia,

and started a 35 year career with Lakewood/Century College.
While at Century, he taught mainly organic chemistry, but also was involved in the introductory course as well as computer science courses. Occasionally he also taught at River Falls and Inver Hills Community College. He wrote all the organic lab experiments, published a lab manual, and was the point person in designing the new Organic laboratory. He was a principal author of an NSF-funded instrument grant, the first one awarded to a two-year college.

While serving at Century College, he also “sky-lighted” on a second job as a flight instructor. He has over 10,000 hours flight time and holds Air Transport (ATP) certification. This multi-talented chemist also played organ at his church for over 25 years and is still available as a substitute.

Since retirement in 2009, Ken has been an active volunteer on several fronts. He tutors low-income science and math junior high students through his church, collaborated for several sessions with the MN-ACS Chemists in the Library group, judged at Science Fairs, and has become a key scorekeeper with the annual Minnesota State High School Science Bowl competition held at Macalester College each January, sponsored by the Minnesota Academy of Science. With the Science Bowl event he has recently been part of the small group proofreading the 17 question sets, helping ensure that the answers provided are based upon correct chemistry. In addition, he has worked closely with Lynn Hartshorn in running the Senior Chemists lunch meetings. She states that the events could not be held without his great help in maintaining the mailing list and arranging for speakers.

As avocations, he enjoys attending area music events, helping with science organizations, and traveling - he has been to over 30 countries. He also is known as a science philanthropist, having established Scholarship funds for STEM students at Westminster College and for future chemistry teachers at the University of Kansas.

It is great to have Kenyon (Ken) Latham recognized as the 2018 Lyle Hall Senior Chemist.

Minnesota ACS section to host 2021 Great Lakes Regional Meeting

The Minnesota section will be hosting the great lakes regional meeting here in the Twin Cities in 2021. As we are just starting this process we are looking for ideas and volunteers to help facilitate this meeting. We are looking for planning committee members: program chair, undergraduate activities chair, social events chair, fundraising chair. We will also be looking for members that would be interested in organizing seminar sections around topics of interest. If you have any ideas, input or would like to volunteer or help organize a part of this meeting contact James Wollack (jwwollack@stkate.edu) or Ramesh Kumar.

Advance Notice for Senior Chemists September and October events

September 12: Lunch and short talk

Please mark your calendars for the Minnesota Senior Chemists’ lunch meeting on Wednesday September 12th at 11:30am at The Green Mill Restaurant on Hamline and Grand Avenue. Dick Hartshorn (3M Retired) will give a short talk “Adhesives that Cure by Chemical Reactions”. We will order from the menu. All senior chemists are welcome, including new members of the group, and guests. Parking is available on the street, and in the Green Mill lot about 50 yds west of the restaurant on the north side of Grand Avenue. Reservations should be made with Ken Latham, email: Klatham1@mnmicro.net.

October 17: Brewery Visit

At the request of several members of our group, we will visit the Surly Brewery on Wednesday October 17th, beginning with a tour at 11am, (Paid by the MN ACS Seniors Group) and followed by lunch (self-paying) in the restaurant at the brewery. More details including carpooling, directions, etc will be discussed at the September 12th lunch.

Have a great summer!

Lynn Hartshorn, Senior Group Coordinator

2018 Midwest Regional ACS Meeting in Ames, IA

Dear colleagues,

The Call for Papers of the 2018 Midwest Regional Meeting (MWRM) of the American Chemical Society is now open! The meeting will be held next October 21-23 in Ames, Iowa on the campus of Iowa State University. The theme for the conference is “The Critical Role of Chemistry,” and we are anticipating both an interesting technical program and ample opportunities for networking for faculty, graduate students, and undergrads. We look forward to the opportunity to host you in Ames.

There are many aspects of regional meetings that lend themselves to student participation, including the modest cost for conference registration. The timing of the 2018 MWRM in the fall is ideal to provide undergraduate students with opportunities to present research advances they make over the summer. Career services activities provided by the American Chemical Society are also likely to be of interest to your students. The chair of the undergraduate program at the conference is Maria Bohorquez from Drake University (maria.bohorquez@drake.edu).

I invite you to visit our web page at: https://mwrm2018.chem.iastate.edu to learn more about the program and aspects of the meeting. **Abstract submissions are open with a deadline of July 23, 2018.** Please don’t hesitate to contact me with any questions.

Sincerely,

Tom Holme
taholme@iastate.edu

If you have content for The Minnesota Chemist, please send it to Matthew Hammers, Editor (mhammers@umn.edu)
