The Minnesota Chemist

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Greetings from the Chair

Hello Everyone,

Well, we have dodged a major snow storm in the Twin Cities today. It made life a bit easier for us, but it is a footnote that this is a strange winter. How much of this due to chemistry and not just chance is an interesting question. It does seem like we are going to know about global warming first hand much sooner than anyone would have thought, given the lack of concern for the environment by current administration in Washington. Hopefully there will be solutions that preserve the environment and I suspect it will take chemists to find some of them. Certainly it is a challenge for current and future scientists to embrace.

Our March meeting is joint with the Minnesota Technical Symposium (MinnTS) on the 16th and you will want to follow the link from our site to the MinnTS site to sign up. The meeting will be at Ecolab and will include a tour of the Ecolab research site if you have the time.

The April meeting will feature Greg Haugstad, director of the Characterization Facility at the University of Minnesota, and an expert in atomic force microscopy. Our May meeting is the Awards meeting and we need to get nominations in by March 15th (see the MNACS home page for details).

Our commitment to having broader participation is going forward and evolving at the same time. I have suggested that we need a Women's Chemists group to address issues that impact women in the work place. But, it needs to be a community effort to make it happen. What do you want to do? What will bring you to be active in the section? Many of us that are involved with the local section have a particular activity we invest more time in than anything else. But the section is 100 percent willing to support new directions and approaches. At our last meeting, Chair Elect, Ariana Ahl, made a great presentation to encourage members to consider becoming involved. I would also note that the last meeting had over 100 people at the talk! When was the last time that happened? People were interested in what the "imposter syndrome" is and how it impacts them in their careers. What other topics in professional development do you want to hear? These directions are all things we can do – there is no rule that all our talks need to be strictly on chemistry. Certainly having a career in chemistry is a far broader life endeavor than just working at the "bench!" We have funds to support and are looking for opportunities to build new directions that interest you, but we cannot do this without your help. Start simply by just sending me an idea. Then we can work on making it grow.

Nick Schlotter
nschlotter@hamline.edu

Minnesota Technical Symposium (MinnTS) – March 16

Joint Meeting with the Minnesota Technical Symposium (www.minnts.org)

Topic: Virtual Reality/Augmented Reality

Speakers:
Hayley Borck, "*MonitAR Intelligent Guidance using Augmented Reality."* She is currently with Adventium Labs (cyber security and system engineering). She is working on a project for NASA on AI systems used to guide astronauts when they are not in contact with earth communications.

Michael Nowak, "*The Rise of Virtual Reality*," currently with Ultimarc and founder of Vektor Software. He is one of the cofounders of the Minneapolis Virtual Reality Meetup. He will give us a history of the development of VR (and AR).

Location: Ecolab Innovation Center, 655 Lone Oak Dr., Eagan, MN (map, Ecolab campus)

Time: 4:00pm - Ecolab tours; 5:00pm - Networking; 6:00pm - Dinner; 7:00pm - Presentations
4:00 Innovation Center Tours begin
5:00 Last Innovation Center Tour departs
5:00 - 6:00 Registration, social with refreshments
6:00 - 7:00 Dinner
7:00 - 7:15 Welcome message, introductions (Gary Korba)
7:15 - 8:00 Hayley Borck, "*MonitAR: Intelligent Guidance using Augmented Reality"*
8:00 - 8:15 Break
8:15 - 9:00 Mike Nowak, "*The Rise of Virtual Reality*"

Cost: $25 for members (please specify that you are an ACS member - the section is subsidizing the meal)

Menu: TBD

Meal Ticket: Starting around Feb. 20th, reservations can be made on the MinnTS webpage where you can purchase meal reservations through PayPal

Deadline: March 9th

Abstracts:
"MonitAR: Intelligent Guidance using Augmented Reality" (Hayley Borck)
MonitAR is a novel application of Case-based Reasoning (CBR) that combines intelligent tutoring using Augmented Reality (AR) and prediction. The MonitAR system is intended for use as an intelligent guidance system for astronauts conducting complex procedures during periods of a communication time delay or blackout from Earth. The approach takes advantage of the relational nature of time-series data to detect a task that the user is completing and diagnose the issue when the user is about to make a mistake.

"The Rise of Virtual Reality" (Michael Nowak)
The Virtual and Augmented Reality market reached over 5 billion dollars last year and it's rapidly expanding. With the estimated growth rate of over 180% and solid adoption it is becoming the next computing platform. Mike Nowak will discuss the current VR and AR ecosystem including hardware, inputs, distribution platforms and the latest content. The VR and AR ecosystem will transform education, gaming, architecture, engineering and many other disciplines. These disciplines will experience large shifts in how we create, distribute and consume information. We currently experience digital content through a two dimensional window. The Virtual and Augmented Reality gives us a fully immersive way of interacting with digital content.

MN ACS Meeting – Tuesday, April 18, 2017, 5:00 – 8:30 pm

Title: An Introduction to the UMinn Characterization Facility and the Use of Atomic Force Microscopy (AFM) to Study Soft Matter

Speaker: Dr. Greg Haugstad, Principal Research Physicist and Director, Characterization Facility, University of Minnesota

Location: Black Forest Inn, 1 East 26th Street, Minneapolis MN 55404 | 612-872-0812 Info - http://blackforestinnmpls.com/ Map at http://blackforestinnmpls.com/pgs/info.php

Time: 5:00 pm - business meeting; 6:00 pm - Dinner; 7:00 pm - Presentation

Cost: $20 member / $5 student

Menu: Bratwurst/Strudel (vegetables & cream cheese in dough)/Maultaschen (potato and cheese perogi); Field greens salad, Spaetzel, Potato salad, Red Cabbage, Dessert bars (Bavarian apple). Served family style.

Meal Ticket: Go to the "Web Store" link on the MNACS page to purchase meal reservations through PayPal.

Deadline: April 11, 2017

Abstract: This talk will firstly provide an overview of the Characterization Facility (CharFac) at the University of Minnesota, and secondly an introduction to atomic force microscopy (AFM) methods geared towards soft matter (synthetic, biological). The CharFac is UMinn's largest and most centralized facility for materials analysis. It is also used in the health, food and other bio-related sciences, as well as environmental, earth, and archeological sciences. Its external interactions are numerous and far-reaching: during a typical year roughly 50 companies and 20 external academic institutions (spanning the US but concentrated in Minnesota) use the CharFac for analytical services, training and hands-on applications. This talk will list the routes whereby externals may engage the CharFac's staff and technical capabilities, including cost issues. The AFM presentation will describe core modes of operation and exemplify their utility. Most examples from the speaker's research will be in biomedical applications such as lubricious or drug-eluting coatings and other soft matter such as biofilms and gels. Emphasis is on the micro- to nano-scale mapping of composition and properties, in addition to the usual 3D digital topography that one extracts with AFM.

Bio: Greg Haugstad has been active for 32 years in analytical research spanning nearly all classes of materials, from (i) pre-graduate work on temperature-dependent electrical properties of metals and microwave absorptive (stealth) nanoncomposites, to (ii) graduate research in ultrahigh vacuum, synchrotron-based graduate research on electronic structure at semiconductor interfaces, to (iii) postdoctoral-fellow research on ionic crystals and soft / bio materials with a focus on nanoscale structure and tribo-mechanical properties. His research of the past 22 years has expanded from his postdoctoral work by emphasizing scanning probe methods, aqueous applications and industrial technologies. During this time Greg has interacted broadly with hundreds of collaborators and clients; published in dozens of scientific journals and books (~100 articles, chapters) and authored a Wiley monograph on AFM; given ~250 talks in conferences, seminars, workshops and short courses; co-organized ~30 conference symposia and workshops on materials characterization; and trained more than 700 CharFac users. As facilities director and life-long Minnesotan, he is keen on developing interactions with Minnesota companies and academic institutions.

Winchell Undergraduate Science Research Symposium at Macalester April 22

Wayne Wolsey, Macalester College (wolsey@macalester.edu)

The annual Winchell Undergraduate Research Symposium, of which MN ACS is a co-sponsor, will be held at Macalester College on Saturday, April 22, 2017. This event, which is part of the Annual Meeting of the Minnesota Academy of Science, will feature undergraduates in Chemistry/Biochemistry making poster or oral presentations. Keynote speaker, Professor Mary Montgomery (Macalester, Biology) will speak on Gene Editing. MN ACS budgets funds to cover the registration costs for undergraduate presenters in the two categories. A letter will be sent to the Chairs of the Departments giving full information. For information on registration and the required abstracts, go to: www.mnmas.org. Questions can be directed to Jennifer Schuetz, Meeting Manager, at 612-440-7670 or jenniferschuetz@mmas.org.

38th Annual MN Chromatography Forum Spring Symposium

May 9 - 11, 2017
Earle Brown Heritage Center
Minneapolis, MN

Deadlines

Symposium Early Registration Deadline: April 1, 2017
Short Course Early Registration Deadline: April 1, 2017
Abstract Submission Deadline for a Technical Presentation: April 9, 2017
Short Course Final Registration Deadline: May 2, 2017
Symposium Pre-Registration Deadline: May 2, 2017
Symposium On-Site Registration: May 9-11, 2017

May 9-10
Short Courses: May 9-10

- Advanced HPLC & UHPLC Method Development
- Comprehensive GC & GC-MS Troubleshooting
- Analytical Sampling and Sample Prep for Chromatography

May 10 (1pm)
Complimentary Open House

- Equipment Exhibition
- Vendor Seminars
- Refreshments

May 11
Keynote Presentation: Dr. Paul Mahaffy, NASA
"Exploration of Martian Habitability with the Curiosity Rover"
Technical Presentations
Equipment Exhibition

For further information and online registration information visit: www.minnchrom.com

MN ACS and Science Fairs

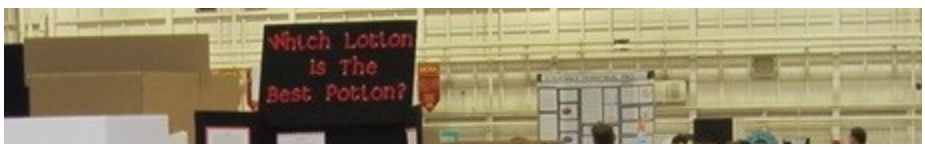
Wayne Wolsey, Macalester College (wolsey@macalester.edu)

The Minnesota ACS Section has been giving Special Awards at the four Regional Science and Engineering Fairs held each year within the Section territory--Southern Regional Fair at Mankato, Central Regional Fair at St. Cloud, Twin Cities Regional Fair at the Univ. of MN, and the Rochester Regional Fair. A prize of $50 is given to a top senior high project as chosen by a local chemistry judging team. The 2017 Regional Fairs are all held in late February and early March. The Regional Fair Award recipients will be featured in the next edition of The Minnesota Chemist.

The Twin Cities Regional Science Fair 2017

Lynn Hartshorn, James Wollack and Wayne Wolsey

The TCRSF was held at the University of Minnesota Fieldhouse on Friday, February 24th from 4:00 pm to 9:00 pm. Diana Amell, Lynn Hartshorn, James Wollack, and Wayne Wolsey were the ACS judges for the best high school chemistry project. James Wollack was the team leader and Wayne Wolsey was responsible for the award and the certificates. James Wollack also brought undergraduate students from St. Catherine University to assist with the judging.
The ACS award was given to Kerui Yang, a 9th grader from Valley View Middle School, Edina for her project "Effects of pH on Polyvinyl Alcohol Behavior in Aqueous Solutions."
Commendation certificates were awarded to Samuel Kim, a 12th grader from Wayzata High School, for his project "Does systematically increasing the number of uniformly-sized polyacry-amide beads in 20-mL vials correlate with the number of faces on the beads when they finish expanding in water?" and to Elijah Le, a 10th grader from Burnsville High School, for his project "The Electrolysis Slide."



Twin Cities Regional Science Fair 2017

MN ACS Section Judges at the Twin Cities Regional Science Fair 2017. The judges for the best high school chemistry project pictured front to back and left to right are: Lynn Hartshorn, Wayne Wolsey, James Wollack, and Diana Amell.

Senior Chemists' Meeting

Lynn Hartshorn

The previous meeting of the Senior Chemists Group was held at the University of St. Thomas on January 18th.The group lunched in one of the student dining rooms. Then the group toured three of the undergraduate research labs in the Chemistry Department and met some of the undergraduate students. Thanks to Dr. Tom Ippoliti of the University of St. Thomas Chemistry Department for making this possible.

The next meeting will be on Wednesday, March 15th at the Green Mill Restaurant on Hamline and University Avenues in St. Paul beginning at 11:30 am. We will order from the menu as usual. All are welcome, including new members and guests. You do not need to be retired to attend these meetings.

There will be two short presentations at the March 15th meeting. Judy Benham will discuss some ideas for involving Senior Chemists. Peter Johnson, recently retired from 3M, will briefly discuss volunteer opportunities with the Minnesota Chromatography Forum (MCF) and then outline the MCF Spring Symposium, particularly the keynote presentation on May 11th. The abstract of this follows:

Abstract for MCF Keynote Presentation on May 11th
Exploration of Martian Habitability with the Curiosity Rover

The Curiosity Rover has been on the surface of Mars for more than 4 years exploring the geology and chemistry of what was once a large lake billions of years ago. The goal of the mission is to understand the habitability of Mars, especially that of the ancient environment. Could microbial life have existed in this environment? The Sample Analysis at Mars (SAM)

investigation of this rover conducts volatile and isotope measurements of both the atmosphere and solids to help elucidate ancient environmental conditions and the global changes that have transformed Mars over time. Chromatography is important for the search for organic compounds in rocks with SAM's gas chromatograph mass spectrometer experiment. Key measurements from SAM, to date, include the first in situ detection of organics preserved in these rocks for billions of years, the first in situ exposure age and K/Ar rock formation age, detection of perchlorates in rocks and soils, measurement of the D/H ration of water that formed clays more than 3 billion years ago, and detection of methane in the atmosphere. The Curiosity Rover is presently on the flanks of Mt. Sharp and headed toward distinct clay and sulfate rich layers higher up on this central mound in Gale crater. These and other ongoing exciting discoveries from the mission will be described.

More information about the MCF Spring Symposium can be found at www.minnchrom.com and retires will get a reduced rate.

Reservations are necessary for the Senior Group Lunch meeting. Please email Lynn Hartshorn at lghartshorn@stthomas.edu by Sunday, March 12th.

Call for Nominations – 2017 Minnesota Award of the Minnesota Section American Chemical Society

Ramesh Kumar

Quality, excellence, innovation, leadership, commitment – colleagues who embody these traits may be outstanding candidates for the Minnesota Award. Please consider nominating a worthy section member to this prestigious award. Previous winners have included Izaak Kolthoff, Robert Brasted, Paul Gassman, Edward Leete, Wayland Noland and Donald Truhlar (University of Minnesota), Courtland Agre (Augsburg College), John Wilson (Economics Laboratory), Frank Bovey, Julianne Prager, Don Hagen, Richard Newmark, Andrew Ouderkirk (3M), George Moore (3M) and Tom Hoye (University of Minnesota)

The Minnesota award was established in 1958 to honor section members who have made an outstanding contribution in chemical research or in service to the profession. The winner receives a bronze plaque and $500 cash award and presents an award address to the section (usually in May). The award is given every three years, rotating with the Brasted Award for Excellence in College Teaching and the Award for Excellence in High School Teaching.

The nomination procedure is simple – submit a nominating letter, copy of curriculum, vitae or resume of the nominee, and up to four supporting letters to the chair of the Awards Committee, Ramesh C. Kumar, at rckumar0051@mmm.com . The nomination package should emphasize the nominee's achievements. The deadline for completed nomination packets is March 15, 2017.

Call for Nominations – 2017 The Lyle Hall Senior Chemist Award

Ramesh Kumar

The Lyle Hall Senior Chemist Award is based upon post-retirement professional activities of a member of the Minnesota ACS Section who has entered into formal retirement from his/her primary job. Professional activities can include volunteer ACS service, volunteer activities in any other scientific organization such as the Minnesota Academy of Science (i.e. Science Fair Judging), professional writing, consulting, and/or research. Nominations (including no more than 2 seconding letters) should be sent to Ramesh C. Kumar. rckumar0051@mmm.com . A CV is useful. The Awards Committee may also select an award recipient, based upon their collective knowledge of the activities of an individual. The deadline for completed nomination is March 15, 2017.

Call for Nominations – 2017 Janet Tarino Volunteer Award

Ramesh Kumar

The Janet Tarino Volunteer Award will be given to an individual for outstanding volunteer service to Minnesota ACS, and/or chemistry related projects and events not directly connected

to Minnesota ACS. This person will have demonstrated an exceptional passion for and commitment to community outreach, and dedication to projecting a positive image of chemists.

Nominating documents should include curriculum vitae and examples of volunteer service. The award consists of a plaque which will be presented at the May 2017 meeting of the section.

Nominations should be submitted electronically to the Chair of MN ACS Awards Committee, Ramesh C. Kumar (rckumar0051@mmm.com) before or on March 15, 2017.

MN ACS Travel Grants for Grad Students & Postdocs for Spring ACS Meeting

Letitia Yao

The Minnesota Section of the American Chemical Society is pleased to announce the availability of 2 travel grants available at $500 each for graduate students to attend the spring ACS meeting in San Francisco (April 2-6).

Also, new this year, there will be one $500 grant available for postdoctoral scholars for the SF 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 (copy/paste the entire name into your browser):

http://nmr.chem.umn.edu/GradTravelGrantApp.docx

http://nmr.chem.umn.edu/PostDocTravelGrantApp.docx

Deadline for applications is: March 15 at noon.

Teaching Specialists – Department of Chemistry, University of Minnesota

In anticipation of enrollment increases for fall 2017, the Department of Chemistry at the University of Minnesota is searching for multiple Teaching Specialists (TS). The TS will teach in our introductory chemistry laboratories, where the curriculum is provided and stocking of chemicals is performed by department staff.

The TS position is very flexible and can range from 4 contact hours (8 hours paid) per week commitment, to nearly 40 hours per week. Teaching one lab section consists of 3 hours in lab teaching, 1 hour prep, 3 hours grading, and 1 hour staff meeting. The position requires a bachelor's degree in a science field and starts at $19/hour. Advanced degrees earn a higher pay rate. Benefits are possible, depending on the number of hours in the appointment.

Please contact Michelle Driessen at mdd@umn.edu for more detail on the position and/or to apply.

Upcoming Chemists-in-the-Library Events

Philippe Buhlmann

March 11 at 1:30 PM – Rondo
April 8 at 1:30 PM – Hamline Midway
April 29 at 1:30 PM – Rogers
June 3 at 1:30 PM – Hayden Heights

Young Chemist Committee

Arianna Ahl

The Minnesota ACS is looking for a new Chair of the Young Chemist Committee (ages 18-34).

Engage Young Chemists. Network. Resume Build. Advance through the ACS.

For more information contact Nick Schlotter (nschlotter@hamline.edu) or Arianna Ahl (amkooyman@gmail.com).

If you have content for The Minnesota Chemist, please send it to Becky Guza, Editor (becky.guza@hbfuller.com)
