



The Minnesota Chemist

Official Publication of the Minnesota Section of the American Chemical Society

Issue 5, Sept - Oct 2017



Greetings from the Chair

School is starting and fall is nearly here. What happened to summer?

We have a nice fall program lineup with:

Thursday, September 14

Title: **3M Tape ... Making the Sticky Come Alive!**

Speakers: Dr. Ramesh Kumar and Dr. Sarah Mullins, 3M Company

Location: Macalester College

Tuesday, October 10

Title: **Climate Change: Why Don't Facts Seem to Matter?**

Speaker: Patrick Hamilton, Science Museum of Minnesota.

Location: St. Olaf College

Tuesday, November 14

6th annual Chemistry Job & Recruiting Fair

Location: Saint Catherine University

Monday, December 11

MN ACS Winter Social

Location: Surly Brewing Company

I would like to encourage everyone to think about doing something in the local section in the coming months. Involvement in any of the groups tends to lead to larger involvement in the section and new ideas for what we can do. We have areas like Environmental Improvement, Minority Affairs, Professional Relations, Public Affairs, Women Chemists, etc. that are unfilled or in the process of restarting. We have volunteers running or involved in activities like Project Seed, Senior Chemists, the Chemistry Olympiad, the Winchell Symposium, etc. that could probably use additional help.

Another challenge is how should we use our monthly meetings. What material do members really want to hear about? Do we need more time to socialize and network? Where and when should we hold our meetings? Should we rotate the types of meetings to attract different segments of the membership? What types of meetings would do this? Feel free to drop me an email with your thoughts so that I can incorporate them into a survey/poll of the membership to begin the process of evolving our organization. (nschlotter@hamline.edu)

I hope to see you at our upcoming meetings.

Regards,
Nick Schlotter
nschlotter@hamline.edu

MN ACS Meeting – Thursday, September 14, 2017



Title: 3M Tape ... Making the sticky come alive!

Speakers: Dr. Ramesh Kumar and Dr. Sarah Mullins, 3M Company

Location: Macalester College

Driving directions are to exit I-94 at Snelling Ave and head south.

At St. Clair Ave (a stoplight street), turn right and turn right (north) along the athletic field. Olin-Rice Hall of Science is at the north end of the athletic fields (has observatory on the roof). Park in any Macalester lot.

The Smail Gallery of Olin-Rice is in the center of the building on the second floor. Enter either from the North or South entrance directly into the building. The handicapped entrance is on the lower level on the north side. Take the nearby elevator to the 2nd floor.

The lecture will be held in the John Davis Lecture Hall of the Campus Center, at the southwest corner of Snelling and Grand. The closest parking is in the Immanuel Lutheran Church parking lot on the east side of Snelling (also a Macalester parking lot).

<https://www.macalester.edu/about/maps/pdfs/macalester-print-map.pdf>

Schedule:

5:00-6:00 pm – Executive Committee Meeting, 205 Olin-Rice Science Hall

6:00-7:15 pm – Social and Dinner, Smail Gallery Olin-Rice Science Hall

7:30-9:00 pm – Lecture, Davis Lecture Hall, Campus Center

Cost: \$15 member / \$5 student

Menu: from *Davanni's Pizza*, pizza, meat and meatless lasagna, salad, cookies/rice krispie bars, assorted sodas and water

RSVP: Please let us know if you are coming to the meeting. If you are coming to the dinner and use PayPal below that is sufficient. If you are just coming to the talk, or have dietary needs, or any other questions please contact Nick Schlotter.

Meal Ticket: When the cost is finalized, go to the "[Web Store](#)" link on the [MNACS](#) page to purchase meal reservations through PayPal.

Deadline: September 7, 2017

Abstract: Dr. Sarah Mullins will describe briefly construction of various kinds of sticky (pressure sensitive adhesive) tapes and their uses in industry, construction, automotive, health and consumer areas. Dr. Ramesh Kumar will describe various chemistries and chemical processes used in making pressure sensitive adhesives and release materials to unwind a sticky tape.

Speaker Bios:

Dr. Ramesh Kumar

Academic Record: Ph.D. in Inorganic Chemistry, Panjab University, Chandigarh (India), 1978; Ph.D. in Fluorine Chemistry with Dr. Jean'ne Shreeve, University of Idaho, 1981.

Professional Employment: 2015 American Chemical Society Fellow. A member of prestigious 3M Carlton Society (In the 113-year history of 3M, there have only been 179 scientists and engineers appointed to this group). 3M Corporate Scientist, highest technical position at 3M (2010 – present), Senior Division Scientist (2004 – 2010), Division Scientist (2000 – 2004), Senior Chemical Specialist (1994 - 2000), Research Specialist (1989 - 94), Senior Research Chemist (1987 - 89), Materials Resource Division, 3M. Assistant Professor of Chemistry (1981-87), Baldwin-Wallace University, Berea, Ohio.

Technical Contributions: My technical expertise is in the area of low surface energy materials used for Low Adhesion Backsizes for tapes and release liners. My contributions encompass

silicone, hydrocarbon, and aqueous-based chemistries. The families of materials which I have developed provide unique differentiation to a large number of 3M's iconic pressure sensitive adhesive-based product platforms. Author of 55+ issued U.S. patents protecting these contributions and published 27 journal articles.

Volunteer Service to the ACS Community: Committee on patents and related matters and subcommittees (2012 – present), Local MN – ACS Awards Chair (2012 – present), Councilor and Alternate Councilor (2002 – present), MN- ACS nomination committee and Chair, MN –ACS student affiliate and student mentor (1997 – present), MN-ACS Chair, MN –ACS Executive Committee (1998- 2014).

My wife Kanta and I enjoy walking and hiking together and have hiked in China (17,000 ft.) and Machu Pichu (9500 ft.) and have vacationed in several places around the globe including Brazil, Peru, Alaska, and Caribbean.

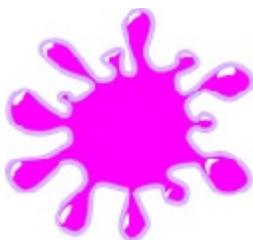
Dr. Sarah Mullins

Academic Record: Ph.D. Chemistry, University of California, Berkeley (2001); B.A. Chemistry, Northwestern University

Professional Employment: 2017 American Chemical Society Fellow. 3M Company: Advanced Research Specialist (2015 – present), Research Specialist (2008 – 2015), Senior Research Scientist (2001-2008).

Technical Contributions: My technical expertise is inorganic synthesis, reaction kinetics and inorganic materials development. My academic work focused on design of organometallic compounds to control reaction mechanisms with small organic molecules. At 3M, I have worked on catalysts for adhesives, development of new inorganic materials used in a broad set of applications, including nanocomposites, biomedical detection, and abrasives.

Volunteer Service to the ACS Community: MN -ACS Councilor (2006 – present). MN-ACS Project SEED Coordinator (2011- present), ACS Committee on Minority Affairs (2017), ACS Committee on Chemistry and Public Affairs (2006-2016), ACS Committee on Communications and Public Relations (2011-2016), MN ACS Chair Government Affairs Committee (2004-2010), MN –ACS Executive Committee (2003- present).



Chemistry with Kids

Arianna (Kooyman) Ahl

An event specially put on for parents 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 *obleck*, *VQRZ #Q#/HSWHP EHU*, 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 9th, 2017

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

RSVP: Please email Arianna Ahl at amkooyman@gmail.com with the number of adults and children attending or with any questions by September 7th. Volunteers are needed and welcome!



MN ACS Senior Chemists' Lunch: September 6th

Lynn G Hartshorn

A reminder that the first Senior Chemists lunch of this season will be Wednesday, September 6 from 11:30 am to 1:30pm at the Green Mill Restaurant in St. Paul on Hamline and Grand Avenues, in their private room. Parking is on the street or in the parking lot 50 yds west on the north side of Grand Avenue.

Kim Johnson has volunteered to give a short talk: "Rare Earths and Regulations in the West". We will also plan our further meetings this fall. Ideas for talks, tours, etc. are very welcome!

RSVP to Lynn at lghartshorn@stthomas.edu by FRIDAY SEPTEMBER 1ST. Reservations are necessary so I can let the Green Mill know how many wait staff we will need.

All are welcome, including anyone who has never lunched with this group before, spouses, and guests. You don't have to be retired to come! We order from the menu. I look forward to seeing you!



Leadership Development Course

The Minnesota Local Section of the American Chemical Society is pleased to announce an upcoming Leadership Development Course: **Engaging Colleagues in Dialogue**.

Facilitator: **Larry Krannich**, Professor Emeritus, Chemistry, University of Alabama at Birmingham

With the speed at which we move, we are used to sending a brief text, or responding with a quick email, often communicating in shorthand. While this works in social situations, it leaves us open to misunderstandings when working on a school assignment, a work project, or a research study. In these situations, misunderstandings can have disastrous results, leading to projects getting derailed, inefficiencies, misinformation being sent out, and missed deadlines.

Communication underlies everything we do and has a direct correlation to the success of a project. It is one of the most basic and important skills we need to be successful in school, on the job, and in volunteer situations.

Engaging Colleagues in Dialogue is a four-hour, hands-on interactive course that helps you develop your one-to-one communication skills. You will learn how to improve both sides of the communication exchange: first working to understand how to better communicate your messages and second, working on listening and acknowledging others messages. You will even have an opportunity to assess your own communications skills through conversations with colleagues.

Participants will:

- Learn that good communication is truly a two-way street. Without solid understanding and practice, your communications can lead to misunderstandings.
- Track your own communication skills prior to the workshop, and examine how you performed on the six dimensions of the communications model.
- Learn three skills that will help you to understand the other person's intended message better, versus relying on your own interpretation.
- Learn three skills to help you be better understood.
- Gain real-life practice and individual advice on what to focus on to improve your conversations.

When: Saturday, October 7, 2017 from 8 am – noon

Where: Hampton Inn and Suites Minneapolis St. Paul Airport Mall of America, 2860 Metro Drive, Bloomington, MN 55425

Cost: \$5 (Majority of the funding for this course is provided by an ACS Leadership Development System™ Grant.)

To register send an email with your name and contact information to Becky Guza at becky.guza@hbfuller.com by September 22.

*Space is limited to the first 25 people that register.



National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE)

Sarah Mullins

The National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) is hosting their national conference at the Radisson Blu and Marriott in **Downtown Minneapolis, MN on Oct 30th to Nov 3rd.**

www.nobcche.org/conference

With the theme “We are NOBCChE: Community, Leadership, Partnerships”, the 44th annual conference is an excellent opportunity for undergraduate and graduate students! All are encouraged to attend. Engaging in the NOBCChE community means advancing your scientific and personal development. Conference events include:

- Student and professional development workshops
- Elevator Speech Open Mic Student Competition
- Student Poster Session and technical talks
- Career Fair - Network with professionals from Industry and Graduate School programs
- Attend technical talks from award winning chemists

Call for volunteers!!

The NOBCChE conference also includes several STEM encouragement events focused on K-12 audiences. Middle and high school students from across the US have been competing in regional science bowls and fairs will be at the conference. This is a great place to bring your demonstrations or serve as a science fair judge!

<http://nobcchestemwkd.com/index.php/getinvolved>

Space for activities is allocated on first come, first served basis. Groups who have activities best done on stage (e.g. for large groups) should apply by Oct 1st. All others, by Oct 18th.

The American Chemical Society is a proud supporter of NOBCChE. For further information on the Minnesota Local Section (MNACS) participation, contact Sarah Mullins at Smullins44@gmail.com



Councilors' Report from Washington, DC National ACS Meeting

Wayne C. Wolsey, for the MN ACS Councilors

The MN ACS Section was represented at the August 23, 2017 Council meeting by Councilors Marilyn Duerst, Sarah Mullins, James Wollack, Wayne Wolsey, and Alternate Councilor Ramesh Kumar. The meeting opened with recognition of past and present Councilors who had recently passed away. Recognized was Sr. Mary E. Thompson, CSJ, who died on June 25, 2017. A retired St. Catherine U. professor, she was a member of Council from 1979-84 and 1988-2002. Honored earlier at the meeting, Sarah Mullins became an ACS Fellow, joining Councilors Duerst, Kumar, and Wolsey who had previously received this designation.

Council members elected new members of the Council Policy Committee, the Committee on Nominations and Elections, and the Committee on Committees. A petition on International Sciences Chapters to amend the Bylaws would permit financial support for these Chapters and remove language prohibiting representation on Council was presented. The motion narrowly failed to achieve the two thirds majority to amend.

A proposal to establish a probationary Division of Space Chemistry was defeated by a 3/1 margin. Many had not recognized that the Physical Chemistry Division formed a Subdivision of Astrochemistry in 2013.

A change in Local Section Territory was made in New Jersey, allowing the South Jersey Section to annex an unassigned county.

Several committees made written and oral reports. Of particular interest were the following: The Society's 2017 budget projection shows total revenue of \$553.0 million vs total expenses of \$527.6 million. The largest portion of revenue is from publications/Chemical Abstracts Service (CAS). CAS is working with Wikipedia in the creation of Common Chemistry (commonchemistry.org) for 7,990 common chemicals. Membership is on the decline, with several reversal projects underway. Chemical Safety is now part of the ACS Strategic Plan. The 3M Company has been declared a Visionary Partner as a philanthropic donor in working with ACS on Minority engagement and Project SEED. The Committee on Analytical Reagents has published the 2017 edition of the *Reagent Chemicals* compendium of standards and procedures (also available electronically). National Chemistry Week will be October 22-28, with a theme of "*Chemistry Rocks*." Marilyn Duerst wrote procedures for Epson Salt Needle Crystals and Borax Crystal Snowflakes in *Celebrating Chemistry*.

It has been my pleasure to serve MN ACS as a Councilor since 1985, when I was elected to replace Prof. Robert Brasted. This ACS meeting is the last for which I am a Councilor. It has been stimulating to serve on the Committees dealing with Chemical Abstracts, International Relations, Economic and Professional Affairs, Chemical Safety, and currently on Analytical Reagents (CAR) and Nomenclature, Terminology, and Symbols (NTS). I wish the MN Section and the ACS Council the best for the future.



Networking as a path to learn to be a scientist

Sarah Mullins

Congratulations to participants of Minnesota Local Section's 2017 Project SEED program! On August 10th seven students, hailing from St. Paul Public High Schools presented their research posters at the University of Minnesota MSERC Summer Undergraduate Research Expo (SURE). Each student was matched with a UMN faculty member to work on a chemistry-related research question over 8 weeks this summer. This year, students tested the competitive metabolic processes of bacteria, tested materials designed to clean up oil spills, studied the selectivity of carbon-coupling reactions and searched for chemicals in growing plants. Analytical tools used by the students ranged from Thin Layer Chromatography to mass spectrometry and potentiometry.

"At the beginning of the summer, the students are overwhelmed by the jargon of all these tools and techniques they have never heard of before. They take notes and try to get the correct answer. By the poster session in the last week, they realize that doing scientific research means to be part of a learning community. Scientists who teach and challenge each other, a type of networking that brings you to people who will support you, and bring exposure to new ideas and opportunities," says Sarah Mullins, MN Project SEED Coordinator.

In addition to working full-time in the lab, students did a campus tour with prospective UMN College of Science & Engineering students and attended events with faculty presentations and guest speakers to broaden their view of what professional scientists do and why they do it.

You can learn more about the students and their projects by following the Twitter feed @ProjectSEEDMN.

A special thanks to the following groups for excellent support and hosting of Project SEED students this summer: University of Minnesota Departments of Chemistry, Chemical Engineering, Horticulture and Biochemistry and MSERC Outreach coordinator Phil Engen. Funding provided by MN Local Section, ACS Project SEED, and 3M Gives.

2017 Faculty & Student Mentors:

Prof Phil Buhlmann (Evan Anderson), Prof R. Lee Penn (Louis Corcoran), Prof Alon McCormick, Prof Wayland Noland (Matt Huisenga), Prof Mark Distefano (Kiall Suazo), Prof Jerry Cohen (Qiao Xi, Michael Burns), Prof Romas Kazlauskas (Qian Tang)

2017 Student participants:

Washington Technology Magnet High School: Class of 2019 -Xee Thao ('19) , Anaa Jibicho ('19), Camryn Franke ('19), KaLia Xiong ('17, now freshman at U Wisconsin)

Johnson High School: Maria Balderrama ('18)

Harding High School: BaoNhia Thao ('17, now freshman UMN Col. Sci. Eng.), Pa Thao ('17, now freshman UMN Col. Bio. Sci.)



Project SEED students after the 2017 MSERC Student Undergraduate Research Symposium (SURE) at University of Minnesota, Twin Cities (L to R: Xee Thao, BaoNhia Thao, Pa Thao, Anaa Jibicho, Camryn Franke, KaLia Xiong, Maria Balderrama)

UMN Department of Chemistry focuses on the mental of health of graduate students: proactive initiatives highlighted in C&EN cover story.

Eileen Harvala

The University of Minnesota (UMN) Department of Chemistry's proactive work on mental health issues is highlighted in an article on the front cover of the Aug. 7, 2017, edition of the American Chemical Society's Chemical & Engineering News (C&EN). The article, "[Grappling with graduate student mental health and suicide: the stress of grad school means that open discussions and training are vital](#)," was written by Jyllian Kemsley C&EN senior editor. She shares the story of a Scripps Research Institute, CA, graduate student who committed suicide in 2016, and also writes about warning signs, what to do/how to help, and efforts undertaken by universities to promote mental health.

Kemsley writes about the efforts of UMN Chemistry Professor Philippe Buhlmann who has made "it his mission to promote mental health" such as initiatives to help students be successful in graduate school. The article highlights the work of the Chemistry Department's [Community of Chemistry Graduate Students](#) (CCGS), which includes an interview with CCGS Chair and Graduate Student Evan Anderson, to reduce stress, foster discussions about mental health, encourage students to talk with each other and seek help, and have fun together and build community.

Kemsley's article also includes a link to Chemistry Professor Christopher Cramer's [video](#) in which he talks about his own struggle with depression during graduate school.

You can read more about the work of the CCGS on page 20 of the [December 2016 edition of ChemNews](#). There is an article on Professor Buhlmann in [Access U](#) that focuses on his work as a mental health advocate.

Links:

<http://cen.acs.org/articles/95/i32/Grappling-graduate-student-mental-health.html>

<http://ccgs.chem.umn.edu>

<https://www.youtube.com/watch?v=U7ORySKdCCo>

<https://chem.umn.edu/sites/chem.umn.edu/files/2016chemnews.pdf>

<http://accessu.sjmc.umn.edu/2017/04/18/doing-better-than-surviving-cse/>



**Volunteer
Opportunities**

Upcoming Chemists-in-the-Library Events

Philippe Buhlmann

August 26th, 1:30 PM at North East Library

September 16th, 1:30 PM at North Regional Library

October 21st, 1:30 PM at Minneapolis Central Library

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

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