



# The Minnesota Chemist

Official Publication of the Minnesota Section of the American Chemical Society

Issue 2, Mar-Apr 2018



## Greetings from the Chair

Hello Everyone,

Hopefully the New Year has treated you well, despite some very cold weeks. Looking ahead, I hope you are eagerly anticipating not just the warmer weather to come, but also to our exciting spring lineup!

Our March meeting will be held jointly with the Minnesota Technical Symposium (MinnTS) on **Tuesday, March 6<sup>th</sup>**. The meeting will be held at Ecolab in Eagan. Ecolab will provide tours of their Research Center at 4:30pm and 5:00pm. Dinner and talks about Artificial Intelligence in autonomous vehicles by Matthew Linder and Jay Hietpas will follow. Be sure to use the link from our site to the MinnTS site to sign up (<http://mnacs.sites.acs.org/6march2018.htm>). Deadline to register is February 28<sup>th</sup>.

For April, I would like to announce a slight deviation from our standard meetings. The format will still be an Executive Meeting followed by dinner and then the talk. However, the Eagan Community Center location offers childcare and an indoor playground. All the appropriate reservations have been made, so please bring the entire family to the April meeting. Children are encouraged to go play after dinner, during the Leachables & Extractables talk. A national ACS Innovative Project Grant has been submitted to help fund the pilot event.

The details for June's social are still being coordinated, but it will likely be held at Norseman Distillery. We will begin with a private tour of their distillery and enjoy drinks and appetizers afterwards both inside and on their patio. More details to come!

### Spring Events

**March 6<sup>th</sup>** - Minnesota Technical Symposium (MinnTS), Ecolab

**April 3<sup>rd</sup>** - Leachables & Extractables, Eagan Community Center (Significant others & children encouraged to come for dinner. Free childcare provided during the talk)

**May** - Awards Banquet, St. Thomas

**June** - Summer Social, Norseman Distillery

**September 8<sup>th</sup>** - Fall Family Day (Saturday), Mendakota Park

As always, we are looking for volunteers to fill committee positions or become a part of an existing group. If you feel compelled to get involved with a future activity listed above or have ideas for other fun events, please reach out ([amkooyman@gmail.com](mailto:amkooyman@gmail.com)). Resources have been set aside for kick-off meetings, a social get together, or other professional events should anyone take the reins.

Regards,

Arianna Ahl



**March 6 – Minnesota Technical Symposium (MinnTS) -**



## Artificial Intelligence (AI) in Autonomous Driving and Autonomous Bus Technology

**Joint Meeting with the Minnesota Technical Symposium ([www.minnts.org](http://www.minnts.org))**

**Speakers:** **Matthew Linder**, Autonomous Solutions Researcher, Vision Systems Intelligence; **Jay Hietpas**, Director, MnDOT Office of Traffic, Safety and Technology

**Location:** **Ecolab Schuma Campus – Research Center, Bldg. F**, 655 Lone Oak Drive, Eagan, MN 55121

**Schedule:** Tuesday, March 6

- 4:30 Ecolab R&D Center Tours begin
- 5:00 Last Ecolab R&D Center Tours depart
- 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 Matthew Linder - "The Role of Artificial Intelligence (AI) in Autonomous Driving"
- 8:00 - 8:15 Break
- 8:15 - 9:00 Jay Hietpas - "Autonomous Bus Technology"

**Cost:** \$25 member or non-member (please specify that you are an ACS member – the section is subsidizing the meal)

**Meal:** Pasta Primavera, French Bread, Salad, Spanakopita, and Dessert

**Meal Ticket:** Reservations can be made on the [MinnTS](#) webpage where you can purchase meal reservations through PayPal under "Mn-ACS"

**Deadline:** February 28th

**Bios:** Matthew is an autonomous vehicle software developer and analyst with a focus on artificial intelligence for VSI Labs. VSI is considered one of the industry's top advisors by supporting R&D & planning departments within major automotive and suppliers worldwide.

Matthew leads a small software development team that works on research projects that examine products, services, and techniques used in autonomous driving. He researches components of Autonomous Vehicle systems including sensors, processors, software, development tools, deep learning tools, and deep learning architectures.

Jay is the State Traffic Engineer for the Minnesota Department of Transportation (MnDOT). As part of his duties, he oversees the policy and testing development of Connected and Automated Vehicle Technology. MnDOT is currently working with an autonomous vehicle manufacturer to test how these vehicles perform in winter weather conditions. Jay is also working with other state, county and city officials to develop a Minnesota strategic vision for advancing this technology in Minnesota.

[Meeting Flyer](#)

## April 3 – Parents and Kids Night Out: Leachables & Extractables



**Speaker:** **Vanessa Haase, PhD**, Toxicologist, WuXi AppTec; **Erin Scholla**, Analytical Chemistry Manager, WuXi AppTec

**Location: Eagan Community Center** – 1501 Central Pkwy, Eagan, MN 55121

Your local ACS understands the difficulty of balancing professional and family life, so we are piloting a new style of meeting. The entire family is encouraged to come enjoy dinner and network with others in chemistry. After dinner, a childcare room and the Blast Indoor Playground will keep children entertained during the relevant 'Leachables and Extractables' presentation. Please join us for this exciting evening! We hope this event will help foster the start of a community for an often-underserved portion of our members, while still providing an excellent topic for the entire MN ACS.

Our speakers, Erin and Vanessa, will speak to the importance of regulating and understanding new and existing chemicals.

- Over 80,000 chemicals are used in the US with approximately 1,000-2,000 new ones introduced each year
- Only a few 100 of those chemicals have been tested for health and human safety
- Downstream exposures and effects from consumer products are poorly understood
- Extractable or leachable chemical studies help define the levels of chemical hazards
- Toxicological risk assessments use computation methods to model the physical and biological properties of chemicals to identify exposure risks and testing mitigations

**Time:** Tuesday, April 3<sup>rd</sup> 2018

5:00-6:00pm- Executive Meeting: The Oaks Ballroom

5:50-6:50pm- Social & Dinner: The Oaks Ballroom

6:50-8:05pm- Talk: The Oaks Ballroom; Childcare: Blast Indoor Playground

**Menu:** Assorted Deli Sandwiches, Fruit, Chips, and Dessert

**Cost:** \$15 Standard Meal Ticket; \$5 Students/Children under 12 Meal Ticket, Talk- Free.  
Please RSVP online

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](mailto:amkooyman@gmail.com).

**Deadline:** March 28, 2018

**Abstract:** Over 80,000 chemicals are in use in the United States, and approximately 1000 - 2000 new chemicals are introduced into commerce each year. Most have not been adequately tested for their effects on human health. When the Toxic Substances Control Act (TSCA) passed in 1976, some 62,000 chemicals were grandfathered in and left unregulated. Regulatory agencies can compel companies to generate new data on a chemical, but are required to first demonstrate that it presents unreasonable health and environmental risks. This determination is based on a review of the existing data; however, the existing data are often too insufficient to make this determination. Consequently, only a few hundred chemicals have since been tested for health and human safety, and chemicals like asbestos, bisphenol A (BPA), and some flame retardants have been virtually impossible to regulate. Each year, an estimated 2000 new chemicals are introduced for use in foods, personal care products, prescription drugs, and household cleaners. The most significant exposure to these substances is likely to occur occupationally, during manufacturing, distributing, using, and disposing. The risk for adverse effects during occupational exposure can be mitigated through the use of appropriate personal protective equipment. The risk for adverse effects from repeated exposure to low-levels of these residual chemicals in downstream products, however, is poorly understood. Additionally, no accountability measures exist to ensure that chemical-free labeling (e.g., BPA-free) is credible. Extractable or leachable chemical studies can be conducted to define the levels of these chemical hazards present in consumer products. Risks associated with exposure to these chemical hazards can be determined by a toxicological risk assessment, which is crucial in understanding consumer levels of exposure and whether these levels may pose prolonged or chronic risks to human health. Some synthetic chemical compounds are notorious for accumulating in mammalian fatty tissue. These chemicals can then bioaccumulate up the food chain, and be passed on during pregnancy and lactation during critical periods of child development. Bis-phenol A, a building block of polycarbonate

plastic and synthetic estrogen, is detectable in the urine of >90% of humans. Epidemiological studies have found a positive correlation between its levels in the blood of women and a variety of reproductive and developmental issues. Several studies have documented conditions that support or enhance BPA migration from packaging materials, highlighting the importance of chemical characterization and risk assessment in assessing the potential risks of downstream contamination in consumer products. Toxicological risk assessments often use computational methodologies for modeling the physical and biological properties of chemicals, in order to fill data gaps for chemicals lacking historical data. This process supports the safe use of products by evaluating the unintended health effects of product materials and formulations. This risk-based approach is implemented by the US Food and Drug Administration for high risk products, such as medical devices (Center for Devices and Radiological Health), to identify the relevant patient exposure risks and designate appropriate testing mitigations.

**Bios:** Vanessa Haase, PhD works within the toxicology consulting group at WuXi AppTec, a leading global pharmaceutical and medical device research organization. As a toxicologist, she provides technical and regulatory support for biocompatibility testing programs in accordance with guidances set by the U.S. Food and Drug Administration (FDA) (e.g., the ISO 10993 documents), and other applicable international regulatory standards. Her other duties include advising clients on chemical characterization (extractable and leachable chemicals) requirements for risk management purposes and conducting quantitative and qualitative toxicological risk assessments on medical device materials and extractable/leachable chemicals. Vanessa completed her Doctor of Philosophy at Virginia Tech in 2015, and her original publications into the toxicological effects of common quaternary ammonium disinfectant compounds received national news attention in publications such as Scientific American, Environmental Health News, and Science World Report. She is passionate about her collaborations, which span from consumer safety issues and improvements to the risk assessment process, to a wide variety of environmental quality concerns.

Erin Scholla is an Analytical Chemistry Manager at WuXi AppTec, a leading global pharmaceutical and medical device research organization. Part of her current role is leading a team to evaluate potential chemical contaminants that may negatively affect patient safety for medical devices and drug manufacturing components. Erin's passion for safe products extends to her family; as a mother of three, she is an advocate for transparency of ingredients and safety in consumer products. Erin holds a Bachelor of Arts degree in Biology from the University of Minnesota-Morris and has 17 years experience in the medical research industry.



### Volunteer Opportunities

## Minnesota ACS section to host 2021 Great Lakes Regional Meeting

James Wollack

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 ([jwollack@stkate.edu](mailto:jwollack@stkate.edu)) or Ramesh Kumar.



### Volunteer Opportunities

## Minnesota State Science Fair Looking for Volunteers

Lisa Day

We are currently seeking judges at the Minnesota State Science & Engineering Fair which is held on **Monday, April 9 at The Earle Brown Heritage Center in Brooklyn Center**. If you've already registered, thank you! If you registered for 2018 JSBS and would like me to add you to Science Fair, also, let me know! The judging shift is 7:30 a.m. to 4:00.

We hear from students over and over again that the highlight of the experience for them is being able to dialogue and learn from professional scientists. We're behind in recruitment which is why I'm sending this e-mail. We still need to recruit 140 judges. I'd be super grateful if you'd judge and talk to your colleagues about judging.

To judge high school projects, judges must have a minimum of 6+ years of experience or a doctoral degree (this includes graduate students in their final year of their program). To judge middle school projects, judges must have 2+ years of experience or a Bachelor's degree (this includes upper division undergraduate students).

Here's a link to volunteer and judge registration.

<https://mas.ps.membersuite.com/Login.aspx?redirectURL=%2fdefault.aspx>

Warmly,  
Lisa Day

## MN-ACS Awards at Science Fairs

Wayne Wolsey



Special Awards are given at four Regional Science Fairs (within the boundaries of the MN-ACS Section) each year and at the Minnesota State Science Fair. The Regional Science Fairs at Rochester, Mankato, St. Cloud, and Twin Cities are being held in late February and early March.

**February 17** – Southern Minnesota Regional Science Fair at the Trafton Science Center South in Mankato

**February 20-23** – Rochester Regional Science & Engineering Fair at the Regional Sports Center on the RCTC campus

**February 24** – Central Minnesota Regional Science Fair at St. Cloud State University's Atwood Ballroom in St. Cloud

**March 2** - Twin Cities Regional Fair in the Coliseum at the State Fairgrounds

**April 8-10** - The 2018 MN State Science and Engineering Fair will be held at the Earle Brown Heritage Center in Brooklyn Center

Awardees chosen for the ACS Special Awards will appear in the May-June issue of the Minnesota Chemist.



Volunteer  
Opportunities

## Upcoming Chemists-in-the-Library Events

Philippe Buhlmann

January 20 at 1:30 PM – Augsburg Park Library

February 10 at 1:30 PM – Highland Park Library

March 10 at 1:30 PM – Dayton's Bluff Library

April 7 at 1:30 PM – Riverview Library

## April 21 - 2018 Winchell Undergraduate Science Symposium

Lara Maupin



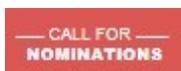
MN-ACS is a co-sponsor, with the Minnesota Academy of Science of the Annual Winchell Undergraduate Science Symposium (a major part of the MAS Annual Meeting). It will be held this year at the University of St. Thomas on **Saturday, April 21**. As in past years, MN-ACS budgets funds to cover the registration fees of undergraduates in chemistry or biochemistry who make oral or poster presentations, up to a maximum of seven presenters/institution. Professor Christy Haynes of the University of Minnesota Chemistry Department will give the Keynote Address. Complete information is available on the MAS website, [www.mnmas.org](http://www.mnmas.org) or from Lara Maupin, Event Coordinator at 612-704-8469.



## Minnesota ACS Senior Chemists' Group

Lynn Hartshorn

The February meeting of the Senior Chemists' group was held on Wednesday, February 7th at



## Call for Nominations – 2018 Brasted Award for Excellence in College Chemistry Teaching

Ramesh Kumar

The Minnesota Section honors excellence through three awards given on a rotating basis - the Award for Excellence in High School Chemistry Teaching, the Minnesota Award for outstanding achievement in a chemistry career, and the Brasted Award. This year the section invites nominations for the Brasted Award for Excellence in College Chemistry Teaching.

The nominee must be actively engaged or retired from teaching chemistry at the college level. The nomination packet should include a biographical sketch, a list of publications, and a statement and evaluation of the nominee's achievement. Significant attributes can include quality of the candidate's teaching effectiveness and his/her ability to challenge and inspire students.

Letters of support are encouraged and may come from the department chair, associates, current or former students, and colleagues.

The Brasted Award consists of a plaque and a cash award of \$500; it will tentatively be presented at the May 2018 Section meeting. Past winners include Robert Brasted (U of MN, for whom the award was named after his death), Olaf Runquist (Hamline), John Holum (Augsburg), Emil Slowinski and A. Truman Schwartz (Macalester), Richard Borch, Claire Woodward, Gary Gray (U MN), Arne Lansjoen (Gustavus Adolphus), John P. Walters (St. Olaf), John Hill (U WI River Falls), Wayne Wolsey (Maclaster), Gary Miessler (St. Olaf) to name a few.

Please send the nomination to the chair of the Awards Committee, Ramesh C. Kumar ([rckumar0051@mmm.com](mailto:rckumar0051@mmm.com)) on or before March 15, 2018.

## Call for Nominations – 2018 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](mailto: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, 2018.

## Call for Nominations – 2018 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 2018 meeting of the section.

Nominations should be submitted electronically to the Chair of MN ACS Awards Committee, Ramesh C. Kumar ([rckumar0051@mmm.com](mailto:rckumar0051@mmm.com)) before or on March 15, 2018.



## Science as Poetry

A long-time ACS member submitted the following poem describing the realities of Thermodynamics for the enjoyment of our readers:

You Can't Win: A Thermodynamic Proof

Nature has laws that define what it does,  
And they're not always kind to romantics.  
"You can't get something for nothing," because  
That's the First Law of Thermodynamics.

But that's only one thing that limits your fates,  
So don't think that you'll be the hero.  
"You can't even break even . . ." the Second Law states,  
"Except at absolute zero."

There's still one more law, and it keeps you hemmed in;  
It's the Third Law and last of trio.  
It's the final restriction that proves you can't win:  
"You can't reach absolute zero."

Les Jones

Les Jones ([les13006@live.com](mailto:les13006@live.com)) is a 50-plus year member of ACS-MN and served as Chair of the Education Committee, Chair of the Professional Relations Committee, Alternate Councilor and member of the Executive Board during the 1970s. Les retired from 3M in 2000.

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

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