Save the dates! CEMS Centennial & Jubilee!

Join us for these CEMS Centennial & Jubilee kick-off events on June 21-22, 2019.

**Friday, June 21, 2019**

*Alumni Symposium*
9:30 a.m. to 3:30 p.m.
Amundson Hall & The Frederick R. Weisman Art Museum

Notable CEMS alumni and guest speakers will present on exciting topics including the future of medical devices, solar energy and entrepreneurship, science policy in Africa, perspectives on education and the future of industry, and cutting-edge research, innovations, and inventions.

*CEMS Celebration at Surly Brewing Co.*
*Scheid Hall - 2nd floor event space*
5:30 p.m. to 7:30 p.m.

If you’re in Minneapolis, you need to be at Surly. Let’s start the party at this awesome destination brewery. Raise a glass with us!

**Saturday, June 22, 2019**

*Amundson Tours and Breakfast*
8:30 a.m. to 10:30 a.m.

**Alumni Events**
10:30 a.m. to 3:00 p.m.
Hosted by CEMS faculty members and alumni leaders to include:
- **TopGolf**
- **Bell Museum**
- **Minnehaha Steamboat tour**
- **Minnesota Landscape Arboretum**
- **Minneapolis Queen paddle-wheel boat tour**

**Centennial & Jubilee Kick-Off Dinner**
5:00 p.m. to 9:00 p.m.
Cocktail reception with dinner to follow. Join us for the culmination of kick-off weekend to celebrate our history and define our path towards excellence for the next 100 years.

Guest speakers will include Matthew Tirrell, Dean and Founding Director of the Institute for Molecular Engineering at the University of Chicago, Elin LaBreck (MSE ’16) of SpaceX, and Nick Halla (ChE ’05) of Impossible Foods, Inc.
MESSAGE FROM THE HEAD

Centennial celebrations, June 21-22, 2019: You’re Invited!

Help us celebrate these department milestones during the CEMS Centennial & Jubilee kick-off events.

In the last newsletter I announced that our chemical engineering program is turning 100 years old in 2019 and materials science is hitting the 50 year mark in 2020. This combined Centennial & 50 Year Jubilee in 2019-2020 provides us with an historic and opportune moment to reflect on the tremendous achievements of our alumni and faculty. Graduates of CEMS include the inventors of Gore-Tex™, Post-It Notes™, and Honey Nut Cheerios™. They also include hugely successful innovators in carbon fiber, magnetic hard disk drives, energy, and human health, as well as some of the most accomplished business leaders and academicians of all time. The economic and scientific impact of our alumni is gigantic and we are duly proud of our alumni legacy. Likewise, our faculty have been exceptional scholars and innovators in teaching and research for decades. The accomplishments of our faculty are best personified by the Chief, Neal Amundson, head of CEMS for 25 years and one of the fathers of modern chemical engineering. He would be proud of what we have accomplished since he put CEMS on the path of leadership in the 1950s, 60s, and 70s. Together, in 2019-2020 we will celebrate the collective accomplishments of our alumni and faculty and think about the future of CEMS.

To mark the Centennial and 50 year Jubilee, we are planning a big birthday party and alumni reunion on Friday and Saturday, June 21-22, 2019. Each and every one of you (our 6,500 living alumni) is invited to attend this Centennial & Jubilee Celebration weekend. We hope you’ll come back to campus and join us for a range of fun and informative alumni reunion activities, described in more detail inside this newsletter, and the centennial dinner on Saturday night. The dinner will feature speakers with strong connections to CEMS including Elin LaBreck (MSE ’16), PCB Manufacturing Engineer at SpaceX, Nick Halla (ChE ’05), CTO for the California startup Impossible Foods, Inc., and Prof. Mathew Tirrell, Dean and Founding Director of the Institute for Molecular Engineering at the University of Chicago and a former longtime CEMS faculty member and department head. These featured speakers will share
their perspectives on where chemical engineering and materials science are headed in the future, highlighting the synergism and tremendous versatility of these disciplines. The dinner, and the preceding alumni events on Friday and Saturday, will provide an outstanding opportunity for you to reconnect with your classmates and our faculty, to learn about leading-edge research and business ideas from alumni who are at the forefront of these exciting changes, catch up on changes in CEMS since you graduated, and to think about how the dynamic fields of chemical and materials engineering have impacted all of our lives. We are excited about our plans for June 21-22, 2019 and I hope that you will mark your calendars now and make plans to attend.

Of course, your support of the department continues to be vital to our success, and will be even more so as we look forward to building the future of CEMS for the next 100 years. In the coming months, I will be reaching out to you in person, through this newsletter, and by email to tell you how you can help enhance our core missions of teaching, research and service. As always, but especially in the context of this historic moment, we are grateful for your interest, enthusiasm, and steadfast support of the department.

Sincerely,

C. Daniel Frisbie
Head, Department of Chemical Engineering and Materials Science

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Join Us! Upcoming Fall 2018 CEMS Events

**CEMS Homecoming**
Saturday, October 6, 2018
11:30 a.m. to 2:30 p.m.
Amundson Hall
Gopher football game vs. University of Iowa Hawkeyes
2:30 p.m. OR 3:00 p.m. (TBD)
TCF Bank Stadium
Registration required by September 7: z.umn.edu/cemshomecoming18

**CEMS AIChE Reception**
Tuesday, October 30, 2018
7:00 p.m. to 9:00 p.m.
Location TBD
Pittsburgh, Pennsylvania
This event is FREE. Please check the AIChE website and brochures to find CEMS at the 2018 AIChE Annual Meeting.

**CEMS Connects - 3M**
Friday, November 30, 2018
7:45 a.m. to 10:30 a.m.
3M Innovation Center
This event is FREE, but registration is required by November 19:
z.umn.edu/cems3M
100th Anniversary of the Department of Chemical Engineering and the 50th Anniversary of Materials Science

Centennial Partnership Opportunities

Since 1919, the University of Minnesota’s Department of Chemical Engineering and Materials Science has educated more than 6,500 engineers and scientists. The department’s unique community of collaborative innovators and dedicated educators are committed to excellence: advancing discoveries and addressing challenges in areas of vital importance to Minnesota and beyond, including energy and the environment, human health, and advanced manufacturing.

In 2019-2020, CEMS will celebrate the 100th anniversary of chemical engineering and the 50th anniversary of materials science by highlighting significant achievements of faculty and alumni throughout the celebratory year.

Individuals and corporations are invited to join us as a Centennial Partner to celebrate this once-in-a-lifetime milestone.

To learn more, please contact Courtney Billing, CEMS Director of External Relations, at cbilling@umn.edu.

General Benefits

- Recognition as a Centennial partner in two editions of the CEMSNews print publication, reaching an audience of 6,500 households
- Title partner recognition on Amundson Hall electronic screens the entire fall 2019 and spring 2020 semesters (foyer and computer labs) promoting name, logo, and URLs
- Charitable tax deduction
Partner Levels and Benefits

**Title Partner** $30,000

Premier Recognition: Centennial Alumni Weekend and Dinner presenting sponsor, Centennial Year Department Seminar series presenting sponsor, Amundson Hall Legacy Wall recognition, CEMS Centennial History book

- Full table (10 seats) at June 22, 2019 Centennial Dinner

**Gold Partner** $20,000

Premier Recognition: Centennial Alumni Weekend and Dinner sponsor, Legacy Wall, CEMS Centennial history book

- Full table (10 seats) at Centennial Dinner

**Silver Partner** $15,000

Recognition: Listing in CEMS Centennial history book, CEMS newsletters, social media, and corporate partnership webpage.

- 4 seats at June 22, 2019 Centennial Dinner

**Bronze Partner** $10,000

Recognition: Listing in CEMS newsletters, social media, and corporate partnership webpage.

- 2 seats at Centennial Dinner

**Friends of Centennial** $5,000

Recognition: Same as Bronze Partner level. $1,000 of your gift allocated towards Centennial scholarship fund and sponsorship of one student’s attendance to the dinner.

- 2 seats at Centennial dinner

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Distinguished Centennial Opportunities

**CEMS Centennial Scholarship** Minimum: $25,000 | Sustaining: $100,000

Recognition: Scholars will carry the donor’s name. Gifts of $1M+ will be recognized by naming the Department’s largest classroom and seminar space, Amundson Hall Room B75 or the Unit Operations laboratory.

**CEMS Centennial Graduate Fellowship** Minimum: $50,000 | Sustaining: $250,000

Recognition: Fellows will carry the donor’s name. Gifts of $1M+ will be recognized by naming the Department’s largest classroom and seminar space, Amundson Hall Room B75 or the Unit Operations laboratory.

**CEMS Centennial Endowed Chair** Minimum: $1,000,000 | Sustaining: $3,000,000

Recognition: The endowed chair will carry the donor’s name in perpetuity, and provide a vital response to the department, its faculty, and students.
CEMS and Industrial Collaboration: A win-win partnership

Cynthia Arnold, a CEMS External Advisory Board member, shares her perspectives on the mutual benefits to building connections between industry and academia.

Back in early 2016, Dan Frisbie decided to establish an external advisory board (EAB) for CEMS, an open-minded and voluntary move, of which it’s reasonable to say, was brave and progressive. Dan wanted new ideas, guidance and feedback to strengthen the department and continue to build its leadership aligned with its values. I’m proud to work alongside the diverse, talented and committed group of academic and industry leaders who he’s assembled. I’m not an alumna of CEMS nor of the University, as are the majority of the EAB, but like the majority of us (nine out of 11), I have had a long, rewarding career in industry and am a strong supporter because CEMS’ work is critical to industry. Conversely, engagement with industry is critical to CEMS’ faculty and students, and is therefore a focus of the EAB.

Universities and industry should be good partners. Universities help fulfill industry imperatives for relevant research, a pipeline of highly skilled talent, scientific guidance, new ideas and entrepreneurship. As such, they are critical players in developing the innovation ecosystem for industry and the overall economy. Of all the university STEM departments where industry may engage, however, what is it about CEMS that attracts industry’s technical leaders?

The main and compelling reason is having access to leading, relevant research and some of the very best new talent available to join the technical workforce. Both research and talent are in demand, but coming from this top 10 chemical engineering program and the strong, growing materials science program, provides a competitive advantage.

CEMS has a long history of collaboration with industry. Project sponsorship is the most conventional way to collaborate and is relatively easy to establish. Compared with many other external research institutions, the University of Minnesota and CEMS have an open approach that prioritizes engagement for the sake of teaching rather than revenue gain and intellectual property control for the university. That being said, the University of Minnesota is one of the ‘top 15 universities’ in the nation for technology transfer, based on the number of patents and licenses issued, licensing income and the number of start-ups created. It’s a fertile environment to develop new ideas and advance them toward commercialization. Students also gain critical skills reinforcing creativity and problem solving by working in a more entrepreneurial environment.

CEMS faculty members have an unwavering commitment to high quality teaching based on teamwork and problem-solving. Maintaining high quality teaching as a core value has repeatedly been front and center in our EAB discussions about meeting contemporary and industrial workforce needs. Partnership with industry is deeply ingrained in CEMS’ teaching style: faculty regularly request their industrial colleagues to identify real, current problems for students to solve as part of their undergraduate coursework, for instance. Industry recruiters can therefore count on CEMS students to bring new ideas, a standard of scientific excellence, and critical thinking, while at the same time having been pragmatically prepared for the culture of work in industry. The successes of CEMS alumni attest to the strength of this approach.

Clearly, industry has much to gain in this partnership, which brings me to the flip side: what can industry do to support CEMS? ‘Industry’ in this case, most likely means you, by the way, because the majority of CEMS alumni, after all, end up pursuing a career in an industrial company, whether medical or chemicals, oil and gas, agriculture, consumer goods, manufacturing or some other.

Consider the power of this strong alumni base! Whether you are looking for career advice, want to learn more about a company or market trends, or be inspired by frontiers in research and innovation, CEMS alumni have advice and information. One of our most exciting recent
Opening visit of the Valspar Materials Science and Engineering undergraduate lab, November 2014. Pictured, from left to right: Dr. Mohan Khadilkar (now Tech Director of Pentair Water Systems); Kurt Bowen, SW Coil Coatings Business Portfolio Manager; Howard Killilea, SW Tech Director, Global Polymers; Dr. Steve Crouch, former Dean, College of Science and Engineering; Dr. Cynthia Arnold; Dr. Lorraine Francis, Professor, CEMS; Dr. Rich Simon, SW Performance Coatings Global Analytical Tech Director.

actions was a dedicated effort to increase membership of the CEMS LinkedIn group (CEMS-UMN). Here you can see upcoming events, view and post updates and information, and connect.

We’d love to hear from you and have you share your career story: where are you working now, what projects excite and challenge you, what’s new in your personal life? A paragraph update and photo will bring our network alive and help make connections. You can read news about alumni and student colleagues throughout this issue. Please consider adding your own news on the LinkedIn site directly or in the newsletter by sending it to cemsalum@umn.edu.

Finally, consider a personal philanthropic gift or support an investment from your employer. Your contribution of time and financial support can take many forms. For Valspar, now part of Sherwin Williams, it was a multi-year contribution that enabled the acquisition of equipment in the new undergraduate materials science and engineering lab, providing a contemporary industrial research environment.

Dan Frisbie highlights in this issue that CEMS has two upcoming major anniversaries. These are worth celebrating, in large part because they recognize the foundation for the outstanding achievements of CEMS alumni over the years. With an eye to the future, we can secure ongoing support of students, research and innovation for many years to come. You can contact Courtney Billing (612.626.9501; cbilling@umn.edu) for more information about how to contribute in recognition of the centennial anniversary.

Let’s continue to build on CEMS’ great history and strengthen the partnership between CEMS and industry for the future!

By Cynthia Arnold

Dr. Arnold is Former Chief Technology Officer, Valspar Corporation and a member of the CEMS External Advisory Board.
Faculty awards

Frank Bates
Regents Professor Frank S. Bates was inducted into the prestigious National Academy of Sciences (NAS) during the National Academy of Sciences 155th Annual Meeting in Washington, D.C. on Saturday, April 28, 2018. Bates was among only 84 researchers worldwide to be elected to the National Academy of Sciences in 2017.

Bates is a world-renowned polymer scientist who focuses his research on block copolymers. His group’s research program affects a variety of technologically important fields, including polymer processing, composites, fracture mechanics, separations, catalysis, and drug delivery. Bates has been an author or co-author of over 400 publications on research ranging from plastics and rubber made from renewable sources to coatings for more effective oral medicines. He has received numerous past awards and is one of the few scientists who are members of the National Academy of Sciences, National Academy of Engineering, and the American Academy of Arts and Sciences.

Aditya Bhan
Aditya Bhan was promoted to the rank of Professor effective AY 2018-19. Bhan’s integrated experimental/theoretical research approach lies at the crossroads of materials synthesis, computational catalysis and catalytic chemistry and aims to advance the ability to understand, design and control chemical transformations using catalysis.

Xiang Cheng
Xiang Cheng was promoted to the rank of Associate Professor with indefinite tenure effective AY 2018-19. Cheng studies soft materials physics in experiments, with a special focus on the emergent flow behaviors of soft materials and their mesoscopic structural origins.

Paul Dauenhauer
Associate Professor Paul Dauenhauer has been selected to receive the inaugural AIChE Catalysis and Reaction Engineering Division (CRE) Young Investigator Award. Dauenhauer and Professor Yuriy Roman from MIT were declared joint winners in this inaugural year. The award recognizes individuals who have made significant contributions to the science and/or technology of catalysis and chemical reaction engineering through publications or practice. As an award winner, Dauenhauer will be recognized at the CRE dinner with a plaque and financial award, and a technical session will be held in his honor during the AIChE Annual meeting in October 2018 in Pittsburgh, Pennsylvania.

Kevin Dorfman
Professor Kevin Dorfman has been appointed Director of Undergraduate Studies for the chemical engineering program. Dorfman previously served as Chair of the CEMS Faculty Search Committee. His dedication and commitment to CEMS are unparalleled.
David Flannigan was promoted to the rank of Associate Professor with indefinite tenure effective AY 2018-19. His research program deals broadly with the experimental elucidation of non-equilibrium electronic and structural dynamics of inorganic, organic, and biological materials with atomic-scale spatial and femtosecond temporal resolutions. To achieve this, he uses ultrafast four-dimensional electron microscopy (UEM). With UEM, his research group brings together the high spatial resolution of transmission electron microscopy with the ultrafast temporal resolution of short-pulsed lasers.

In addition, Flannigan has been appointed Director of Undergraduate Studies for the materials science and engineering program.

**Flannigan receives McKnight Presidential Fellow Award**

David Flannigan has been selected as one of five recipients of the University of Minnesota's special mid-career faculty award, the McKnight Presidential Fellow Award. As an award recipient, Flannigan will hold the title of McKnight Presidential Fellow for three years and receive funding to support his research and scholarly activities.

The McKnight Presidential Fellows Program is targeted at exceptional faculty who have been newly granted tenure and promotion to associate professor, to recognize their accomplishments and support their ongoing research and scholarship. Candidates are considered for these awards at the conclusion of the regular promotion and tenure review process each year. The award is made possible, in part, by a generous endowment gift from the McKnight Foundation.

**Flannigan wins Sigma Xi 2018 Young Investigator Award**

David Flannigan has been selected to receive the Sigma Xi 2018 Young Investigator Award for his outstanding contributions as a researcher in the early stage of his career and exemplifying the ideals of Sigma Xi, the Scientific Research Honor Society. The award includes an honorarium of $5,000, a commemorative certificate, and the opportunity to present the Young Investigator Award Lecture at the Society’s Annual Meeting (October 25-28, 2018) in San Francisco, California.

**Satish Kumar named Distinguished McKnight University Professor**

Professor Satish Kumar is among six recipients of the 2018 Distinguished McKnight University Professorship. The University-wide program seeks to honor and reward the most distinguished and highest-achieving mid-career faculty who have recently attained full professor status, especially those who have made significant advances in their careers at the University of Minnesota, whose work and reputation are identified with the University, and whose accomplishments have brought great renown and prestige to Minnesota. Recipients are honored with the title Distinguished McKnight University Professor, which they hold for as long as they remain at the University of Minnesota. The grant associated with the Professorship consists of $100,000 over five years to be used, in accordance with University policy, for research and scholarly activities.
Success by design

The MATS 4400 Senior Design course benefits from mentors sharing wisdom and lessons that extend beyond the classroom.

College courses prepare students with knowledge and skills for their future careers. In MATS 4400, the Materials Science and Engineering Senior Design course, students not only receive practical training, but also benefit from the guidance of industrial mentors. Mentors are typically CEMS alumni who understand the value of this capstone course and seek to share their expertise in business, marketing, economics, and other corporate principles.

Professor Russell Holmes serves as lead instructor for the course. “We are extremely appreciative of the support we receive from alumni mentors. As the materials science program grew, we were only able to preserve this course as a result of their commitment to CEMS.”

For a more recent alumna like Shelby Smith (MSE ’17) who works as a R&D Engineer at Viraco and now serves as a MATS 4400 mentor, haven taken the course in 2017, she recognizes the advantages of the course format. “A benefit of Senior Design is the whole-semester, single-project format. In my work experience, most of my projects have been long-term. Many undergraduate courses assigned weekly or bi-weekly homework covering a wide variety of material. Senior Design allowed my group to delve deeper into a single topic and walk a project through from start to finish,” said Smith.

Luke Rodgers (MSE ’09), a Senior Director of R&D at Jabil’s Blue Sky Center, who has served as a mentor for the past nine years, enjoyed the financial analysis portions of the course as an undergraduate and has found them extremely helpful when securing funding for projects in his professional career. “MATS 4400 does a nice job of having the students apply their materials science knowledge to a scenario. The structure of the course forces them to communicate their knowledge in both verbal and written form and justify the project financially. These are all skills expected of a graduate from a top MSE school,” said Rodgers.

Learning by doing

Mentors propose design ideas so that there are typically 14 student projects matched with corporate mentors. The mentors host corporate site visits for students to further connect with the project and apply course concepts in a new and different way.

Vittorio “Victor” Jaker (MSE ’11), a Senior Materials Engineer at Stratasys and course mentor for the past four years, has proposed projects around packaging 3D printing materials to keep them dry and increase shelf-life, using composite materials to 3D print aerospace parts, creating 3D printable prosthetics, and a project to create a material suitable for high-temperature fiber composite structures.

Jaker still recalls the course project he worked on as an undergraduate student. “I took this course as a student with Chris Macosko as my professor back in 2011. Our group worked with a biomedical company to investigate new materials to simulate soft tissues for cardiovascular device testing. I benefited from exposure to a real workplace and learned a lot about how to temper complicated ideas from the literature against the concrete and immediate needs of a company to solve a problem,” said Jaker.

Dennis Braun (MSE ’06), a Senior Materials Engineer at CommScope has been a course mentor for the past three years. One project he led addressed, “When using a 3D printer to create injection molds, what can be done to lengthen the life of the mold?” Braun explained, “With this project, students looked at various methods of extending...
the lifetime of the printed mold material, however none proved to be an appreciable improvement. So instead, they proposed using direct metal laser sintering (DMLS) to create fast-turn molds. While this solution was outside the scope of what was initially presented to them, sometimes real world projects must significantly change direction in order to obtain something that works.”

In addition, Braun proposed, “What optical signal switching technologies exist outside of traditional mechanical switching, and do they make sense in today’s networks?” The students surveyed the optical switching landscape and identified various solid state solutions, many of which were known to us. However, it was interesting to see them arrive at the same conclusions as us and also valuable to see that we weren’t missing anything. Sometimes a “fresh set of eyes” is able to see solutions that aren’t apparent to those of us that have been in the industry for a long time.”

Rodgers described his course projects more broadly. “I always try to structure my project such that the students can’t find a definitive answer to the problem. I don’t want them to just find a solution, I want them to understand the process of getting to the most correct answer, given an ambiguous problem statement and their knowledge in materials science. This is how most of my engineering projects start, as an ambiguous problem someone is having. It is up to the engineer to determine what the real, underlying problem is, and how to solve it.”

Motivations for mentoring

Senior Design mentors often cite their fond memories of the course and tangible benefits as reasons why they give back as volunteers. Smith remarked, “I wanted to serve as a mentor to maintain my own connection to the department and to bring a project from the architectural glass industry into the class. It’s important to show students all the different industries and roles that are options for them as they are looking for post-graduation jobs.”

Braun shared a similar feeling, “When I took MATS 4400 in 2006, I really appreciated what our group’s mentor did for us, so it made sense to return the favor. And after being a mentor for the first time in 2015 and really enjoying it, I’ve been coming back ever since. Another important factor is that my company, CommScope, supports me using my time to work with the students. My mentor role provides an opportunity to build relationships within CEMS that could pay dividends in the future. For instance, one of our 2015 students was actually hired by CommScope a couple years later.”

Rodgers’ company has also hired CEMS alumni as a result of his firsthand knowledge of students in the MATS 4400 course. “Mentoring is a great way to help guide and develop young engineers while looking for talent to hire. I have always loved mentoring and enjoy getting to know each year’s students. I have hired several over the last nine years, sometimes right away, sometimes many years later. Mentoring helps me assess how the engineers are going to work in a business environment.”

Student transformations

The most enjoyable aspect of mentoring students in MATS 4400 is witnessing their growth and transformation in grasping new concepts and applied learning.

Smith remarked, “I really enjoyed seeing the questions that my group put together every week. They were very thoughtful about the project, and it was obvious that they wanted to thoroughly explore the problem. They used the answers and information I gave them, their own research, and input from their professors to put together a reasonable solution.”

Jaker concurred, “Students learn to refine soft skills such as communication and collaboration, and also learn some basic “business” skills around the management of a project from a non-technical perspective, e.g. return on investment, and time lines. By the end of the semester, students realize how they can use their education in the workplace.” Now that’s success...by design.
Staff transitions

**CEMS staff member Sue Wermager retires after 43 years of service.**

Longtime CEMS staff member Sue Wermager retired from her post at the front desk in the main office May 2018 after 43 years of service. A department reception was held in Wermager’s honor to wish her well in retirement.

**Wermager memories**

Wermager greeted each CEMS visitor with a warm smile and welcoming demeanor. Teresa Bredahl, Wermager’s supervisor, commented, “Susie was a very dedicated CEMS employee. She was one of the hardest working people in the department. Over the past 43 years, Susie’s job changed with the times from making copies on a mimeograph machine to the copier of today. She also took great pride in her work, ensuring that the day-to-day operations of the main office were running smoothly. When Susie filed documents, ordered supplies from UMarket, or assisted guests, you knew that she was giving her best effort.”

Jody Peper, a CEMS colleague of Wermager’s for the past 32 years, commented on some of the other fun aspects of Wermager’s presence in the department. “I recall that Sue often brought homemade treats into the office for faculty and staff. Sue made the best chocolate chip cookies! We couldn’t believe how she made them in a perfect half-dollar size each time,” said Peper. Additionally, Peper joked that CEMS staff members are still等着 pool party at Wermager’s residence. “When Sue was purchasing her home, she told us that the property had a pool. For awhile, we joked about when she’d be inviting us over for a pool party.”

Working in CEMS was more than just a job for Wermager. Her post in the main office allowed her to thrive in all of the best ways possible. She enjoyed interacting with people and engaging in conversation. Wermager truly dedicated her life to CEMS, and in doing so, made many lasting connections that she will carry into retirement. Best wishes, Sue!

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**CEMS welcomes Jennifer Harris**

Jenny Harris joined the CEMS staff in May 2018 as an Office Support Assistant. Her professional background includes several years in the service industry, as well as banking operations, and administration. In 2013, she left the banking industry to return to school full time, earning her Associate of Arts degree in 2016 from Normandale Community College. While there, she became a member of the Phi Theta Kappa Honor Society. In her free time, she enjoys playing with her four cats, “helping” her husband cook, baking, crafting, and reading.
Elizabeth Zudock is one of two students in the College of Science and Engineering to be awarded scholarships for the 2018-19 academic year by the Astronaut Foundation. Aliza Beverage, a junior majoring in physics and astrophysics from Roseville, Minnesota, was also awarded. The prestigious, competitive scholarship is awarded annually to outstanding sophomores and juniors who intend to pursue research-oriented careers in mathematics, engineering, and the natural and applied sciences. The scholarship awards up to $10,000 for a year of undergraduate study. In addition, recipients will receive mentoring and professional development support, attend the Astronaut Foundation’s Innovators Gala in Washington D.C., and have the opportunity to participate in other Astronaut Foundation events.

Elizabeth “Lizzie” Zudock of Katy, Texas plans to combine engineering and medicine to create cost-effective therapies that help to resolve healthcare inequalities. In pursuit of this goal, the junior Chemical Engineering and Chemistry major has been working for three years with Professor Benjamin Hackel to engineer new proteins with clinical applications. She has already helped to develop a cancer-targeting protein, contributing to research which has provided the basis for two articles, one of which has been published in *Molecular Pharmaceutics*. She is currently working on new research with probiotic bacteria to target and kill antibiotic-resistant pathogens.

Elizabeth has also developed her commitment to health care as a licensed Emergency Medical Technician with the University’s Emergency Medical Services. On campus, she is a member of the University Honors Program, the president of the Microbiology Club, the president of Tau Beta Pi, the engineering honor society, and a medic for the Pride of Minnesota Marching Band. A graduate of Seven Lakes High School, she is a National Merit Scholar, a University of Minnesota Gold Scholar, and a University nominee for the Rhodes Scholarship.

The Astronaut Scholarship Foundation was founded in 1985 by the Mercury 7 astronauts, one of whom, Donald “Deke” Slayton, graduated from the University of Minnesota with a B.S. in Aeronautical Engineering in 1949. Prevented from piloting the second U.S. manned orbital space flight by an irregular heart rhythm, Slayton served as NASA’s Director of Flight Crew Operations and later was cleared to pilot the docking module in the Apollo-Soyuz mission of 1975. The Astronaut Scholarships are awarded to students at 35 universities with historic ties to the U.S. space program who demonstrate leadership, imagination, and academic excellence in the study of mathematics, science or engineering. Twenty-nine students from the University of Minnesota have been recognized as Astronaut Scholars.

*Excerpt from a news release written by Rhonda Zurn, College of Science and Engineering and Lacey Nygard, University News Service. To read the complete release, visit: z.umn.edu/astronautscholars18.*
Academic accomplishments

Congratulations to these CEMS students who earned Master’s or Ph.D. degrees in AY 2017-18.

Lian Bai (Ph.D. MSE)
Controlling Cocontinuous Polymer Blends with Nanofillers Jammed at the Interface.
Advisor: Chris Macosko
Co-Advisor: Xiang Cheng

Arpan Anup Bandyopadhyay (Ph.D. ChE)
Systems Analysis of Pheromone Signaling and Antibiotic Resistance Transfer in Enterococcus Faecalis.
Advisor: Wei-Shou Hu

John A. Caputo (M.S. MSE)
Designing Plasmonic Sensors to Detect Refractive Index Changes in Palladium.
Advisor: Vivian Ferry

Matthew C. Carlson (M.S. ChE)
Advisor: Frank Bates
Co-Advisor: Xiang Cheng

Qile Chen (Ph.D. ChE)
Molecular Simulations of Phase Behavior for Polymer Blends and Block Polymers.
Advisor: Ilja Siepmann
Co-Advisor: Timothy Lodge

Daniel R. Cremons (Ph.D. MSE)
Advisor: David Flannigan

Yogesh Khemchandra Dhande (Ph.D. ChE)
Glycopolymers for Targeted Gene Delivery and Genome Editing.
Advisor: Theresa Reineke
Co-Advisor: Kechun Zhang

Mia Divecha (Ph.D. ChE)
Towards the Optimization of the Accelerated Crucible Rotation Technique Applied to the Gradient Freeze Growth of Cadmium Zinc Telluride via the Finite Element Method.
Advisor: Jeffrey Derby

Prabesh Dulal (Ph.D. MSE)
Advisor: Bethanie Stadler

Thomas R. Fieltitz (Ph.D. ChE)
Understanding and Engineering Molecular Order in Organic Semiconductors.
Advisor: Russell Holmes

Brittany A. Forkus (Ph.D. ChE)
Understanding Probiotic Bacteria for Use as Antibiotic Alternatives.
Advisor: Wei-Shou Hu

Liangliang Gu (Ph.D. MSE)
Modification of Poly(lactic acid) by Melt Blending.
Advisor: Chris Macosko
Co-Advisor: David Morse

Damini Gupta (Ph.D. ChE)
Static and Dynamic Properties of DNA Confined in Nanochannels.
Advisor: Kevin Dorfman

Udit Gupta (Ph.D. ChE)
Microkinetic Modeling of Complex Reaction Networks Using Automated Network Generation.
Advisor: Prodromos Daoutidis
Co-Advisor: Aditya Bhan

Kristeen E. Joseph (Ph.D. ChE)
Advisor: Paul Dauenhauer

Seyoung Jung (Ph.D. ChE)
Complexation Between DNA and Hydrophilic-Cationic Diblock Copolymers.
Advisor: Timothy Lodge
Co-Advisor: Theresa Reineke

Chang Hyun Kim (Ph.D. ChE)
Continuous and Reversible Modulation of Interfacial Electrochemical Phenomena on Back-Gated Two Dimensional Semiconductors.
Advisor: Dan Frisbie

Minchul Kim (M.S. MSE)
Advisor: Russell Holmes

Max A. Kruziki (Ph.D. ChE)
Engineering a 45-Amino Acid Protein Scaffold for Molecular Cancer Imaging.
Advisor: Benjamin Hackel

Robert K. Lade, Jr. (Ph.D. ChE)
Flow and Drying Dynamics in Gravity- and Capillary-Driven Coating Processes.
Advisor: Lorraine Francis
Co-Advisor: Chris Macosko

Tung Sy Le (Ph.D. ChE)
Systems Analysis in Mammalian Cell Biomanufacturing - Linking Energy Metabolism and Glycosylation.
Advisor: Wei-Shou Hu

Weihua Li (Ph.D. MSE)
Liquid-Film Coating on Rotating Discrete Objects.
Advisor: Satish Kumar
Xiaolan Li (Ph.D. ChE)
Biopolymer Simulations: From Next-Generation Genomics to Consumer Products.
Advisor: Kevin Dorfman

Chen-yu Liu (Ph.D. ChE)
Onset of Dynamic Wetting Failure in the Presence of Surfactants.
Advisor: Satish Kumar

Saurabh Sunil Maduskar (Ph.D. ChE)
Deciphering Biomass Fragmentation using Millisecond Microreactor Kinetics.
Advisor: Paul Dauenhauer

Maria K. McClintock (Ph.D. ChE)
Synthetic Biology Approach to New Sustainable Materials.
Advisor: Kechun Zhang
Co-Advisor: Benjamin Hackel

Nitish Mittal (Ph.D. ChE)
Advisor: Michael Tsapatsis
Co-Advisor: Prodromos Daoutidis

Claire S. Morgan (Ph.D. MSE)
Advisor: William Gerberich
Co-Advisor: Andre Mkhoyan

Angelika E. Neitzel (Ph.D. MSE)
Ring-Opening Polymerization of Cyclic Hemiacetal Esters for the Preparation of Hydrolytically and Thermally Degradable Polymers.
Advisor: Marc Hillmyer

Johnathan M. O’Donnell (M.S. MSE)
Advisor: Mahesh Mahanthappa

Konstantinos-Solon Papageorgiou-Flampouras (M.S. ChE)
Advisor: Paul Dauenhauer

Dayne A. Plemmons (Ph.D. ChE)
Nanoscale Energy Transport Investigated with Ultrafast Electron Microscopy.
Advisor: David Flannigan

William M. Postiglione (M.S. MSE)
Mobility Optimization in LaxBa1-xSnO3 Thin Films Deposited via High Pressure Oxygen Sputtering.
Advisor: Chris Leighton

Ellie M. Raethke (M.S. MSE)
Advisor: Cari Dutcher
Co-Advisor: Phil Buhlman

Stacey Saba (Ph.D. MSE)
Tunable Morphology of Porous Polymers via Polymerization Induced Microphase Separation.
Advisor: Marc Hillmyer

Meera H. Shete (Ph.D. ChE)
Tailoring the Microstructure of 2D Molecular Sieve Materials for Thin Film Applications.
Advisor: Michael Tsapatsis

Mark M. Sullivan (Ph.D. ChE)
Evolution in Structure and Function of Transition Metal Carbides During the Catalytic Activation of C-O, C-H, and C-C bonds.
Advisor: Aditya Bhan

Jeffrey J. Walter (Ph.D. MSE)
Ion Gel Gating of Perovskite Cobaltite Thin Films: Understanding Mechanisms and Control of Magnetism.
Advisor: Chris Leighton
Co-Advisor: Dan Frisbie

Tianqi Wang (Ph.D. MSE)
Hybrid Molecular Beam Epitaxy of Strain-Engineered SrSnO3 Films and Heterostructures.
Advisor: Bharat Jalan

Yuezhou Wang (Ph.D. MSE)
Advisor: Traian Dumitrica

Scott P. White (Ph.D. ChE)
Label-Free, Microfluidic Biosensors with Printed, Floating-Gate Transistors.
Advisor: Dan Frisbie
Co-Advisor: Kevin Dorfman

Nikolas A. Wilkinson (Ph.D. ChE)
Advisor: Cari Dutcher

Yan Wu (Ph.D. ChE)
Drying and Cracking Behavior of Aqueous Particulate Coatings.
Advisor: Lorraine Francis

Yiming Zeng (Ph.D. ChE)
Mechanism and Application of a Heterogeneous Catalytic Hydrogen-deuterium Exchange Reaction for Polyolefins.
Advisor: Frank Bates
Co-Advisor: Timothy Lodge

Bo Zhang (Ph.D. MSE)
The Colloidal Glass Transition Under Confinement.
Advisor: Xiang Cheng

Han Zhang (Ph.D. ChE)
Fabrication of Zeolite MFI Membranes on Low Cost Polymer Supports.
Advisor: Michael Tsapatsis
Co-Advisor: Chris Macosko
Gifts in action: A second act

*Sullivan Scholarship helps non-traditional student imagine new future for farming and energy.*

Benjamin Nicholes is the 2018-19 recipient of the Donald and Patricia Sullivan Scholarship.

**Background**

I was born in Idaho, but moved to the small town of Lodi, Wisconsin (about 20 miles north of Madison) when I was nine years old. I hail from a large family: I’m the youngest of seven and currently am an uncle to 13 nieces and nephews.

I became interested in materials science and engineering a few years ago when I was switching fields from teaching and moving towards engineering. I was amazed by graphene, Boeing’s micro-lattice, and how different materials can exhibit such a variety of properties given different methods of processing and ingredients. I wanted to be a part of the fascinating and ever-changing world of materials and help to bring exciting technological improvements into the general public.

When I’m not in class, I can be found playing soccer, spending time with my wife-to-be, looking for a dog to pet, running my own small resale business, hunting for morel mushrooms, tossing around a Frisbee, hanging with my family, and enjoying my household community (I have about 20 roommates).

**Undergraduate student experience**

My story is a bit of a non-traditional one. The degree I’m pursuing in materials science and engineering will actually be my second Bachelor’s degree. My first was in Elementary Education. I decided to go back to school because as I got to know myself, my strengths, and my desires for the future, I realized that being a career teacher wouldn’t be a sustainable vocation for me.

I selected the University of Minnesota for school because it was the only school which disregarded the fact that I was a second degree seeking student. The University didn’t put me on any waiting lists, but accepted me based on my merits and grades, and for that, I am greatly appreciative.

I currently work as a tech-aide at 3M where I am helping in a few different areas of research. I am in the Specialty Films and Polymer Processing cluster where I am helping to improve radar sensors for vehicle sensors in the up-and-coming autonomous vehicle business.

What I want to do with my degree in materials science is help to make the world a better place. I am interested in practical technologies and materials that give a leg-up to those people who otherwise would be at a disadvantage. Some tangible applications to this nebulous goal are farming technologies, water purification, and renewable energies.

**Impact of giving**

I am so humbled that I was chosen to be the recipient of the Donald and Patricia Sullivan Scholarship. I support myself 100% through my small business and by working at 3M, so this scholarship lifts a giant weight off me and my future.

This scholarship will provide an ease around my financial situation and will allow me to pursue my studies without having anxiety of financial burden lurking around the back of my mind. I am so grateful for the kindness of the Sullivans and their support of undergraduate education.

I would also like to note that this generous scholarship has single-handedly allowed me to avoid taking out any private loans for next year’s tuition, which is such a tremendous blessing to me.
New scholarships honor loved ones and the legacy of CEMS

Newly established Brand Scholarship, Taylor Scholarship, and Valentas Scholarship gifts will provide life-changing opportunities for many generations of CEMS students.

CEMS is delighted to announce three new funds which will support undergraduate students and transform their educational paths towards success.

The Laurie and Norris Brand Endowed Scholarship in Chemical Engineering

This scholarship was created in memory of Norris Brand, who passed away on November 26, 2016. Both Norris and his wife, Laurie, had connections to the University, with Norris receiving his bachelor’s in chemical engineering in 1975 and Laurie working in various university departments for more than 30 years. This scholarship was made possible by a generous gift from Laurie Brand, and the support of more than 70 friends and family members following Norris’ passing in 2016. With a diverse career at General Mills Chemicals, Henkel AG & Company, and H.B. Fuller, Laurie notes that “Norris loved chemical engineering. His degree allowed him and our family many wonderful experiences.” Her generosity, coupled with memorial gifts from more than 70 friends and family members, will continue Norris’ legacy and extraordinary dedication to the field of chemical engineering in the form of an endowed undergraduate scholarship for decades to come.

The Charles E. Taylor II Undergraduate Scholarship in Chemical Engineering

Charles Taylor III (ChE ’71) has included a provision in his estate plans to establish an endowment, the Charles E. Taylor II Undergraduate Scholarship in Chemical Engineering, with a gift of $1 million. This fund will honor his late father and fellow alumnus Charles Taylor II, ChE ’38, with a scholarship endowment that will ensure a lasting family legacy while supporting deserving undergraduate students in perpetuity.

Better known as “Chuck,” Charles Taylor II grew up in the Arrowhead Country of Minnesota. He became a canoe guide in high school in the lake country. “If it were not for contacts from Minneapolis who took vacations in the area, education would not have been possible,” said Taylor of his father. After graduating from the chemical engineering program in 1938, Chuck had a long and successful career with the Anaconda Copper Company’s Copper Smelter, receiving a patent. He later managed an aluminum smelter with more than 1,000 employees in Montana. Taylor credits his father’s interpersonal skills combined with his Minnesota ChE education for setting him up for the successful and long career that he enjoyed.

Taylor himself has enjoyed a similarly rewarding career following his time at Minnesota in the late 60s and early 70s, beginning his career with engineering positions at two different smelters and finishing his career with Warren Petroleum headquartered in Tulsa, Oklahoma, in gas liquids production at various gas processing plants in the plains and plains.

continued on page 20
Securing the future of graduate education

Dr. Dragomir and Mrs. Maria Bukur created a new graduate fellowship to ensure that CEMS graduate programs maintain their prominent status.

Dr. Dragomir Bukur and his wife, Maria, have established the Dr. Dragomir and Mrs. Maria Bukur Graduate Fellowship in Chemical Engineering, a new endowed graduate fellowship, inspired by their strong commitment to education.

Drago received his Ph.D. in chemical engineering at the University of Minnesota in 1974 under the advisement of Professor Neal Amundson and the education he received during his graduate studies in the department provided a strong foundation for his successful academic career. Maria worked as a Montessori School teacher in Minnesota and Texas. Dr. Bukur was an Assistant Professor of Chemical Engineering at the University of Novi Sad (Yugoslavia) for three years, and returned to the United States in 1978 as a postdoctoral Research Associate at University of Houston under the guidance of Professor Amundson. He worked for one year at Mobil Research and Development Co. as a Senior Research Engineer, before joining the Chemical Engineering Department at Texas A&M University (TAMU) as an Associate Professor in 1981.

Since August 2005, until his retirement in August 2017, he was on assignment at the branch Campus of Texas A&M University in Qatar, where he helped establish a vibrant chemical engineering program. He received multiple awards and recognitions for his research contributions from Texas A&M University, including the Joe M. Nesbitt Professorship in Chemical Engineering at TAMU in 2006, the position he held until his retirement.

The Bukurs made their gift in the hope that it will provide CEMS with resources to help the department maintain its preeminent position in the field of chemical engineering.

Please consider supporting CEMS and its students:

1. Online: z.umn.edu/cemsgift
2. “Give to CEMS” button on CEMS website: cems.umn.edu
3. Contact Courtney Billing: 612.626.9501 or cbilling@umn.edu
Graduate fellowships

First-year graduate student support sustains CEMS graduate programs.

The First-Year Graduate Student Fellowship Initiative
Jialiang Chen, Clara Ciutara, Nolan Concannon, Suvam Das, Supriya Ghosh, Eeshani Godbole, Shashank Kamdar, Shutong Li, Zixue Ma, Neil Razdan, Shengyuan Shen, Brian Yuh, Bo Zhang, Chengjian Zhang

Neal Amundson Fellowship in Chemical Engineering and Materials Science
Maggie Lau

Neal R. and Shirley D. Amundson Fellowship
Maggie Lau

James Andrews Fellowship
Justin Cheng

Rutherford Aris Endowment Fund
Zixue Ma

Rutherford Aris Memorial Fellowship
Tristan Truttman

Bill and Marcia Ball Fellowship
Bryan Cote

Frank and Janis Bates Fellowship
Sanshui Pan

Laurence W. Booher Fellowship
Xinyu Li

Phyllis Brown Branin Endowed Fellowship
Tristan Truttman

Phyllis B. Branin Fellowship
Daniel Tresnak, Tristan Truttman, Brian Yuh

Lap and Jody Chan Fellowship
Eeshani Godbole

Howard W. and Mary S. Cox Fellowship
Kevin Schmalbach

Ed and Betsy Cussler Fellowship
Jialiang Chen

Erling A. Dalaker Fellowship
Paulina Eberts

Erling A. Dalaker Fellowship in Chemical Engineering and Materials Science
Bo Zhang

H. Ted Davis Fellowship
Robert Newcomb

Gary and Helen Dowling Fellowship
Supriya Ghosh

Arnie Fredrickson Fellowship
Zhichen Shi

Fridley Fellowship
Cody Beam, Bryan Cote, Paulina Eberts, Qiuge Zhang

Lynn Frostman and Mike Zum Mallen Fellowship
Zhengyuan Shen

William Warren Gerberich Fellowship in the Solid Mechanics of Plasticity and Fracture
Kevin Schmalbach

Herbert S. Isbin Fellowship
Zixue Ma

Kaler Family Fellowship in Chemical Engineering and Materials Science
Kevin Schmalbach

Kenneth H. Keller Graduate Fellowship
Shutong Li

Usha Kumar Fellowship
Adelyn Crabtree, Sanshui Pan

Jan J. and Sofia Milner Laskowski Fellowship
Paulina Eberts

Chris and Kathleen Macosko Fellowship
Nolan Concannon

Materials Science Graduate Fellowship
Suvam Das

Robert V. Mattern Fellowship
Clara Ciutara

George Philippidis Fellowship in Biochemical Engineering
Qiuge Zhang

Peter and Gene Pierce Family Fellowship
Yutong Pang

Dr. Doraismwami and Mrs. Geetha Ramkrishna Fellowship in Chemical Engineering
Roshan Patel

William E. Ranz Fellowship
Sawand Pawar

Sebastian C. Reyes Fellowship
Nikolaos Memmos

Zsolt Rumy Fellowship in Chemical Engineering and Materials Science
Neil Razdan

Stephen J. Salter Fellowship
Supriya Ghosh, Nikolaos Memmos, Sanshui Pan, Roshan Patel, Swanand Pawar, Kevin Schmalbach, Shengyuan Shen, Qiaomiao Tu, Bo Zhang

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southwest states, and later working for Chevron once they acquired the company in the mid 80s.

However, Taylor recalls that the chemical engineering program was challenging, to the point where he questioned his potential to graduate. “I remember that when I was in my junior year, I had mentioned to someone that I wasn’t sure if I should continue with my education. That was during the Draft lottery – turbulent times. Somehow Dr. Neal Amundson either heard about it or I mentioned it to him. We had a brief, but heart-to-heart discussion on why I would do just fine, just keep concentrating and fulfilling the requirements to graduate. I wasn’t going to be M.S. or Ph.D. quality, but had the abilities to get a bachelor’s degree in chemical engineering. So I did, and I am thankful to this day for listening to him,” said Taylor.

The Taylor Scholarship is a beautiful tribute celebrating two generations of chemical engineering alumni. The generosity of Charles Taylor III in establishing this scholarship to honor his father reflects lifetimes of education, achievement, and most importantly, gratitude.

The Dr. Kenneth J. and Kathryn J. Valentas Scholarship

Both graduates of the University of Minnesota, Kenneth and Kathryn have benefited considerably from their educational experiences. The University was, and continues to be, a significant factor in their lives. As such, they were motivated to establish this scholarship to encourage students with an interest in STEM to pursue quality education through the College of Science and Engineering, particularly chemical engineering. It is their hope that this scholarship assists students in their educational paths, by developing well-rounded students able to gather information from observation, think for themselves, and contribute to society.

Every gift, no matter the size, makes a difference in advancing the teaching and research mission of CEMS. To learn how you can contribute to these funds, please contact Courtney Billing in external relations at cbilling@umn.edu or 612.626.9501.

Fellowships continued from page 19

L.E. and D.H. Scriven Research Fellowship
Maggie Lau, Shutong Li, Xiayu Peng

Jacqueline and Richard Schmeal Fellowship
Shashank Kamdar

Lanny and Charlotte Schmidt and Duane Goetsch and Nancy M. Dickerson Fellowship
ChoongSze Lee, Yutong Pang

Nancy Scott and Kevin Gromley Fellowship
Clara Ciutara

Bill and Triana Silliman Fellowship
Zhengyuan Shen

Marvin S. and Norma V. Sivertsen Fellowship
Samuel Bryson

Thomas R. and Yolanda Shirley Stein Fellowship
Nikolaos Memmos

Curtis M. and Joyce P. Stendahl Graduate Fellowship
Nolan Concannon

Robert and Beverly Sundahl Fellowship
Samuel Bryson

The Teletzke Family Fellowship
Paulina Eberts

Matthew Tirrell Fellowship
Roshan Patel

Pat Whitcomb and Patty Napier Fellowship
Shashank Kamdar, Xiayu Peng
Alumni events

Alumni and friends attended the College of Science and Engineering 50-year reunion on May 10, 2018. Pictured (bottom row, left to right): Joel Lemke ME ’89, Ken Bjorklund (CivE ’58), George Carlson (ChE ’61), Carl Jackson (ChE ’61), Neal Nelson (ChE ’68), and top row (left to right) Phil Zietlow (ChE ’64), Ken Keller, CEMS Professor Emeritus and UMN President Emeritus, Dennis Nelson (ChE ’61, M.S. ’63), Gordy Lewis (ME ’51), Galen Britz (ChE ’61), James Kvikstad (ChE ’62), Dan Frisbie, CEMS Department Head, Michael Drager (ChE ’68), and Roger TenNapel (ChE ’68).

Join Us! CEMS Connects: 3M

Friday, November 30, 2018
7:45 a.m. to 10:30 a.m.
3M Innovation Center (Maplewood, MN)
This event is FREE, but registration is required: z.umn.edu/cems3M

CEMS alumnus Mark Gehlsen (Ph.D. ChE ’93), Global Technical Director of 3M Separation & Purification Sciences Division, will host a site visit for CEMS alumni and friends.

Following a breakfast mixer showcasing IPRIME/3M supported graduate student research posters, CEMS Department Head Dan Frisbie will share exciting news regarding the CEMS Centennial & Jubilee that will occur in 2019 and 2020. Mark Gehlsen will then provide a company overview and participants will tour the 3M Innovation Center or listen to technical seminars from CEMS faculty members Dan Frisbie and Chris Ellison.

Eugene “Gene” Brumm (ChE ’65) led guests in the singing of the Minnesota Rouser at the College of Science and Engineering 50-year reunion in May 2018.
Professional Accomplishments

Holly Boehne (ChE ’84) has been named 2018 Business Woman of the Year by the Greater Stillwater Chamber of Commerce. As Senior Vice President and Chief Technology Officer at Andersen Corporation, Boehne is responsible for overseeing engineering, Lean Sigma, research and development, innovation and strategic sourcing for Andersen Corporation.

Peter Kilpatrick (Ph.D. ChE ’83), currently the McCloskey Dean of Engineering at the University of Notre Dame, will be appointed as the new provost and senior vice president for academic affairs at Illinois Institute of Technology. Kilpatrick will begin the position on August 1, 2018.

Richa Pandey (Ph.D. ChE ’12) has been honored with the 2018 Women in Solar Energy Award by the American Solar Energy Society. This recognition reflects Pandey’s longstanding commitment to solar technology and her work as a Principal Scientist at Ubiquitous Energy, Inc.

Gary Teletzke (Ph.D. ChE ’83) has been selected as a Society of Petroleum Engineers (SPE) Distinguished Lecturer for the 2018-19 season. As such, he will travel to various SPE local sections around the world to give his lecture, “CO₂ in the Subsurface - From EOR to Storage.”

In Memoriam

Richard Bateman (ChE ’43) passed away on February 16, 2018 in Englewood, Florida at the age of 96. He spent his working life as a chemical engineer, employed at various rubber products manufacturing companies centered in the Midwest, moving from place to place as his jobs dictated.

Howard Cox (ChE M.S. ’70, Ph.D. ’73) passed away on March 11, 2018 at his home. He is survived by his wife, Mary (Sellner). He was employed at General Motors Research & Development for 37 years, retiring in 2010. Howard and Mary are generous donors to CEMS, having established the Howard W. and Mary S. Cox Fellowship.

Ivo Giovanni Dalla Lana (Ph.D. ChE ’58) passed away on March 5, 2018. He worked at the University of Alberta (Canada) as a professor in chemical engineering. His research interests were in catalysis, and he published numerous, peer-reviewed journal articles and received a number of patents for his work. When Ivo ‘retired’, he continued on as a Professor Emeritus for another decade and could be found in his research lab, even on weekends.

William B. “Bill” Shimer (ChE ’49) passed away on February 24, 2018 in Tampa, Florida at the age of 92. After working in the oil industry, he joined IBM where he retired as a marketing executive after 28 years of service.
In Memoriam: Herbert S. Isbin, Professor Emeritus

*Isbin served on the faculty from 1950 to 1983. He passed away on May 12, 2018.*


Throughout his long life, nuclear scientist Herbert Isbin reached the highest peaks of his profession.

Isbin earned a doctoral degree from the Massachusetts Institute of Technology. He was a professor of chemical engineering at the University of Minnesota for 33 years, eventually earning emeritus status. He was the director of the university’s gamma irradiation facility, and there’s a fellowship and archive at the U dedicated to him. He penned an internationally known textbook called “Introductory Nuclear Reactor Theory,” which is still used today. And he was appointed to the U.S. Atomic Energy Commission by President Dwight Eisenhower.

Isbin was, by all accounts, one heck of a square dancer, too. He and his wife, Katherine, were known for hosting elaborate square dances in the basement of their St. Louis Park home, complete with costumes and a caller.

Isbin, 98, died on May 12 of congestive heart failure.

“He had a remarkable life, it was a good run,” said his son, Ira Isbin.

Born in Seattle, Isbin received bachelor’s and master’s degrees from the University of Washington. While studying at MIT in the late 1940s, he received a fortuitous phone call from his long-standing pen pal, Katherine. She and her mother were stranded in New York City, and Isbin was in Boston preparing to drive to Washington state for his first job. Could he give them a ride to Minneapolis?

After arriving in town, a stroll around the Lake of the Isles in Minneapolis led to a wedding proposal. The two were married for 64 years.

“This was the woman he wanted to be with, they were totally in love,” Ira Isbin said.

Herbert and Katherine had four children — Ira, Sharon, Neil and Rena — all fiercely independent and high achievers. Katherine, who died in 2012, received a law degree from the U and was admitted to the bar in 1945, quite a feat for a woman in those days.

Daughter Sharon Isbin’s first interest was science, so her father brought home a microscope to help her dissect insects. He told her she couldn’t shoot off model rockets in the backyard until she practiced guitar for an hour. Her father’s strict but gentle coaching paid off — Sharon Isbin is a widely heralded, Grammy Award-winning classical guitarist.

Daughter Rena Isbin described her father as “a highly evolved soul [who] set the bar high and gave us all something to aspire to by simply living his truth. Brilliant, kind, thoughtful, humble, receptive and giving. A true gift to know and love.”

CEMS Isbin Fund

Please consider making a gift in Professor Isbin's honor:

**Herbert S. Isbin Fellowship**

This fund was established in 2003 by Hans K. Fauske (M.S. ChE ’59) and his wife, Judy, in honor of Professor Herbert S. Isbin, Hans’ advisor and life long friend. The Isbin Fellowship provides support for incoming graduate students.

Give online and enter the fund name: [z.umn.edu/cemsgift](http://z.umn.edu/cemsgift)
Join us for CEMS Homecoming!

CEMS Lunch
Saturday, October 6, 2018
11:30 a.m. to 2:30 p.m.
Amundson Hall

Homecoming Football Game vs. University of Iowa Hawkeyes
2:30 p.m. or 3:00 p.m. (actual time TBD)
TCF Bank Stadium

Game tickets available in CEMS ticket block through September 7:
$75 Lunch, CEMS T-Shirt, Football Ticket
$25 Lunch and CEMS T-Shirt Only

Reconnect with current and former CEMS faculty members and your peers. Class of 1978, David and Barbara Yarusso and Jeffrey Schott will serve as hosts for this special 40-year reunion.

All guests will enjoy lab tours, a 3D printer maker space in the Valspar Lab, demonstrations by CEMS student groups, and more!

Registration required by September 7, 2018: z.umn.edu/cemshomecoming18