

20
24



AIChE[®]
ANNUAL
REPORT



Victor Bohnert
Interim Chief Executive
Officer, AIChE



Alan E. Nelson
2024 AIChE President

2024 was a year in which AIChE continued to progress to keep pace with the transformation of the chemical engineering profession and the evolving needs of our workforce. As our members and partners redefined the ways chemicals, materials, and energy are developed, produced, and applied, the Institute evolved alongside them — aligning programs with member needs, strengthening collaborations across academia and industry, and advancing solutions that benefit society.

Our community remained the engine of that progress. More than 50,000 members engaged across technical divisions, local sections, and technical communities — connecting across industries, disciplines, and generations. The Explorer membership, introduced to welcome new audiences to AIChE, continued to grow as more professionals discovered the benefits of sampling AIChE's technical content and training resources. Guided by our commitment to our IDEAL principles, AIChE focused on ensuring that every member feels welcome and valued within the Institute.

The Institute for Learning and Innovation (ILI) and AIChE Academy, we expanded industry-aligned education with new offerings such as AI for Chemical Engineers, refreshed sustainability courses, improved ADA accessibility across eLearning, and partnerships that link curricula with career pathways. Additionally, AIChE is building training opportunities around developing technologies like automation and AI.

Participation grew in programs like the CCPS Process Safety Fundamentals Certificate, equipping both students and practicing engineers with the skills industry demands.

AIChE's technical entities delivered impact at scale. The Center for Hydrogen Safety broadened its global footprint, trained thousands, and launched new courses while deepening collaborations. CCPS marked twenty years of the Global Congress on Process Safety, welcomed a record number of member companies, and advanced guidance for an energy-transitioning world. RAPID sharpened its roadmap for process intensification, convened practitioners through topic-focused conferences and workshops, and engaged students and educators through camps and competitions.

Our meetings showcased the vitality of the field. The AIChE Spring Meeting and 20th Global Congress on Process Safety in New Orleans highlighted data, safety, hydrogen, and clean-energy solutions. The AIChE Annual Meeting — held for the first time in San Diego — convened more than 5,700 attendees to explore “Chemical Engineering Reimagined.” The Annual Student Conference drew our strongest participation since 2019 and celebrated the 26th Chem-E-Car Competition®.

Philanthropy powered by the AIChE Foundation continued Doing a World of Good. The Bee a ChemE campaign inspired K-12 students and teachers through hands-on activities and trained new STEM Ambassadors. FOSSI surpassed 820 scholars funded, pairing financial support with mentoring and internships. Donor investments also strengthened women's advancement, undergraduate process safety education, and opportunities across our community.

Across AIChE's technical societies and specialty conferences — from renewable hydrogen storage and transport to mRNA technology and process systems engineering — researchers and practitioners exchanged ideas that accelerate translation from lab to plant. Our journals and CEP continued to deliver essential knowledge, while ChEnected and AIChE's social channels expanded our digital reach and celebrated member achievements throughout the year.

What ties these accomplishments together is purpose: helping chemical engineers, and in turn our community, thrive. We will continue to focus resources on high-impact programs, deepen partnerships with employers and universities, and expand accessible learning and community experiences for every stage of a chemical engineer's journey.

Thank you for your engagement and leadership. We invite you to stay involved — attend a meeting, mentor a student, join a division, earn a credential, or support a program that inspires you. Together, we are advancing the profession and improving the world.

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Interim Chief Executive Officer, AIChE

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Membership

Meet the AIChE Early Career Community



AIChE's Early Career Community (ECC), welcomed 165 members in its inaugural year. Its membership is comprised of early career professionals and graduate students, as well as AIChE professionals eager to support the growth of these individuals. The ECC orchestrated a variety of events catered to and with the help of its members, including the 2024 AIChE Three Minute Thesis (3MT) (R) Competition, The AIChE Beer Brewing Competition, and more! The ECC also collaborated with AIChE's Management Division on a lively panel discussion & "Beignet Soiree" at the 2024 Spring Meeting in New Orleans. aiche.org/ecc

Technical Divisions and Forums

More than 7,500 AIChE professional members are also members of at least one AIChE technical division or forum. AIChE's Community Counts program strives to help the leaders of these groups to engage with and retain members. In 2024, the divisions offered more than 15 live webinars as a member benefit, with over 1,400 registered across all. AIChE also celebrated the Nuclear Engineering Division reflecting on its 70-year anniversary milestone; the Institute's first founded Division. Learn about divisions and forums at: aiche.org/divisions-forums



New in 2024

More than 5,300 professionals participated in AIChE Local Section activities in 2024, through meetings across North America and in several international locations, with more sections planned. The Central Florida Local Section hosted the 48th Annual International Phosphate Fertilizer & Sulfuric Acid Technology Conference, bringing together industry experts to share knowledge and best practices. The Chicago Local Section also celebrated its 100th anniversary, marking a century of community, leadership, and innovation in chemical engineering.

aiche.org/local-sections

AIChE's Virtual Local Section (VLS) grew internationally in 2024, connecting members worldwide through engaging monthly online meetings. The VLS also continued to support student involvement and professional development through its annual competitions and events. Learn more at: aiche.org/virtual

 **50,000+**
TOTAL MEMBERS

 **128**
COUNTRIES

 **27,000+**
MEMBER PROFESSIONALS

5,598+

AICHE MEMBERS ARE ALSO MEMBERS OF AT LEAST ONE TECHNICAL DIVISION OR FORUM

4,772

MEMBER PROFESSIONALS PARTICIPATE IN IN-PERSON LOCAL SECTIONS ACROSS NORTH AMERICA AND AT INTERNATIONAL LOCATIONS



AIChE's IDEAL principles remain central to who we are as a community.

Rooted in a commitment to inclusion and belonging, these values guide the Institute in fostering an environment where chemical engineers from all backgrounds can thrive. As the global home for chemical engineers, AIChE continues to advance a culture that welcomes varied perspectives, encourages collaboration, and promotes understanding across both technical and cultural experiences. Learn more and read the IDEAL Statement at: aiche.org/IDEAL



Update for ALGBTQ+ & Allies Community launch –

New in 2024

In 2024, AIChE launched the LGBTQ+ & Allies Initiative as an official AIChE Community, reinforcing its commitment to inclusivity and diversity in chemical engineering. This community provides a safe and supportive space for LGBTQ+ professionals and allies through live and recorded webinars, fostering discussions on career growth, visibility, and best practices for privacy and safety in the workplace. By offering valuable resources and community engagement, AIChE continues to advocate for an environment where all chemical engineers, regardless of identity, can thrive and contribute fully to the profession. aiche.org/lgbtq

Student Membership

AICHE welcomed 18 new Student Chapters in 2024, including our first chapter in Botswana, bringing our total to 431. AIChE held Student Regional Conferences and events in collaboration with host universities in nine North American regions, as well as in Brazil, China, Greece, India, Latin America, and Indonesia, which held its first Chem-E-Car Competition as part of its regional conference, and Lebanon, which held its inaugural conference. Student members around the world vied for top regional honors in order to qualify for three AIChE competitions: Chem-E-Car, ChemE Jeopardy, and Undergraduate Student Technical Presentations. Placing in these competitions earned students coveted spots in the Annual Student Conference competitions. aiche.org/students

 **24,000+**
STUDENT MEMBERS

 ACROSS
100
COUNTRIES

 MORE THAN
400
STUDENT CHAPTERS

 ACROSS
55
COUNTRIES

Chemical Engineering Supporting Students



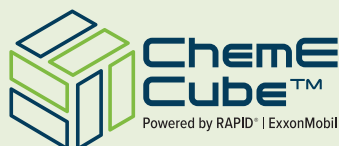
AIChE thanks our ChESS sponsors for their generous support in enriching the next generation of chemical engineers.

aiche.org/chess

**QUEEN-LEVEL
SPONSOR:**

ExxonMobil

**ROOK-LEVEL
SPONSOR:**



Launched in 2020 by AIChE's RAPID Manufacturing Institute (See Page ##), ChemE Cube is an annual competition in which undergraduate teams design, build, and demonstrate a one-cubic-foot plant to meet technical requirements defined in the annual problem statement. Teams promote their technology through a one-minute ad, poster, and 20-minute "shark tank" style pitch to a panel of mock investors. The competition introduces students to techniques associated with more-efficient and sustainable approaches to engineering.

Teams at AIChE's 2024 Annual Student Conference showcased their innovative design for direct air capture and regeneration, with the team from Virginia Tech claiming first prize. Teams in 2025 will continue to tackle the challenge of direct air capture and regeneration



Photo by Kevin Trimmer

K-12 STEM Showcase and Outreach Competition



AIChE's sixth annual K-12 STEM Showcase and Outreach Competition was held on November 3, 2024, in San Diego, CA, during the AIChE Annual Meeting and Annual Student

Conference. The event invited local K-12 students and their families to explore chemical engineering through engaging, hands-on demonstrations — all provided at no cost, thanks to the generous support of the AIChE Foundation.

A total of 20 student and professional member teams from across the country presented original STEM modules designed to educate and inspire young learners. As a special highlight, Kate the Chemist served as the event's keynote speaker, captivating the audience with a series of high-energy STEM demonstrations.

All modules were evaluated for creativity, educational value, and ease of replication before being added to the AIChE K-12 Community Module Database, where they are freely available to educators and outreach volunteers.

The event was organized by AIChE's K-12 Committee and Executive Student Committee. Learn more: aiche.org/k12



Kate "Kate the Chemist" Biberdorf demonstrated science and engineering concepts to Orlando-area K-12 students. Photo by Kevin Trimmer

Technical Entities

AIChE's Technical Entities are distinct communities of chemical engineers and other professionals that address such societal grand challenges as health, energy, environment, sustainability, water, and safety. In 2024, more than 30 specialty conferences were hosted by these groups, exploring an array of topics across the globe. Thanks to the support of organizations such as the AIChE Foundation, NSF, and the NIH, over 350 trainees and early career professionals received registration and/or travel support to attend an AIChE conference. aiche.org/community/itg • aiche.org/conferences

New in 2024

Here are a few conference and program highlights:

The **2024 Renewable Hydrogen Storage and Transport Conference** (March 11-12, Los Angeles, CA) addressed the role of storage and advanced transport in the context of developing hydrogen as a low-carbon energy carrier and harnessing



renewable energy resources for meeting commodity needs. The program was filled with presentations on cutting-edge research and industrial applications, highlighting key players in the field and common pitfalls to avoid.

The inaugural **mRNA Technology Conference** took place April 21-24 in Boston, MA and it was a huge success. With over 100 attendees, 4 keynotes, 30 oral presentations, poster session, and many networking events, the conference brought together leaders from industry and academia to discuss the latest discoveries in mRNA Technology. Keynotes included Robert S. Langer (MIT), Georges Belfort (RPI), Eckhard Jankowsky (Moderna), and Stephanie Fesser (BioNTech).

In May, AIChE hosted the **Middle East Process Engineering Conference** in Dhahran, Saudi Arabia which gathered over 8,000 registrants and 150 exhibitors.

Hosted in partnership with Saudi Aramco, MEPEC 2024 explored the utilization of digital technologies and innovations to enhance and streamline processes while placing a strong emphasis on environmental sustainability.



The **2024 Synthetic Biology: Engineering, Evolution & Design (SEED) conference** took place June 24-27, 2024 in Atlanta, GA. With over 400 attendees, 40+ oral presentations, 3 poster sessions, and multiple networking opportunities, the conference was a hub of groundbreaking synthetic biology research discussions.

The **2024 Chemical Ventures Conference**, held on August 6-7, 2024 at mHUB Innovation Center in Chicago, IL served as the premier platform for ambitious entrepreneurs aiming to drive sustainability and for strategically minded investors seeking the most promising innovations in a space uniquely focused on transformative chemical and materials solutions.

In July, AIChE partnered with the CACHE Corp. to organize the **Foundations of Computer-Aided Process Design (FOCAPD) and Foundations of Molecular Modeling and Simulation (FOMMS)** conferences, bringing together around 200 leading researchers and industry experts. FOCAPD, held

in Breckenridge, CO, highlighted advancements in process design and optimization through innovative computational tools, while FOMMS, hosted in Snowbird, UT showcased cutting-edge solutions in molecular modeling and simulation for chemical and materials engineering.

The **68th Annual Safety in Ammonia Plants and Related Facilities Symposium** brought together 330 attendees in San Diego, CA to discuss advancements in ammonia production, utilization, and safety. Experts from industry, academia, and government explored innovations in low-carbon ammonia, hydrogen integration, and emerging technologies shaping the future of sustainable energy.

The **7th International Conference on Epigenetics and Bioengineering** (October 3-5, Amsterdam, Netherlands) returned to Europe for the second time in the conference's history. Delegates from over 10 countries across the world gathered in Amsterdam to present their research. The conference also featured a discussion with participants about Responsible Innovation in Epigenetic Engineering.

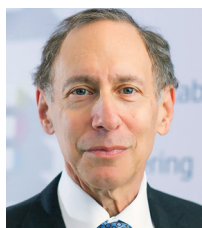
The **Constraint-Based Reconstruction and Analysis (COBRA) Conference** showcased cutting-edge research in systems biology and metabolic modeling. Held from October 24-26, the conference featured presentations on precision medicine, chronic diseases, microbial communities, biomanufacturing, and biosustainability, with keynotes from renowned experts.

AIChE's Regenerative Engineering (RE) Society presented its 2024 Cato T. Laurencin RE Society Founder's Award to **Robert S. Langer (MIT)**. During his standing-room-only lecture, Dr. Langer shared his journey in chemical engineering with particular insight on his challenges and successes in designing drug delivery systems and tissue engineering.

In December, The Society for Biological Engineering (SBE) welcomed **Mattheos Koffas** as the incoming Chair of SBE. The Society thanks outgoing Chair Georges Belfort for his leadership and lasting contributions to the Board.

The AIChE Institute for Sustainability (IfS) welcomed **Isa Mbaraka** as the new Chair of IfS in 2024.

aiche.org/community/itg



Langer



Koffas



Mbaraka



The Center for Hydrogen Safety (CHS) is a global leader in hydrogen safety. It offers industry stakeholders guidance on handling and using hydrogen safely. CHS provides partner organizations from around the world with resources that cover both conventional uses of hydrogen and its increasingly popular use as a fuel source.

New in 2024 The community of CHS continued to expand in 2024 and now includes 121 members and 16 strategic partners. CHS deepened its impact in 2024 through expanded collaborations and broader recognition. Its courses are now approved for Continuing Education Units (CEUs) by the International Code Council, and a new partnership with Steel University is making training more accessible globally through hosting and translation efforts.

The organization recognized excellence in the field with the launch of the Robert Zalosh Hydrogen Safety Excellence Awards and increased its visibility at key events such as the World Hydrogen Summit and the U.S. Department of Energy's Annual Merit Review. CHS also completed and began implementing a long-term strategic plan and initiated a public-sentiment survey targeting hydrogen hub regions to inform future planning.

Education and training remain a cornerstone of CHS's mission. In 2024, the organization hosted its Americas Conference with 240 attendees and delivered an in-person training session to 283 participants. New eLearning courses were launched on water electrolysis safety and the safe design and operation of gaseous hydrogen fueling stations, alongside an updated hydrogen laboratory safety course. In total, CHS delivered training to more than 7,000 individuals, including 4,567 through fundamental courses, 1,126 first responders, and 1,288 laboratory safety learners. Ongoing development includes updates to three existing courses and two new offerings: an eLearning course on venting system design and an in-person course titled *Foundations of Hydrogen Safety*.

aiche.org/chs

EDUCATION | AIChE Academy



AIChE's Institute for Learning and Innovation (ILI) connected industry and academia to support chemical engineers at every career stage through a comprehensive approach to professional development and training.



Highlights in 2024: Driving Growth Through Scalable Learning and Industry Engagement

The Institute for Learning and Innovation expanded AIChE's impact by delivering high-demand, industry-aligned programs across career services, education, practical experience, and credentialing.

Career Services

- ▶ **AIChE Career Discovery® On-Demand: Find Your Future**
Available in a flexible online format, this high-impact workshop helped individuals identify career paths and skill gaps, and reached an expanded audience.

Education and Training

- ▶ AIChE Academy secured a grant from the United Engineering Foundation (UEF) to host a high-profile conference: Rapidly Addressing Gaps and Solutions in AI Education for Bioprocessing and Smart Manufacturing in Biotech (RAGSAB), which drew participation from academia and industry.
- ▶ A new course — *AI for Chemical Engineers* — combined asynchronous modules with live instructor Q&A, and was designed to meet the demand for emerging technical skills.
- ▶ Academy relaunched a flagship sustainability course — *The Body of Knowledge in Sustainability Overview* — which was updated with new content and structure to reflect current best practices.

- ▶ Academy upgraded its Americans with Disabilities Act (ADA) compliance across all eLearning content — broadening audience accessibility and institutional licensing opportunities.
- ▶ *The Modern Distillation Techniques: From Thermodynamics to Practical Solutions* instructor-led course was fully revamped, aligning with industry-relevant skills from thermodynamics to real-world application.

Practice+

▶ Industry Engagement Services

Strategic partnerships with global chemical companies now include:

- Custom curriculum development
- Internship and co-op program design
- Résumé-to-role matching for student placement. Interested companies are invited to email academy@aiche.org for partnership details.

Certificates and Credentials

- ▶ High-Demand Certification Expansion: The CCPS Process Safety Fundamentals Certificate Program continues to see strong uptake, offering a recognized path to competency in process safety — an essential skill for entry-level and mid-career engineers alike.

aiche.org/academy

Publications

Journals

The AIChE portfolio of AIChE's six journals — AIChE Journal, Bioengineering & Translational Medicine (BioTM), Biotechnology Progress (BTPR), Environmental Progress & Sustainable Energy (EP&SE), Process Safety Progress (PSP), and the Journal of Advanced Manufacturing and Processing (JAMP) — was adversely impacted by a change in manuscript-processing software implemented at Wiley, as well as the shifting landscape of publishing, moving toward open access (OA).

Journal	Articles Published		Open Access Articles		Full-Text Views	
	2024	Yr-over-Yr % Change	2024	Yr-over-Yr % Change	2024	Yr-over-Yr % Change
<i>AIChE Journal</i>	334	-11%	58	18%	1,050,000	8.7%
<i>Biotechnology Progress</i>	96	-38%	n/a	n/a	800,000	8.8%
<i>BioTM</i>	100	6%	46	39%	600,000	14.5%
<i>Environmental Progress</i>	190	-30%	9	-10%	210,000	1.9%
<i>JAMP</i>	14	-22%	5	-17%	62,000	15.8%
<i>Process Safety Progress</i>	63	-41%	8	0%	120,000	9.9%

New in 2024:

- ▶ AIChE Journal's Editor-in-Chief, David Sholl, has made progress toward his goal to improve hit the time to production of manuscripts, with the time from submission to first decision decreasing from about 29 days (2022) to 25 days (2023) and time from submission to online publication from 155 days in 2022 to 132 days in 2023.
- ▶ The Editor-in-Chief of BioTM, Elizabeth Nance, the Jagjeet and Janice Bindra Endowed Career Development Associate Professor of Chemical Engineering and Chemical Engineering Associate Chair for Undergraduate Studies at the University of Washington, initiated three special issues last year, including an Early Career Innovator issue; a Bioengineering & Translational Medicine conference issue, and a state-of-the-art technology review issue.
- ▶ Albert (Al) Ness has joined Process Safety Progress as its new Editor-in-Chief. Ness joined PSP with 39 years of experience with Rohm and Haas, Dow Chemical, ABS Consulting, and GE Plastics. Jeffrey Fox joined PSP as Associate Editor. Fox brings 25+ years with Dow Corning/Dow-DuPont in various process safety management and leadership roles.

aiche.org/journals

CEP's Mission

Chemical Engineering Progress (CEP) —is dedicated to delivering in-depth expertise on a vast range of chemical engineering fundamentals and innovations, in order to strengthen the connection between our diverse readership and AIChE, the global home of chemical engineers.

CEP Presents Fresh and Innovative Content

CEP published three special sections in 2024. Each special section pulls together three to five articles that fit within the broad theme, offering readers a look at novel technologies and companies innovating in those areas. These included:

- Emerging Therapeutics (May 2024)
- AI and Digitalization (August 2024)
- Carbon Footprint Reduction (December 2024)

The December 2024 special section on Carbon Footprint Reduction featured select manuscripts sourced from the best presentations of the Middle East Process Engineering Conference 2024 (MEPEC24). In October 2024, CEP also published a special issue on "ChemE Careers." This special issue contained several features on interviewing, recruitment, and career paths for chemical engineers.

Stay Connected with CEP: Read It Your Way

aiche.org/cep



Major Meetings

In 2024, AIChE's major meetings attracted chemical engineers and allied professionals working in industry, government research laboratories, and academic institutions around the world. Technical content was rounded out by community-building events and activities.

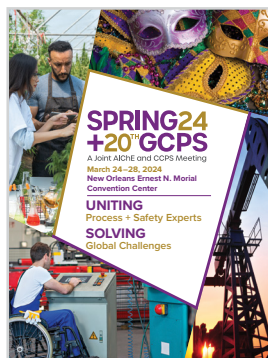
SPRING24 +20TH GCPS

A Joint AIChE and CCPS Meeting

2024 AIChE Spring Meeting & 20th Global Congress on Process Safety

More than 2,200 professionals attended the 2024 AIChE Spring Meeting and 20th Global Congress on Process Safety (GCPS), which took place on March 24-28 in New Orleans, LA. AIChE's key technical conference for practicing chemical engineers and process safety practitioners, the event explored innovations across core and emerging fields. Over 200 technical sessions spanned a variety of topics including ethylene production, distillation, hydrogen safety, Industry 4.0, clean energy, gas utilization, refinery processing, and more.

aiche.org/spring



Organized by AIChE's Center for Chemical Process Safety (CCPS), the **Global Congress on Process Safety** addresses the needs of process safety practitioners. Celebrating its 20th year, programming was offered through the CCPS International Conference, the Loss Prevention Symposium, the Process Plant Safety Symposium, and the Process Safety Management Mentoring Symposium. The GCPS also provided "Perspectives on Process Safety from Around the Globe" and sessions examining real-world process safety incidents.

New in 2024

- ▶ **Mark Lashier**, President and CEO of Phillips 66, delivered the 2024 AIChE Government and Industry Leaders (AGILE) Award Keynote, "Regeneration: Fuel for the Future". He discussed how industries must embrace disruptive change to renew and grow, highlighting Phillips 66's journey in navigating the evolving energy landscape.
- ▶ **Billy Bardin**, Global Climate Transition Director at Dow, and Gunther Kracker, Head of Product Management at Linde, delivered keynote talks on achieving net-zero goals. Other plenaries addressed the critical impact of artificial intelligence, data analytics, and process safety on operational efficiency and reliability.
- ▶ **The AIChE Spring Meeting Process Safety** Panel sessions made their debut at the 2024 Spring Meeting providing more conference wide visibility to important process safety topics.



Lashier



Bardin

Yatendra Lodha (Reliance Industries Ltd) delivered the GCPS plenary keynote address, discussing the "Key Challenges and Opportunities for Process Safety in 21st Century."



Lodha

2024 AIChE Annual Student Conference

ASC24 AIChE Annual Student Conference

Participation at the **AIChE Annual Student Conference** (October 25-27) exceeded 2,100 — making it AIChE's best-attended Student Conference since 2019. Highlights included a welcome keynote by Michael Thien, Head of Pharmaceutical Sciences, R&D at Takeda, as well as career sessions, competitions, and networking events. This year's conference welcomed the return of our Speed Mentoring Event, offering attendees an informal space to connect with ChE professionals and explore post-graduation paths.

aiche.org/asc24

Participation at the **AIChE Annual Student Conference** (October 25-27) exceeded 2,100 — making it AIChE's best-attended Student Conference since 2019. Highlights included a welcome keynote by



Thien



2024 Annual Chem-E-Car Competition®

Fifty-two teams participated in the milestone **26th Annual Chem-E-Car Competition** — our largest Chem-E-Car Competition to date. Cornell university clinched the top trophy in San Diego, CA, with its car “Under Pressure” which stopped just 12.4 cm from the 26.62 m target distance. The competition is sponsored by Chevron and MathWorks, and the \$2,000 first prize is funded by the H. Scott Fogler Endowment, named after the competition’s founder.



2024 AIChE Annual Meeting



AIChE’s premier educational forum for chemical engineers interested in innovation, collaboration, and professional growth, the 2024 AIChE Annual Meeting was (held for the first time!) in San Diego, CA, with over 5,700 attendees from 55 countries and 49 U.S. states, as well as Washington, DC, and Puerto Rico.



Sosa

AIChE’s premier educational forum for chemical engineers interested in innovation, collaboration, and professional growth, the **2024 AIChE Annual Meeting** was (held for the first time!) in San Diego, CA, with over 5,700 attendees from 55 countries and 49 U.S. states, as well as Washington, DC, and Puerto Rico.

The meeting’s theme — “Chemical Engineering Reimagined” — highlighted the evolving role of chemical engineering towards developing a sustainable future. The Meeting Program Chair, David Block (UC Davis) and Co-Chair, Siari Sosa (SoCalGas) designed two featured panel discussions with this in mind.

The first of these sessions, “Chemical Engineering Reimagined: Creating Ideas That Get to the Marketplace” featured a lively discussion from panelists Patricia Bubner (Orbillion Bio); Kendra Kuhl (Twelve); Harold Schmitz (March

Fund); and Susan Schofer (SOSV/Hax) on the various challenges faced bringing new ideas to the fruition. The session was moderated by Siari Sosa.

On Tuesday, the second featured panel discussion, “Chemical Engineering Reimagined: The Future of Sustainable Food Production”, brought together academics, industry practitioners and entrepreneurs on their vision for the future of global food systems, the major hurdles to reaching this vision, and what chemical engineers can do to meet the growing demand for food. Panelists included David Kaplan (Tufts); Allison Lin (Mars, Inc.); Penny Norquist (BioMADE); and Paul Shapiro (Better Meat Company). The session was moderated by David Block.

aiche.org/annual



New in 2024

- ▶ A special session titled “**Chemical Engineers Stepping Up to Lead Energy Transitions**”, sponsored by AIChE’s Fellows and planned in collaboration with the Science History Institute, examined key perspectives on the transition from present to future energy needs with an eye on past technology transitions. Attendees also had the opportunity to hear about U.S. perspectives on PDAs and Lifecycle Assessment in the townhall “National and International Engagements in Chemical Sciences at the National Academies”, co-sponsored by the National Academies Board on Chemical Sciences and Technology.
- ▶ The Meeting also celebrated AIChE’s many lectures and awards. The 76th annual John M. Prausnitz AIChE Institute Lecturer was delivered by **Ignacio Grossmann** (Carnegie Mellon) and the Cato T. Laurencin Regenerative Engineering Founder’s Award Lecture was presented by **Robert S. Langer** (MIT).
- ▶ Additional featured lectures were presented by some of the profession’s thought leaders, including **Juan Inga** (Inga Group), **Linda J. Broadbelt** (Northwestern), **Ashish Kulkarni** (UMass Amherst), **Hal Alper** (UT Austin), **K. Dane Wittrup** (MIT), and **Robert A. Brown** (Boston University).



Grossmann



Langer



Inga



Broadbelt



Kulkarni



Alper



Wittrup



Brown

Industry Technology Groups

RAPID[®] Manufacturing Institute

In 2016, the U.S. Dept. of Energy (DOE) established AIChE's Rapid Advancement in Process Intensification Deployment (RAPID) Institute. One of the 18 Manufacturing USA institutes, RAPID's public-private collaborations aimed at improving readiness for implementation of innovative and efficient process-related technologies and boosting the energy- and capital-efficiency of the process industries. Process intensification (PI) is any technology development that leads to smaller, cleaner, or more energy efficient processes.

RAPID's Education and Workforce Development initiative aims to leverage existing training resources to enable the workforce to research, develop, and operate processes that incorporate new PI and modular chemical process intensification (MCPI) technologies. aiche.org/rapid



72

MEMBER ORGANIZATIONS

2024 IMPACT



43+

RESEARCH PROJECTS TO DATE



4

TECHNOLOGIES SCALED FROM R&D TO COMMERCIALIZATION



\$186MM

IN PUBLIC-PRIVATE INVESTMENT

POTENTIAL IMPACT



100+

LEARNERS TRAINED IN LIVE COURSES/PROGRAMS



16,000+

RAPID EDUCATION PRODUCTS CONSUMED



TECHNOLOGIES TARGETING:

20%

REDUCTION OF ENERGY INTENSITY AND MODULE COSTS;

50%

REDUCTION OF GHG EMISSIONS

New in 2024

- ▶ RAPID hosted the 4th Annual ChemE Cube Competition™ at the 2024 AIChE Annual Student Conference.
- ▶ Conferences
 - March 2024 - **RAPIDxDIPPR DEPLOY Batch-To-Continuous: From Physical Properties to Process Design | AIChE** - sixth in the series of conference sessions focusing on using physical properties for process design

- ▶ RAPID held 3 NumberUp Innovation Student Camps and 1 Teacher Bootcamp. — “NumberUp Innovation” — in partnership with Miami Univ., and benefitting more than 50 students.
- ▶ Roadmapping Workshops for RAPID 2.0
 - May 2024 at NREL – facilitate workshop on Technology Valuation
 - June 2024 – **International Congress on Sustainability Science & Engineering (ICOSSE '24) and RAPID Roadmapping Workshop | AIChE and RAPID roadmapping workshop**

New in 2024



An AIChE Technology Alliance

The Design Institute for Physical Properties

(DIPPR) has maintained the DIPPR 801 database as a go-to resource for the design and operation of safe, reliable and sustainable processes since 1979. With a focus on industrially

relevant chemicals, the database provides end-users with access to accurate and complete thermodynamic and transport properties, as well as validated environmental and process safety and risk assessment properties. Each year, DIPPR funds research to improve the ability to evaluate and predict properties of pure chemicals such as liquid viscosity, heat capacity, and auto-ignition temperature. End-users may embed the 801 Database in third-party software and in-house applications, and may add their own proprietary data.

aiche.org/dippr



52

CORPORATE MEMBERS



69

GLOBAL LICENSEES



2,532

COMPOUNDS IN MEMBER DATABASE



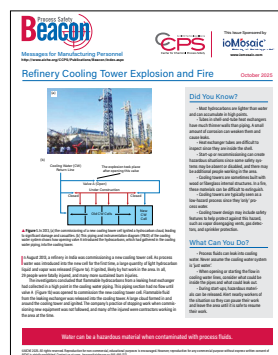
The Center for Chemical Process Safety (CCPS®) is a not-for-profit, corporate membership organization within AIChE that identifies and addresses process safety needs for facilities that handle, store, use, process, or transport hazardous materials. CCPS member companies, working in project subcommittees, define and develop useful, time-tested guidelines that have practical applications in industry. CCPS educates employees of member companies through its events, courses, books, tools, online resources, and publications.

aiche.org/ccps

CCPS conference highlights in 2024:

CCPS held in-person meetings in 12 countries —

- ▶ 20th Anniversary of the Global Congress on Process Safety
- ▶ 10th Anniversary of Latin American Conference on Process Safety (Colombia)
- ▶ 1st International Process Safety Week (Virtual)
- ▶ First in-person meeting held in Trinidad & Tobago
- ▶ Held four Student Process Safety Boot Camps
- ▶ Three Faculty Workshops, including one in Bahia Blanca, Argentina
- ▶ Many other regional meetings, conferences, roundtables, panel discussions, and webinars.



Now in its third decade, the monthly **CCPS Process Safety Beacon** continued to publish valuable process safety information for plant operators. The Beacon is available in 41 languages,

with an estimated distribution of 1,000,000 readers. In 2024, the ninth release of the **“Book of Beacons”** was published, covering all years since its inception in 2015. The Book of Beacons is available to CCPS members only.

aiche.org/beacon

Highlights in 2024

- ▶ CCPS membership grew in 2024, with a record 275 total member companies in 48 countries, and 32 new global member companies joining
- ▶ 2 books published
 - *Guidelines for Preparing Process Equipment for Maintenance and Return to Service*
- ▶ Several new project monographs, including:
 - *Process Safety and the Energy Transition*
 - *Key Principles of Process Safety for Operating Procedures*
 - *Safe Work Practice Simultaneous Operations (SIMOPS)*
 - *Golden Rules for Process Safety for Ammonium Nitrate*
- ▶ CCPS exceeded its goal for new participants enrolled in the CCPS CCPS exceeded its goal for new participants enrolled in the CCPS Process Safety Fundamentals Certificate Program (CCPSf) for students and early-career professionals.
- ▶ The CCPS Credentialing program now recognizes more than 477 people worldwide as CCPSC Certified.
- ▶ Added new incidents to the Process Safety Incident Database (PSID®).
- ▶ Enhanced responsible collaborations with the Chemical Safety Board (CSB), American Chemistry Council (ACC), European Process Safety Center (EPSC), the Mary Kay O'Connor Process Safety Center, and others.
- ▶ CCPS conducted its 2-Day Risk Analysis Screening Tool (RAST) / Chemical Hazard Engineering Fundamentals (CHEF) Training workshop and issued newly upgraded RAST and CHEF software.
- ▶ Created a new course on Incident Investigation and Root Cause Analysis.
- ▶ Provided process safety education for students and professors in collaboration with companies and the AIChE Foundation via the Undergraduate Process Safety Learning Initiative (UPSIL). These efforts included CCPS Faculty Process Safety Workshops (sponsored by BASF, Chevron, and Dow) and four Student Boot Camps (sponsored by BASF, Celanese, Chevron, and LyondellBasell).



aiche.org/upsil

AIChE Foundation



DOING
A WORLD
OF GOOD

Nearly ten years ago, the AIChE Foundation launched a \$15MM campaign, Doing a World of Good. Since then, it has grown into a movement powering good throughout AIChE.

With donors spanning the globe, the AIChE Foundation has transformed philanthropy into impact, empowering the chemical engineering community to shape a better future. Donors, who are primarily AIChE members, helped to introduce chemical engineering to a new generation, increased educational offerings and access to them to chemical engineers throughout their career journeys, created connections broadening personal and professional networks and invested in promising ideas.

Read below for how the Foundation's five transformative priorities advanced AIChE's strategic vision. Together, we will continue **Doing a World of Good**—driving progress and expanding opportunities for generations to come.

doingaworldofgood.org



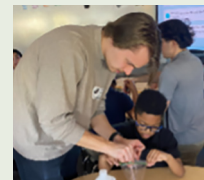
"Doing a World of Good has made an impact in a lot of different places. From the Bee a ChemE program that's introducing middle school students and their teachers to what is chemical engineering to the FOSSI program that's funding the next generation of STEM scholars. There's a lot of impacts, large and small, that the Foundation has made."
— Jessica O. Winter, Member - AIChE Board of Directors & AIChE Foundation

Changing Perceptions

Bee a ChemE is an engaging public-facing national awareness education and outreach campaign designed to introduce middle schoolers to the wonders and possibilities of a career in chemical engineering. Its goal is to attract the best and the brightest to the profession, introducing middle school students from all backgrounds, parents, teachers, and the public to the myriad ways in which chemical engineers are improving the world while inspiring the next generation to engineer the future.



Hundreds of students were inspired by hands-on engineering activities conducted in their classrooms by ChemE undergraduates. **AIChE's K-12 STEM Ambassador** program recently rolled out at additional schools, amplifying the excitement and engagement. In 2024, more than 70 students were trained as STEM Ambassadors representing seven university student chapters across the country.



Attracting and Retaining the Best & the Brightest

The Future of STEM Scholars Initiative (FOSSI) awards graduating high school seniors pursuing preferred STEM degrees at HBCUs with four-year scholarships, connects them to mentors and offers internship opportunities with program sponsors. Through 2024, more than 820 scholars were funded, thanks to the investment and involvement of more than 80 companies and individual donors. FOSSI has a retention rate of 95% — outpacing typical undergraduate engineering programs.

futureofSTEMscholars.org/FOSSI



Research and Innovation

Launched in 2007, the **AIChE Legacy Society** recognizes visionary donors who have made a commitment to the future of chemical engineering through their estate plans. Their generosity ensures that AIChE can continue to support students, advance research, and promote innovation for generations to come.

AIChE is grateful for our Legacy Society members who help shape the future of the profession.



At the **2024 Annual Meeting Legacy Society Breakfast**, longtime member Sangtae Kim shared why he and his wife Julie included AIChE in their plans:

"It's about ensuring that the next generation has access to the same opportunities that shaped our careers. By planning ahead, we can make a meaningful impact that lasts beyond our lifetimes." — Sangtae Kim

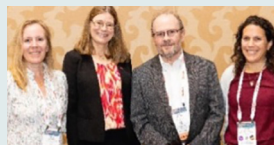
Safety and Ethical Practice



Since AIChE launched the **Undergraduate Process Safety Learning Initiative (UPSIL)**, over 92,897 undergraduates have completed SChE certifications through interactive modules, gaining valuable process safety knowledge and techniques that employers seek in new hires.

Education, Training and Career Development

The **Women in Chemical Engineering (WIC)** Community supports the advancement of women in chemical engineering by providing mentorship, networking, and leadership development. Through the **Women in Chemical Engineering Fund (WIC Fund)**, your support sustains programs such as professional development workshops, keynote lectures, networking events, and the WIC Travel Award, which enables women to attend and present at AIChE conferences. These initiatives empower women across various career stages, from graduate students to early-career professionals. membership@aiche.org.



"We are delighted to play a small role in inspiring and empowering the Women in Chemical Engineering Community (WIC), thereby enhancing their ability to be leaders of our industry." — Scott & Karen Love

Fundraiser and Philanthropist of the Year: Truly Doing a World of Good



Billy Bardin and Kathy Chen were recognized in 2024 for their exceptional contributions to AIChE. Billy was honored as **Fundraiser of the Year** for his passionate leadership, achieving 100% participation in the AIChE Board of Directors' leadership giving and spearheading the CRE Division Endowment's Travel Awards initiative. Kathy was named **Philanthropist of the Year** for her generous support of the John C. Chen Endowment for Young Professional Leadership, which provides vital development opportunities for early-career AIChE members, honoring her late husband's legacy and commitment to mentoring future leaders.

2024 AIChE® Gala

AIChE celebrated the contributions of the companies and the leaders of BASF Corporation and Celanese Corporation, and lauded the good works of chemical engineers, at the **2024 AIChE Gala** "Inspiring the Power of Good" held December 4 in New York City. The event also recognized Gregory Stephanopoulos (MIT) with the Doing a World of Good Medal, for his groundbreaking contributions in metabolic and biochemical engineering.



The event raised approximately \$450,000 to underwrite programs designed to advance the chemical engineering profession by attracting and retaining diverse talent, and by investing in research that drives innovation for the benefit of society.

aiche.org/gala



AIChE's Reach



AIChE makes an impact on media throughout the world via its communication channels and social media. A popular component of this outreach is AIChE's ChEnected blog. Originally launched by AIChE early-career professionals, ChEnected provides insights into AIChE, the profession, and the people in the diverse chemical engineering community. aiche.org/chenedected

ChEnected's Top Posts in 2024 (by page views):

1. Meet process engineer Taliya Mammadhasanzade
<https://chenedected.aiche.org/2024/01/meet-process-engineer-taliya-mammadhasanzade>
2. Cornell University Wins H. Scott Fogler 1st Place Award in 2024 Chem-E-Car Competition®
<https://chenedected.aiche.org/2024/10/cornell-university-wins-h-scott-fogler-1st-place-award-2024-chem-e-car-competitionr>
3. Introducing the Early Career Community: Your Gateway to Success in Chemical Engineering
<https://chenedected.aiche.org/2024/03/introducing-early-career-community-your-gateway-success-chemical-engineering>
4. A Chemical Engineering Pioneer and Some of Her Descendants
<https://chenedected.aiche.org/2024/03/chemical-engineering-pioneer-and-some-her-descendants>
5. Venkat Venkatasubramanian of Columbia Will Receive AIChE's Walker Award for Chemical Engineering Literature
<https://chenedected.aiche.org/2024/09/venkat-venkatasubramanian-columbia-will-receive-aiches-walker-award-chemical-engineering-literature>
6. Chem-E-Car in the Spotlight – 2024 Competitors, Part 1
<https://chenedected.aiche.org/2024/10/chem-e-car-spotlight-2024-competitors-part-1>
7. Chem-E-Car in the Spotlight – 2024 Competitors, Part 4
<https://chenedected.aiche.org/2024/10/chem-e-car-spotlight-2024-competitors-part-4>
8. Chemical Engineers Embrace the Frontiers of AI/ML
<https://chenedected.aiche.org/2024/07/chemical-engineers-embrace-frontiers-aiml>
9. Meet AIChE's 2024 Election Candidates
<https://chenedected.aiche.org/2024/07/meet-aiches-2024-election-candidates>
10. What ExxonMobil Has Learned (So Far) from Our Direct Air Capture Pilot
<https://chenedected.aiche.org/2024/08/what-exxonmobil-has-learned-so-far-our-direct-air-capture-pilot>

Find AIChE daily on Facebook, Instagram, LinkedIn, X, and YouTube.

In 2024, AIChE's overall audience for these accounts increased by 14.8% over 2023

IMPRESSIONS

4.6M

UP 28%

ENGAGEMENTS

222.9K

UP 36%

POST LINK CLICKS

169.3K

UP 100%

ENGAGEMENT RATE (PER IMPRESSION)

4.8%

UP 7%



LinkedIn saw the largest growth of any of AIChE's social media platforms — adding nearly 24,436 followers over 2023



Awards and Honors

AICHE and its entities celebrate chemical engineering accomplishments through award programs. The most prestigious honors are the Board of Directors' and Institute awards — presented in 2024 at the AIChE's Annual Meeting in San Diego, California. The Institute Award recipients are listed at [aiche.org/awards/institute](https://www.aiche.org/awards/institute).

The Board of Directors' 2024 Founders Award was presented to **Gintaras V. “Rex” Reklaitis**, (Purdue University) in recognition of his distinctive contributions to the chemical engineering profession through service, research, and education. Award for Service to the Institute was presented to **S. Shariq Yosufzai** (Chevron; retired) for his decades of leadership and service to AIChE and the AIChE Foundation, and for creating a more equitable, diverse, and inclusive profession.

Among other major awards, the Langer Prize for Innovation and Entrepreneurial Excellence provides an unrestricted grant up to \$100,000 to enable early-career researchers and engineering entrepreneurs to pursue game-changing innovations. The fellowship is named for biomedical pioneer Robert Langer (MIT). The 2024 recipient was **Ashish Kulkarni** (University of Massachusetts Amherst), who is researching a biomarker for early detection of ovarian cancer.

Learn about all of AIChE's award programs and the 2024 honorees at [aiche.org/awards](https://www.aiche.org/awards).



Reklaitis

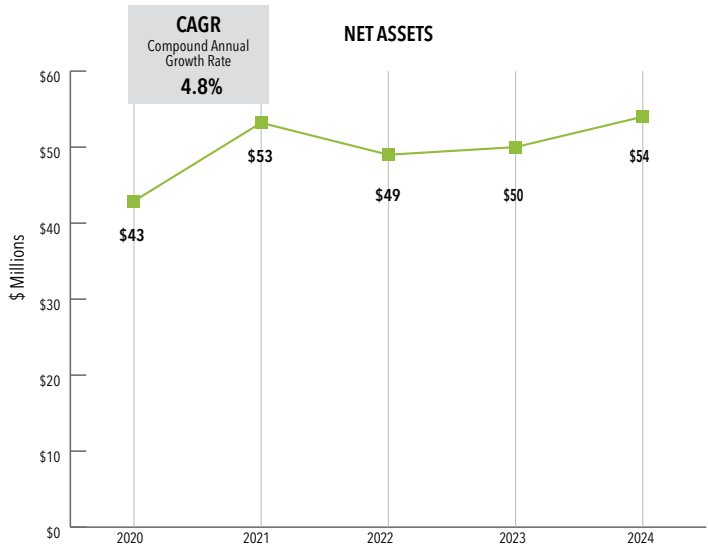
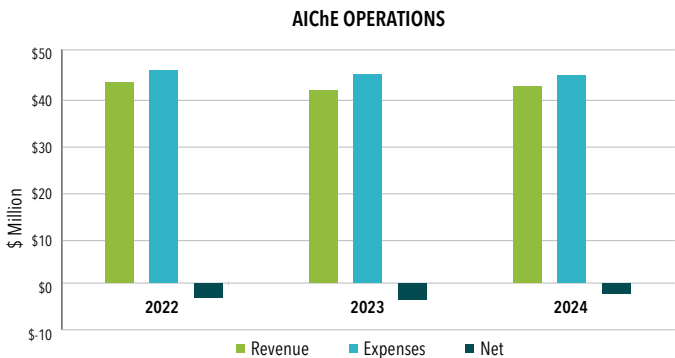
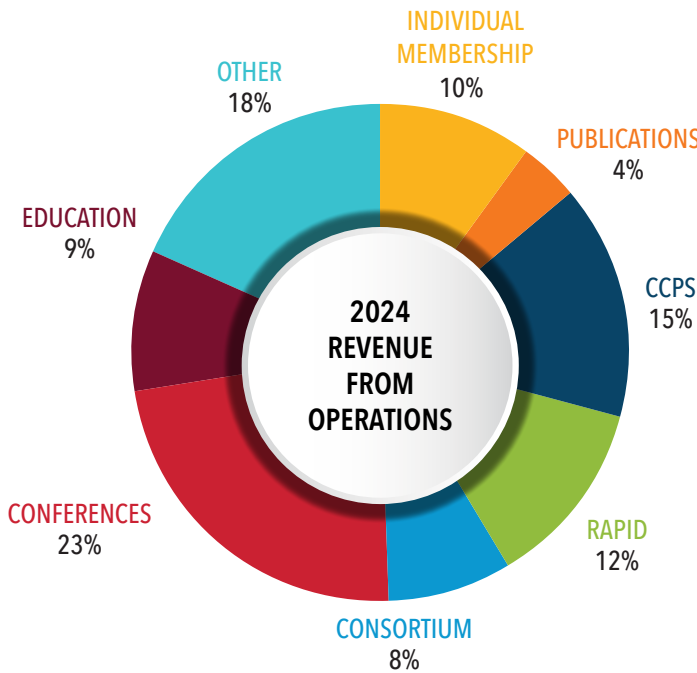


Yosufzai



Kulkarni

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