AIChE

The Global Home of Chemical Engineers

2022

AIChE® ANNUAL REPORT

Darlene Schuster
Chief Executive Officer and
Executive Director, AIChE

Christine Grant
2022 AIChE President

Twenty twenty-two was another year of transition for most of us, as we emerged from the pandemic.

Through all of this, AIChE, the Global Home of Chemical Engineers, transformed to meet the changing needs and interests of our members, partners, and collaborators.

Many of the advances we saw in 2022 are in line with what AIChE's leadership views as three key pillars of Institute progress.

Advancement of the ChE Profession and Technology

- We saw the post-pandemic recovery of our specialty conferences, as they returned to in-person venues. Some events — such as our Synthetic Biology: Engineering, Evolution and Design (SEED) Conference, and our International Conference on CRISPR Technologies — achieved greater participation than ever before.
- Our Center for Hydrogen Safety (CHS) and the Center for Chemical Process Safety (CCPS) continue to grow in members and impact. CHS is approaching 100 member organizations, while CCPS added 32 new member companies to its network in 2022.
- The Rapid Advancement in Process Intensification Deployment (RAPID) Manufacturing Institute was invited by the U.S. Department of Energy (DOE) to submit a proposal for renewed funding — for projects focused on industrial efficiency and decarbonization.
- AIChE partnered with Gulf Energy Information to stage a new chemical engineering technology trade show ("ChemE Show") — set to debut in the fourth quarter of 2023.

Career Growth and Education

- Participation in the AIChE Academy's in-person public courses rebounded to a 50% increase over pre-pandemic levels.
- AIChE's Institute for Learning and Innovation (ILI) added new credentialing programs in areas including process intensification and hydrogen safety.
- ILI conducted 10 Career Discovery Workshops through the AIChE Academy, and launched a data analytics internship program as part of its Practice+ component.
- More than 150 early-career faculty received training and mentoring at the Summer School for Chemical Engineering Faculty, co-organized by AIChE's Education Division.

Meeting Societal Needs

- The RAPID Institute received a $9.5 million grant from the U.S. National Institute of Standards and Technology (NIST) to conduct three pandemic response projects.
- Through the efforts of the AIChE Foundation and its generous supporters, we've strengthened the chemical engineering pipeline by funding hundreds of students in the Future of STEM Scholars Initiative (FOSSI) and other programs designed to welcome the next generation.
- Representatives from universities and companies across the U.S. convened for AIChE's first National Diversity Equity Workshop for Chemical Engineering Academic Leaders — funded by the AIChE Foundation.

These societal impacts follow the Institute's IDEAL path — marked by inclusion, diversity, equity, anti-racism, and learning.

The examples above merely scratch the surface of the past year's high points.

We hope that you will be pleased by what you see documented in this report — and that you will find projects and activities in these pages that resonate with you. We also hope that, in 2023, everyone reading this report will claim a personal stake in a new AIChE activity or community that connects with your interests. Also, stay tuned for news about a new membership model that aims to more effectively and efficiently serve our profession.

Every member is crucial to the future progress and vitality of this professional home of ours. We look forward to experiencing that future with you.

Darlene Schuster
Chief Executive Officer and Executive Director, AIChE

Christine Grant
2022 AIChE President

Membership

AIChE encourages chemical engineers to "go further" in their careers by becoming active members of the Institute. Among the benefits, members are able to participate in AIChE's many communities — such as technical divisions, forums, local sections, and other affinity groups — in order to expand their networks, keep up with trends in their areas of interest, and increase their own visibility and influence in the chemical engineering arena.

In 2022, as AIChE's many entities and groups returned to in-person activities, the Institute's members continued to connect with education opportunities and with one another — including through continued expansion of AIChE's online and virtual venues.

66,000+
TOTAL MEMBERS

141
COUNTRIES

41,000+
MEMBER PROFESSIONALS

Technical Divisions and Forums

12,800+
AIChE MEMBERS

are also members of at least one technical division or forum. Learn about **divisions and forums** at: **aiche.org/divisions-forums.**

Local Sections

5,500
MEMBER PROFESSIONALS

participate in **in-person local sections** across North America and at international locations. **aiche.org/local-sections**

Additionally, AIChE's **Virtual Local Section** offered a full slate of monthly meetings in 2022, and continues to help members connect online. Read more at: **aiche.org/virtual**.

AIChE Member Communities

Reflecting the diversity of both the chemical engineering profession and its worldwide constituencies, AIChE is building dedicated communities that serve the interests and needs of members. Beyond the Institute's technical divisions, forums, technical entities, and communities for process engineers and climate solutions (to name a few), members will find inclusive affinity groups to help them thrive as professionals and as individuals.

IDEAL
An AIChE Commitment

For example, in 2022, the Women in Chemical Engineering (WIC) Committee formally relaunched as a community. This has allowed leaders within WIC to better provide AIChE members with a space to assemble and promote women in the profession. By creating an inclusive environment of support, women and allies of all technical backgrounds in industry, academia, government labs, or those reentering the workforce, can find guidance and opportunities for leadership development, networking, and mentorship. Get involved with WIC at: **aiche.org/wic**.

Paving the path to a more equitable, diverse, and inclusive profession, AIChE recently revised its statement on equity, diversity and inclusion. This revised statement was further advanced by former AIChE Director Dr. Cato T. Laurencin (Univ. of Connecticut), who proposed the concept of the **IDEAL Path** — characterized by inclusion, diversity, equity, anti-racism, and learning. The IDEAL Path emphasizes the active components of anti-racism and learning as crucial additions to the aspirational components of inclusion, diversity, and equity, in order to create a more fair and just society. The full statement on the IDEAL Path can be found at: **aiche.org/IDEAL.**

DORIC
DISABILITIES OUTREACH & INCLUSION
An AIChE Community

AIChE K-12

LatinX in ChE
An Affinity Community within MAC

LGBTQ+ Allies
An AIChE Community

mac
AIChE Minority Affairs Community

WIC
WOMEN IN CHEMICAL ENGINEERING
An AIChE Community

Student Membership

AIChE saw continued expansion of its undergraduate student activities in 2022, with the establishment of nine new student chapters — including AIChE's first student chapters in France, Guatemala, and Venezuela.

AIChE hosted Regional Student Conferences and competitions in its nine North American regions, plus Brazil, China, Greece, India, Indonesia, and Latin America.

aiche.org/students

25,500+
STUDENT MEMBERS

ACROSS
100
COUNTRIES

MORE THAN
390
STUDENT CHAPTERS

ACROSS
50+
COUNTRIES

AIChE ScaleUp

AIChE undergraduate student membership is subsidized through the generosity of its ScaleUp sponsor organizations. Thank you to our ScaleUp program sponsors for their generous support in helping to enrich the next generation of chemical engineers.

aiche.org/scaleup

PLATINUM SPONSOR

the human energy company™ Chevron

ChemE Cube™
Powered by RAPID® | ExxonMobil

Launched by AIChE's Rapid Advancement in Process Intensification Deployment (RAPID) Manufacturing Institute in 2020, 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.

In 2022, teams were challenged to build a water purification unit in a one-ft. cube with a chemical disinfection component, and squared off at AIChE's Annual Student Conference in Phoenix, AZ. Congratulations to the team from Carnegie Mellon Univ., which took first prize with its invention, "Water-Mellon." Teams in 2023 will tackle the challenge of Direct Air Capture.

K-12 STEM Showcase and Outreach Competition

AIChE K-12 STEM Showcase

At AIChE's fourth K–12 STEM (Science, Technology, Engineering, Math) Showcase and Outreach Competition (Nov. 14 at the 2022 Annual Meeting and Annual Student Conference in Phoenix, AZ) — grade school students, parents, and teachers witnessed demonstrations of chemical engineering concepts. Fifteen teams — consisting of AIChE member graduate and undergraduate students — exhibited tabletop demos and participated in mentoring sessions. Volunteers judged the entries for originality, technical content, safety, and suitability for classroom use. AIChE archives the top entries and lesson plans for anyone who wants to stimulate STEM interest among future engineers and scientists.

The event was organized by AIChE's K–12 and Executive Student committees, and supported by the AIChE Foundation and 3M.

aiche.org/k12

A highlight of the STEM Showcase, Kate "Kate the Chemist" Biberdorf demonstrated some of the wonders of science to Phoenix-area K–12 students.

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 2022, more than 30 specialty conferences were hosted by these groups, exploring an array of topics.

A few highlights in 2022:

Organized by the Society for Biological Engineering (SBE), the **Commercializing Industrial Biotechnology Conference** (May 9–10, San Diego, CA) spotlighted best practices and technology innovations for accelerating commercial production of bio-based products. The only conference focused on scale-up and commercialization of new products in the synthetic biology, fermentation-based products, and industrial biotechnology space, the 2022 event featured keynotes delivered by Jennifer Holmgren (LanzaTech) and Jim Flatt (Brightseed) — along with panels, roundtables, and a workshop on building trade secret programs for bio-based projects.

Another SBE event, the **5th International Conference on CRISPR Technologies** (Oct. 31–Nov. 2, Berkeley, CA) highlighted 10 years of CRISPR engineering, with attendance surpassing 200. Among the dozens of presenters, two distinguished keynote speakers — Rodolphe Barrangou (North Carolina State Univ.) and Jennifer Doudna (UC Berkeley) — discussed the past, present, and future of CRISPR technologies.

The **3rd Competitive Energy Systems Symposium** (Dec. 6–8; Honolulu, HI) focused on decarbonization by providing a platform for leaders and innovators to discuss technical challenges that would help commercialize hydrogen-centric technologies. The **4th Battery and Energy Storage Conference** (Oct. 26–28, New York, NY) engaged chemical engineers and researchers working in energy storage and conversion technologies. Both conferences defined how AIChE and RAPID can provide value to members and society via advanced manufacturing, education, and workforce development, and by outreach to stakeholders.

The SBE also recognized June Wispelwey — SBE's founding executive director and outgoing Executive Director and CEO of AIChE — with the creation of the June Wispelwey Bio Leadership Fellowship, as a tribute to her leadership in raising the visibility of bioengineers within and beyond chemical engineering.

aiche.org/community/itg

Center for Energy Initiatives
An AIChE Technological Community

Center for Innovation & Entrepreneuring Excellence
An AIChE Technological Community

DiERS

imes
International Metabolic Engineering Society

institute for sustainability
An AIChE Technological Community

International Society for Water Solutions
An AIChE Technological Community

Regenerative Engineering Society

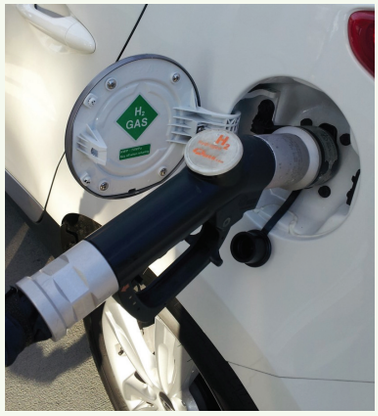
Society for Biological Engineering
An AIChE Technological Community

CENTER FOR Hydrogen SAFETY
Connecting a Global Community

Established in 2019, AIChE's Center for Hydrogen Safety (CHS) is becoming the global leader in hydrogen safety. CHS guides industry stakeholders in the safe handling and use of hydrogen and provides international partner organizations with resources that address traditional uses of hydrogen and its growing use as a fuel source.

CHS experienced a very successful 2022, growing to 98 member organizations and 14 strategic partners. CHS added three eLearning courses and an industry-first hydrogen safety credential; conducted four technical webinars with more than 2,000 registrants; and held a successful U.S. conference with 183 attendees representing 13 countries and with nine company sponsorships. CHS eLearning courses exceeded 3,500 attendees. Additionally, CHS conducted two AIChE-first LinkedIn Live sessions with more than 400 persons in attendance.

aiche.org/chs



Hydrogen fuel pump

Education

AIChE INSTITUTE FOR LEARNING & INNOVATION

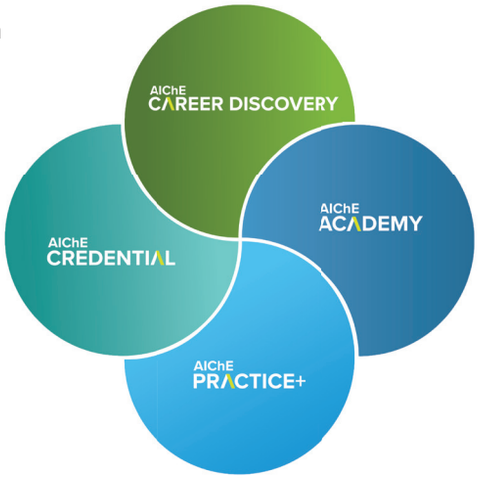
AIChE's Institute for Learning and Innovation (ILI) creates a bridge between industry and academia, offering an all-inclusive approach to career development, training, and practical application for chemical engineers at all stages of their careers. The ILI deliverers content and opportunities along four dimensions:

- **Career discovery and services** — including skills assessment to help learners identify goals and the skills and experiences needed to achieve them
- **Education and training** — developing technical skills with courses offered via AIChE Academy
- **Practice+** — aligning learners with opportunities to gain experience in applying their new skills, and offering a head-start on their next career step
- **Certificates and credentials** — validating engineers' proficiency in such disciplines as safety, process intensification, sustainability, and more.

Among its highlights in 2022, ILI:

- Established new credentials in hydrogen safety and process intensification
- Offered a new data analytics internship program as part of Practice+
- Created a new instructor-led virtual course — "The Hydrogen Economy Program" — in collaboration with the Univ. of Houston
- Conducted 10 Career Discovery Workshops through the AIChE Academy
- Kicked off Sustainable Energy Corps projects with Lamar Univ. and the Univ. of Houston.

aiche.org/ili



AIChE ACADEMY

AIChE Academy delivers training to chemical engineers and their organizations worldwide. Members and non-members alike use the Academy's live and on-demand courses, webinars, conference presentations, and other eLearning resources to improve their professional skills, train teams, and brush up on trending topics. Many Academy products offer continuing education units (CEUs) and professional development hours (PDHs).

In 2022, Academy's face-to-face courses rebounded post-COVID to a 50% increase over 2019.

aiche.org/academy

New in 2022

ChE Faculty Report to Summer School

More than 150 new and recently hired faculty members received a crash course in classroom techniques at the 17th Summer School for Chemical Engineering Faculty.

Organized by AIChE and the American Association for Engineering Education (ASEE), the 2022 Summer School was in-session from July 24–29 at Colorado School of Mines. Through workshops, brainstorming, and team-building exercises, new teachers received mentorship and inspiration from seasoned chemical engineering faculty members. The training was designed to bolster teaching techniques and integrate new faculty into the broader academic and AIChE communities. Dozens of experienced faculty led the training, including members of AIChE's Education Division. Subject matter encompassed topics as varied as the use and teaching of computer-aided techniques; grant writing; diverse approaches to teaching and learning; ethics; academia-industry interaction; and more.

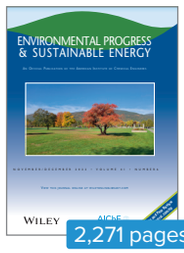
ASEE/AIChE Summer School for Engineering Faculty

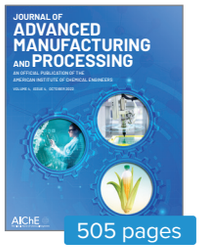
Organizations including 3M, Chevron, and Dow helped to underwrite faculty participation as part of the AIChE Doing a World of Good campaign's priorities to advance chemical engineering and attract the best and brightest.

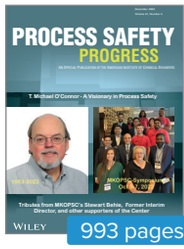
Publications

Journal Highlights

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)* — experienced relatively positive year-over-year growth in key performance indicators, including articles published, open access (OA) content published, and the number of downloads. BioTM continues to be AIChE's fastest growing journal with articles published in 2022 nearly triple that of 2021. Most journals showed growth in OA articles published.







Journals in 2022	Total Articles Published / Hybrid Open Access	Yr-Over-Yr % Change: Published / Open Access	Downloads in 2022	
AIChE Journal	433 / 60	8.0% / 25.0%	923,855	2.9%
BioTM	187 / n/a	163.4% / n/a	323,537	67.3%
BTPR	86 / 22	-9.5% / -4.3%	507,559	-2.8%
EP&SE	246 / 6	21.2% / 100.0%	204,262	5.3%
JAMP	34 / 7	17.2% / 16.7%	42,415	4.5%
PSP	89 / 8	-5.3% / 166.7%	98,124	3.2%

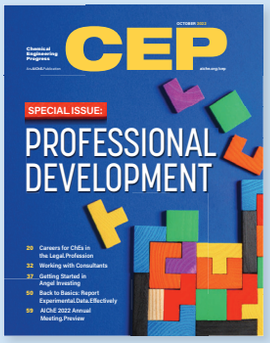
Additional journal highlights in 2022:

- *AIChE Journal's* new Editor-in-Chief, David Sholl, hit the ground running in 2022 with a focus on improving time to production of manuscripts, diversifying the associate editor (AE) team, and strengthening the connection between the journal and *CEP*. Three new AEs joined the journal's editorial team: Lynn Walker, Sandra Kentish, and Goetz Veser.
- *BioTM* continues to grow, with submissions more than doubling. The journal added new AEs to keep up with this growth. In addition, Elizabeth Nance stepped in as interim Editor-in-Chief as Samir Mitragotri stepped down as Editor.
- BTPR selected Ali Khademhosseini to receive its 2022 *Biotechnology Progress* Award for Excellence in Biological Engineering Publication.
- *EP&SE* published a virtual issue, US-China EcoPartnership, which focused on pathways toward decarbonizing economies to mitigate climate change.
- *JAMP* published an issue on the Clean Energy Smart Manufacturing Innovation Institute (CESMII), with an editorial by Haresh Malkani and Prakashan Korambath.
- *PSP* published an editorial on the legacy of the Mary Kay O'Connor Process Safety Center and a commentary on Thomas Michael O'Connor: The quiet visionary leader of process safety.

aiche.org/journals

CEP Highlights

Chemical Engineering Progress (CEP) —the Institute's flagship publication — broke new ground in October with the publication of its Special Issue on Professional Development. That issue contained five articles and several columns with career advice for engineers at every career stage. In 2022, *CEP* also reached more engineers than ever online and via the *CEP* app, logging around 500,000 total sessions. The *CEP* website received nearly 1.9 million page views in 2022, while downloads of *CEP* article PDFs reached over 30,000. *CEP*'s monthly printed magazine remains one of the top benefits for AIChE members.



Each year, *CEP* publishes four special sections, each of which covers an emerging topic from a variety of angles. In 2022, *CEP* special sections included:

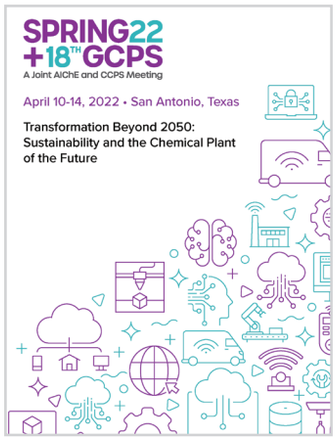
- Process Intensification, a collaboration with the RAPID Manufacturing Institute (April)
- Sustainability (June)
- Accelerating Decarbonization (September)
- Synthetic Biology (November)

aiche.org/cep

Events

In 2022, AIChE's major conferences attracted chemical engineers and allied professionals working in industry, labs, and academia around the world. Strong technical content was rounded out by a breadth of community building events and activities.

2022 AIChE® Spring Meeting & 18th Global Congress on Process Safety



The Spring Meeting and Global Congress on Process Safety (GCPS) is AIChE's key technical conference for practicing chemical engineers and process safety practitioners. Emphasizing technology in core and emerging areas, the 2022 meeting was — for the first time since 2019 — held fully in-person, and showcased sessions devoted to ethylene production, distillation, Industry 4.0, leadership skills, clean energy, gas utilization, refinery processing, and more. Organized by AIChE's Center for Chemical Process Safety (CCPS), the Global Congress on Process Safety addresses the needs of process safety practitioners, with programming devoted to loss prevention, process plant safety, process safety management, case histories and lessons learned, and global perspectives.

aiche.org/spring

New in 2022


Lori Ryerkerk


Robert Johnston

Lori Ryerkerk (Celanese) delivered the AIChE Government and Industry Leaders (AGILE) Keynote Address, entitled "The Chemical Plant of the Future: Progressing Toward Digitization and Sustainability." Additional keynotes covered topics including carbon capture, process safety culture, and navigating the energy transition.

The Heat Exchangers Topical Conference made its in-person debut — providing a forum for heat transfer specialists to meet and discuss the latest technologies, software, and best practices in heat exchanger design, monitoring, and operations.

Robert Johnston (ExxonMobil Chemical) delivered the GCPS plenary keynote address, "Are We Learning from the Past: How Do You Really Know?" In his keynote, Johnston advised attendees that they must work collectively to remove the obstacles to learning and sharing.

ASC22 AIChE Annual Student Conference

Participation at the AIChE Annual Student Conference (Nov. 11–14) exceeded 1,600. Highlights included a welcome keynote by Dan Coombs (LyondellBasell, retired), as well as career sessions, competitions, and networking events. The AIChE ChemE-Sports™ Competition returned to the conference for its fourth year, and its second year in a hybrid format. More than 20 teams around the world participated, with the team from Obafemi Awolowo Univ. taking the top prize.

aiche.org/asc22

2022 Annual Chem-E-Car Competition®

More than 40 teams participated in the 24th annual AIChE Chem-E-Car Competition® — held virtually and in-person in two separate competitions. The Univ. of Toledo defended its 2021 title to claim first place in the in-person performance competition with its car, "Acid Reign," which stopped 30.4 cm away from the target distance of 22 m. Nanjing Univ. of Science and Technology won the virtual competition with their car, "Nan Li Monster," reaching .32 m from the 25 m target. The competition is sponsored by Chevron. The $2,000 first prize is funded by the H. Scott Fogler Endowment, named for the competition's founder.


The Univ. of Toledo celebrates its victory.

2022 AIChE® Annual Meeting

2022 AIChE ANNUAL MEETING

AIChE's premier educational forum for chemical engineers interested in innovation, collaboration, and professional growth, the 2022 AIChE Annual Meeting was held in Phoenix, AZ, with attendees from 50 countries and 48 U.S. states, as well as Washington, DC, and Puerto Rico.

aiche.org/annual

New in 2022

The meeting's theme —"Powering the Future" — underscored many sessions, including a panel featuring Anne Gaffney (Idaho National Lab), Paul Dauenhauer (Univ. of Minnesota), Ah-Hyung (Alissa) Park (Columbia Univ.), and David Sholl (Oak Ridge National Lab). This and other sessions were organized by the Meeting Program Chair, Sindee Simon (North Carolina State Univ.), and Meeting Program Co-chair De-Wei Yin (The Dow Chemical Company).

The John M. Prausnitz AIChE Institute Lecture was presented by **Elsa Reichmanis** (Lehigh Univ.). The 74th annual lecturer, Reichmanis's talk was entitled "From Silicon to Plastic: It's All About Surfaces, Interfaces, and Processing."

Additional featured lectures were presented by some of the profession's thought leaders, including **John L. Anderson** (National Academy of Engineering), **Kristala L. J. Prather** (MIT), **Diane Hildebrandt** (Univ. of Witwatersrand), **David Suleiman** (Univ. of Puerto Rico at Mayagüez), and **Jonathan Dordick** (Rensselaer Polytechnic Institute).

A session devoted to the 2022 National Academies of Science, Engineering, and Medicine's (NASEM) Report on "New Directions for Chemical Engineering" featured presentations, remarks, and a panel including 2022 AIChE President Christine Grant (North Carolina State Univ.), Eric Kaler (Case Western Reserve Univ.), Cato T. Laurencin (Univ. of Connecticut), Jodie Lutkenhaus (Texas A&M Univ.), John Siirola (Sandia National Laboratories), and Jean W. Tom (Bristol Myers Squibb).

In collaboration with the Institute for Learning and Innovation and the Young Professionals Committee, the meeting debuted AIChE's first-ever Three Minute Thesis Competition. The Judges Choice Award was presented to Hanie Yousefi (Northwestern Univ.) for describing biological platforms that can detect infectious diseases.


Elsa Reichmanis


John L. Anderson


Kristala L. J. Prather


Diane Hildebrandt


David Suleiman


Jonathan Dordick

New in 2022

National Diversity Equity Workshop for ChE Academic Leaders

More than 50 representatives from universities and companies across the U.S. convened in Baltimore, MD, for AIChE's National Diversity Equity Workshop for Chemical Engineering Academic Leaders. Funded by the AIChE Foundation, the workshop was held June 27–28, and featured presentations that examined institutional biases and barriers that lead to inequality in the workplace, along with discussions on how to change organizational cultures.

The workshop was chaired by faculty members from Johns Hopkins Univ. Other sponsors included the Univ. of Florida and Ohio Univ. The program was also supported by the Open Chemistry Collaborative in Diversity Equity (OXIDE).

Industry Technology Groups

RAPID® Manufacturing Institute

In 2016, the U.S. Department of Energy (DOE) established AIChE's Rapid Advancement in Process Intensification Deployment (RAPID) Institute. One of the 16 Manufacturing USA institutes, RAPID's public-private collaborations focus on breakthrough process-related technologies aimed at decarbonizing 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

85 MEMBER ORGANIZATIONS

2022 IMPACT

- **38** RESEARCH PROJECTS TO DATE
- **4** TECHNOLOGIES SCALED FROM R&D TO COMMERCIALIZATION
- **11** E-LEARNING COURSES TO DATE

POTENTIAL IMPACT

- **$160MM** IN PUBLIC-PRIVATE INVESTMENT
- **3,650+** PEOPLE TRAINED
- **20%** REDUCTION OF ENERGY INTENSITY AND MODULE COSTS

New in 2022

- RAPID was awarded a $9.5 million grant from NIST to fund three pandemic response projects.
- Launched a new eLearning course: "A Practical Guide to Life Cycle Assessment and Life Cycle Thinking Processes."
- Was invited to submit a proposal for Institute renewal, focusing on industrial efficiency and decarbonization, in the new Renewal Process for DOE-funded Manufacturing USA® Institutes.
- Hosted two in-person DEPLOY events on Process Electrification (April) and Advanced Energetics Reactors (August).
- Hosted the 2nd Annual ChemE Cube Competition™ at the 2022 Annual Student Conference. Seven teams designed, built, and demonstrated a mini-plant in a 1-ft cube. Congratulations to Carnegie Mellon Univ. for winning first place.
- Announced a new, university-only membership tier: AffiliateU.

DIPPR Design Institute for Physical Properties

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

53 CORPORATE MEMBERS

71 GLOBAL LICENSEES

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 2022:

CCPS held in-person meetings in 11 countries —

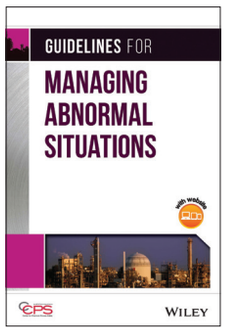
- 6 Student Process Safety Boot Camps
- 4 Faculty Workshops, including one in Tarragona, Spain
- 4 Conferences
  - 18th Global Congress on Process Safety
  - 2022 Global Conference on Process Safety and Big Data
  - Latin American Conference on Process Safety
  - 4th Middle East Process Safety Conference
- Many other regional meetings, conferences, roundtables, panel discussions, and webinars.

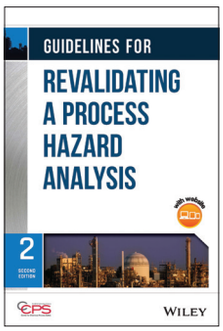
Now in its third decade, the monthly **CCPS Process Safety Beacon** continued to publish valuable process safety information for plant operators. The Beacon is available in 41 languages, with an estimated distribution of 1,000,000 readers. In 2022, CCPS published two additional **"Book of Beacons"** to expand the details of each of the published issues of Beacon. The "Book of Beacons" is available to CCPS members only.

aiche.org/beacon

Highlights in 2022

2 **BOOKS** PUBLISHED IN 2022





- CCPS membership grew in 2022 with a record 32 new member companies joining
- In addition to publishing two new books, CCPS published a flip book entitled *Key Principles of Process Safety for Operational Change*
- Exceeded goal for number of new participants enrolled in CCPS' Process Safety Fundamentals Certificate Program (CCPSf) for students and early-career professionals
- The CCPS Credentialing program now recognizes 324 people worldwide as CCPSC Certified
- Delivered several Process Safety Leadership Workshops for senior executives
- Added new incidents to the Process Safety Incident Database (PSID)
- Updated Vision 20/20 Assessment Tool on the CCPS website
- Enhanced Responsible Collaborations with such groups as the European Process Safety Center, American Chemistry Council, and the Mary Kay O'Connor Process Safety Center
- CCPS conducted its 10-week Chemical Hazard Engineering Fundamentals (CHEF) / Risk Analysis Screening Tool (RAST) Training workshop and issued newly upgraded RAST and CHEF software
- Updated the *Leading and Lagging Indicators to Improve Process Safety Performance* guide
- Established six-hour eLearning course titled "Risk-Based Process Safety Decision Making for All Engineers," with a United Engineering Foundation (UEF) grant
- Created Governing and Planning boards to provide strategic oversite and guidance
- Provided process safety education for students and professors in collaboration with companies and the AIChE Foundation via the Undergraduate Process Safety Learning Initiative (UPSLI). These efforts included CCPS Faculty Process Safety Training Workshops (sponsored by BASF, Chemours, Chevron, and Dow) and six Student Boot Camps. Program details are available at **aiche.org/upsli.**

Foundation

Imagine what all of us can do.

Over the past year, more than 6,700 individual and corporate donors in 60 countries have united to do a world of good.

Since AIChE launched the Doing a World of Good Campaign in 2015, more than $42MM has been raised to expand and enhance the profession's positive impact by funding five transformative priorities:

- Attracting and Retaining the Best and the Brightest
- Educating, Training, and Career Development
- Research and Innovation
- Safety and Ethical Practice
- Changing Perceptions

doingaworldofgood.org

"Chemical engineers are among the best-equipped to improve quality of life globally. As a Foundation donor, my investment helps advance our impact on the profession and society."
— Zenaida Otero-Gephardt (Rowan Univ.; AIChE Foundation Board of Trustees; John J. McKetta, Jr. AIChE Lifetime Giving Society)

"Through safe and ethical engineering practices, I will protect society, the environment, and future generations."
— Nathan Zeringue (ExxonMobil)

FOUNDERS' CIRCLE

Changemaker
$5M and up

Chemours

Visionaries
$2M – $4,999,999

Chevron, DOW, EASTMAN

Benefactors
$750,000 – $1,999,999

AdvanSix, BASF We create chemistry, CABOT, Celanese The chemistry inside innovation, Chevron Phillips Chemical, DUPONT, lyondellbasell Advancing Possible, sabic, SOLVAY

Underwriters
$500,000 – $749,999

BAYER, ExxonMobil

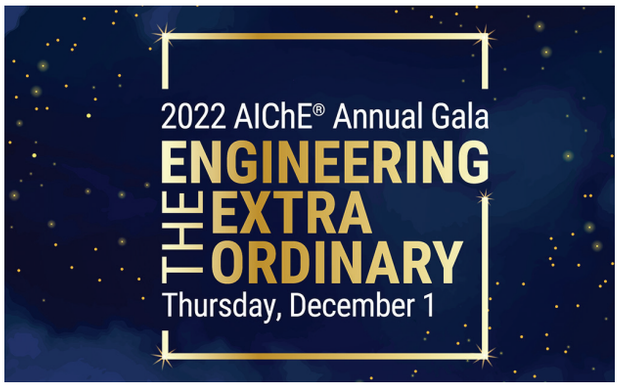
Patrons
$250,000 – $499,999

ADM, ARKEMA, covestro, ECOLAB, EVONIK POWER TO CREATE, GRACE, Lubrizol, MERCK, PPG, Pfizer, polarispartners, SASOL, synthomer, TotalEnergies, TRINSEO, Univar Solutions

2022 AIChE® Gala

At the 2022 AIChE Gala (Dec. 1 in New York, NY), nearly 300 guests celebrated the contributions of Chevron and Ecolab, and recognized the good works of chemical engineer Paula T. Hammond (Massachusetts Institute of Technology), who received the Doing a World of Good Medal.

The evening raised more than $500,000 to underwrite K-12 programs designed to inspire, attract, and retain students from underrepresented groups for the STEM professions, in order to foster a more equitable and inclusive workforce.
aiche.org/gala



Honorees at AIChE's 2022 "Engineering the Extraordinary" Gala included (from left): Michael Wirth, Chairman of the Board and CEO at Chevron; Paula Hammond, Institute Professor at MIT; and Christophe Beck, Chairman and CEO at Ecolab. Photo credit: Natural Expressions NY Photography.

"It is my hope to be able to reach and have an impact on the many promising future engineers who may not always be encouraged or exposed to the wonders of science and technology."
— Paula T. Hammond (MIT)

FOSSI
The Future of STEM Scholars Initiative

The Future of STEM Scholars Initiative (FOSSI)

Established in 2020, FOSSI provides $40,000 scholarships to students pursuing preferred STEM degrees at Historically Black Colleges and Universities (HBCUs). The program also offers leadership training, mentoring, and internship opportunities, and a one-to-one match with corporate sponsors committed to helping scholars achieve their goals.

In December, FOSSI partners Dow, Bayer, and Deloitte invited some of their FOSSI scholars to join them at the AIChE Gala. L to R: 2022 AIChE President Christine Grant; FOSSI scholars Emmanuel Durojaiye (Morgan State Univ.), Kaila White (NC A&T), Korin Murray (NC A&T), and Courtney Young (Howard Univ.). Photo Credit: Natural Expressions NY Photography

"As a FOSSI scholar, Dow invited me to attend the AIChE Gala as their guest. It was exciting to be able to travel to New York for the first time and to meet my peers and mentors from Dow."
—Emmanuel Durojaiye, Morgan State Univ.

Highlights

In 2022, FOSSI:

- Crossed the halfway mark to its goal of funding 1,000 scholars by 2025; more than $30MM has been raised to support 565+ students
- Welcomed its second class of scholars and 16 new corporate partners; 295 scholars are currently enrolled at 38 HBCUs with 60 companies providing support
- Participated as a major sponsor of HBCU Week College Fairs in Wilmington, DE, and Orlando, FL; thousands of high school students learned about FOSSI by participating in interactive demonstrations and attending lunch-and-learn events.

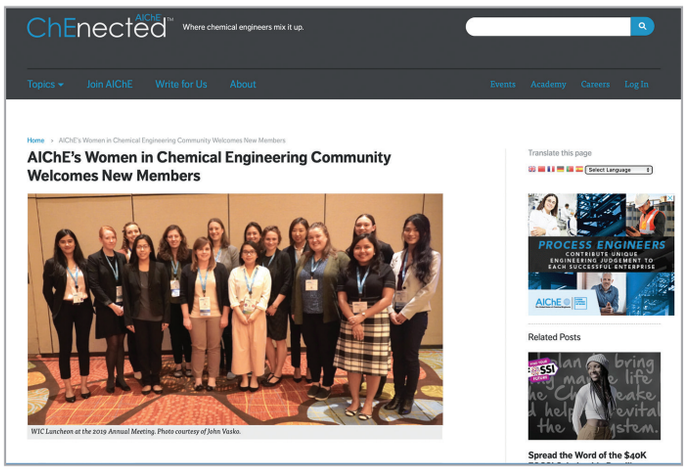
futureofstemscholars.org/fossi

AIChE's Reach

ChEnected by AIChE
Where chemical engineers mix it up.

AIChE made an impact on media via its communication channels and social media platforms. A popular component of this outreach is AIChE's ChEnected blog. Originally launched by AIChE young professionals, ChEnected provides insights into AIChE, the profession, and the people in the broad chemical engineering community. In addition to ongoing series devoted to young professionals, LGBTQ+ members, and process engineers, a special series reflected on Black History Month and Women's History Month. Also in 2022, women engineers took over AIChE social media in the "I am a Chemical Engineer" series.

aiche.org/chenected



ChEnected's Top Posts in 2022
(by page views):

1. Career Options for ChEs: Process and Design Engineering (3,461 views)
2. Introducing Some of AIChE's Recently Elected Fellows (2,844)
3. University of Toledo Wins 1st Prize in 2022 Chem-E-Car Competition® (2,785)
4. Jose E. Tabora of Bristol Myers Squibb is Named AIChE's 2022 Industrial R&D Award Recipient (2,686)
5. Meet Process Engineer Rajan Rathinasabapathy (2,553)
6. Careers in Chemical Engineering Research and Development (2,403)
7. How to Plan Successful Plant Shutdowns in the Chemical Industry (2,137)
8. AIChE's Women in Chemical Engineering Community Welcomes New Members (2,086)
9. Meet AIChE's 2022 Election Candidates (2,066)
10. Leaders of Women in Chemical Engineering Community Discuss the Work Ahead (2,000)

AIChE Engage

The Engage forum connects AIChE members with their chemical engineering communities. It serves as the Institute's directory, discussion platform, and volunteer hub. Discussion Central offers ongoing technical and professional development discussions, and includes several private or subject-specific communities.

aiche.org/engage

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

In 2022, AIChE's overall audience for these accounts increased by 15.3% over 2021.

LINKEDIN
77K
FOLLOWERS

LinkedIn saw the largest growth of any of AIChE's social media platforms — adding nearly 15,000 followers over 2021. Among the new activities, AIChE added LinkedIn showcases for CCPS and SBE.

FACEBOOK
24.6K
PAGE LIKES

INSTAGRAM @CHENECTED
4.2K
FOLLOWERS

TWITTER @CHENECTED
20.2K
FOLLOWERS

YOUTUBE
16.4K
SUBSCRIBERS

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 — which were presented in 2022 at AIChE's Annual Meeting in Phoenix, AZ. The Institute Award recipients are listed at **aiche.org/awards/institute**.

Cato T. Laurencin

Christine B. Seymour

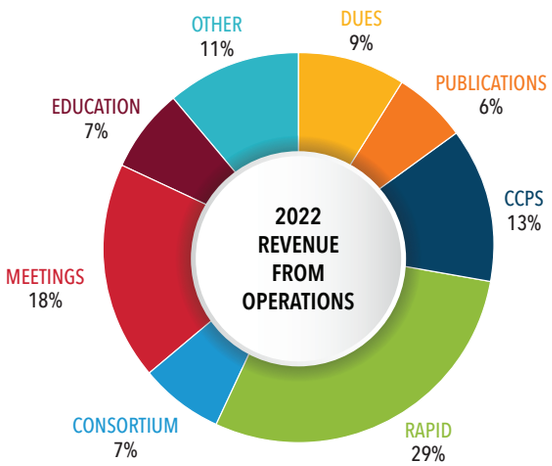
The Board of Directors' 2022 **Founders Award** was presented to **Cato T. Laurencin** (Univ. of Connecticut) for his achievements in the science and engineering of soft tissue implants. The Board's **Van Antwerpen Award for Service to the Institute** was presented to **Christine B. Seymour** (Pfizer) — AIChE's President in 2018 — for her impact on many recent AIChE activities.

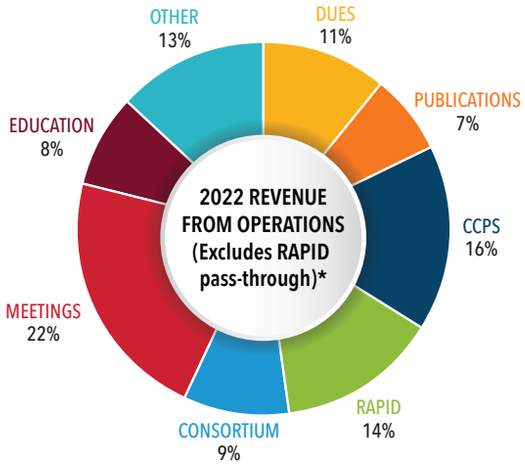
Among other major awards, the **Langer Prize for Innovation and Entrepreneurial Excellence** provides an unrestricted grant of up to $100,000 to enable early career researchers and engineering entrepreneurs to pursue game-changing innovations. The fellowship is named for biomedical pioneer Robert Langer (MIT), and the 2022 recipient was **Tae Seok Moon** (Engineering Biology Research Consortium), who engineers waste plastics for use in new products.

Tae Seok Moon

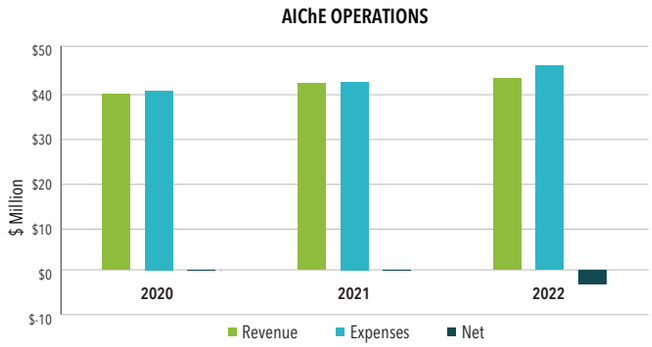
Learn about all of AIChE's award programs and the 2022 honorees at **aiche.org/awards.**

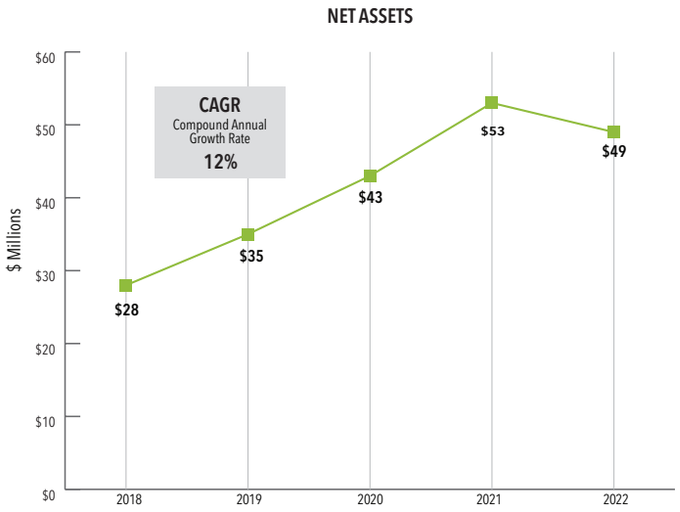
Financial





*Graphs reflect RAPID Project Revenue with (left) and without (right) sub-awards from RAPID to fund technical projects.





OFFICES

New York Global Headquarters

120 Wall Street, 23rd Fl.
New York, NY 10005-4020
Phone: +1 (800) 242-4363

Customer Service Center

100 Mill Plain Rd, 3rd Fl.
Danbury, CT 06811
Phone: +1 (800) 242-4363
Phone: +1 (203) 702-7660
customerservice@aiche.org

Houston Training Center & Latin America Office

10777 Westheimer, Ste 1075
Houston, TX 77042-3455
ccps_latinamerica@aiche.org

Asia Pacific Office

Suite 55, Vatika, Supreme Business Park
Hiranandani Gardens, Powai
Mumbai 400076 India
Phone: +91 22-42019129/30
FAX: +91 22-42019191
umesd@aiche.org

CCPS Europe Office

Luxemburgerstraße 10
64521 Groß Gerau
Germany
Dr. Willi Meier
Phone: +49 171 64 63 049
willm@aiche.org

AIChE
The Global Home of Chemical Engineers