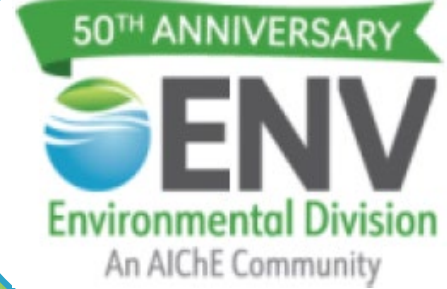


MARCH 25, 2025



# AICHE ENVIRONMENTAL DIVISION NEWSLETTER

Dear Colleagues,

Welcome to the 1<sup>st</sup> Environmental Division newsletter for 2025. I am deeply honored to serve as the AIChE Environmental Division Chair for this calendar year. I take this opportunity to thank our past Division Chairs, Dr. Matthew Alexander (2024), Dr. Kerry Kelly (2023), and Dr. Alexander Orlov (2022), for their immense contributions in ensuring that our division finances are healthy, establishing the Lawrence K. Cecil award endowment fund as well as the ongoing fundraising efforts. We are making progress towards our goal to raise \$50K and with the influx of new ideas and continuing initiatives, I hope to see further enhancements in this effort. You are encouraged to contribute to this effort at - <https://www.aiche.org/community/sites/divisions-forums/environmental-division>

It is my pleasure to introduce the newly elected Leadership team members, Dr. Chad Able, 2<sup>nd</sup> Vice-chair, and our two new Directors (3-year term) Dr. Dora Lopez and Dr. Enoch Nagelli. I am also grateful to the past two directors who completed their 3-year term service, Dr. Coty Jen and Dr. Shweta Singh. Our current leadership team can be found at our website: <https://www.aiche.org/community/sites/divisions-forums/environmental-division> and on our LinkedIn page: [AIChE Environmental Division | LinkedIn](#). I am truly grateful to the leadership team for your continued service. I am also thankful to the Programming Committee (Dr. Chad Able, Dr. Dora Lopez, and Dr. Richard Siegel), all session chairs, and co-chairs for organizing an excellent program for our AIChE Spring and Annual Meetings.

This year, we continue with our Environmental Division Webinars effort and are planning to add some graduate students and postdoc webinars. The 2025 webinars effort will be led by Dr. Enoch Nagelli and Dr. John Chea on the new theme of 'AI and Data-Driven Research for Advancing Safe and Sustainable Technologies' and they will be assisted by Dr. Juan Manuel Restrepo-Florez, Dr. Dora Lopez, Dr. Emmanuel Aboagye, and Dr. Aurora Munguia-Lopez. My thanks to the 2024 webinar committee, Dr. Marwa El-Sayed, Dr. John Chea, Dr. Dora Lopez, and Dr. Ana I. Torres, for organizing an excellent program on the theme of 'Decarbonization and Sustainable Solutions' that included many distinguished speakers: Dr. Christos Maravelias (Princeton), Dr. Hamish Gordon (Carnegie Mellon), Dr. Michael S. Wong (Rice), Dr. Joshua Pearson (Pathway Energy LLC), Dr. Alexander Dowling (Notre Dame), and Dr.

Darshan Karwat (Arizona State). All past webinar recordings are available at: <https://www.aiche.org/community/sites/divisions-forums/environmental-division/webinars-0>. Thanks to Derek Ward, our AIChE liaison, for his assistance with the webinar program, website updates, and email follow-up with members.

This year, our website and social media will be led by Dr. Swapana Jerpoth and Patatri Chakraborty. I am looking forward to working with you on new ideas and initiatives to increase our Division membership and followers. Additionally, our Division was able to collaborate with Dr. Yinlun Huang and Lucy Alexander to share information about our activities and efforts at the International Congress on Sustainability Science and Engineering (ICOSSE'25) in Auckland, NZ in February 2025 and we have gathered interest from the international community. I plan to work on this initiative closely to expand our division activities, international membership, and collaborations.

We plan to host an open meeting on May 7<sup>th</sup>, 2025 (2 PM ET) which will allow you to learn more about us (Link:

[https://aiche.zoom.us/webinar/register/WN\\_fARMkmjxTQSh5hbsOAgagA](https://aiche.zoom.us/webinar/register/WN_fARMkmjxTQSh5hbsOAgagA)). Please consider joining our executive committee, taking a leadership role, or participating in any of our division's ongoing efforts.

I am looking forward to working with all of you on all the exciting activities we have planned for this year as well as new initiatives that will unfold as the year progresses.



Sincerely,  
Kirti M. Yenkie, AIChE Environmental Division  
Chair (2025)

## 2025 DIVISION WEBINARS

The upcoming webinar for the Environmental Division is “Transformer-based Hybrid Modeling and Control of Evolving, Nonlinear Processes”, presented by Dr. Joseph S. Kwon of Texas A&M University. This presentation will be on March 25<sup>th</sup>, 2025 at 5:30 pm EDT. [You can register here](#)

Abstract for the presentation:

Traditionally, the dynamic modeling of chemical processes has relied on first-principles models grounded in fundamental physics and chemistry laws. These models, primarily formulated through differential equations with constant parameters, enable the calculation of control actions optimizing process operations, taking both process and actuator limitations into account. However, the ever-evolving and nonlinear nature of chemical processes frequently calls for models with time-varying parameters.

Our hybrid modeling framework incorporates a recent innovation: attention-based time-series transformers (TSTs) coupled with positional encoding. This marks a pioneering venture into applying the transformer algorithm – a cornerstone in ChatGPT’s triumph - to nonlinear, time-varying processes. By analyzing data across both current and preceding time steps, the TST captures both immediate and historical changes in process states, granting a contextual insight on process dynamics, mirroring ChatGPT’s textual context understanding. This TST-based hybrid model identifies correlations between process parameters and state variables. Its versatility is evident as it adapts to a spectrum of models - from density function theory to computational fluid dynamics - and scales, spanning from laboratory to extensive industrial environments. We will present applications of this hybrid modeling and control architecture, showcasing its utility from labs to industrial processes, made possible through partnerships with leading chemical process enterprises.

## 2025 ENVIRONMENTAL DIVISION LEADERSHIP

Chair: Dr Kirti Maheshkumar Yenkie

1st Vice-Chair: Dr. Jason Trembly

2nd Vice-Chair: Dr. Chad Able

Past Chair: Dr. Matthew Alexander

Secretary: Dr. Robert Peters

Treasurer: Dr. Gerardo J Ruiz-Mercado

Director: Dr. Sage Hiibel

Director: Dr. Dora Lopez

Director: Mr. David A Russell

Director: Dr. Enoch Nagelli

Director: Dr. Ana I. Torres

Director: Dr. Michael Wong

[AIChE Environmental Division Leadership Webpage](#)



# 2025 ENVIRONMENTAL DIVISION AWARDS

Award nominations for 2025 are currently open. Please see the AIChE Environmental Division [awards webpage](#) to nominate members for the following awards before due dates listed.

Lawrence K. Cecil Award in Environmental Chemical Engineering; Due date: June 1st, 2024

[Detail link about the award](#)

Dr. Peter B. Lederman Environmental Division Service Award; Due date: June 1st, 2024

[Detail link about the award](#)

Environmental Division Early Career Award; Due date: June 1st, 2024

[Detail link about the award](#)

Environmental Division Graduate Student Paper Award; Due date: July 1st, 2024

[Detail link about the award](#)

Environmental Division Undergraduate Student Paper Award; Due date: July 1st, 2024

[Detail link about the award](#)

## CECIL AWARD ENDOWMENT FUND

We're pleased to announce the Environmental Division Endowment Fund. The fund will support the Lawrence K. Cecil Award in perpetuity. The Cecil award recognizes an AIChE member for their outstanding chemical engineering achievements in the preservation or improvement of the environment. Our goal is to raise \$50,000. [Join us with your gift today!](#)

## OUR DISTINGUISHED DONOR LIST INCLUDES:

Matthew Alexander

Bhavik Bakshi

Mark Barteau

Heriberto Cabezas

Jeffrey Chilson

Sylvia Choi

Tapas Das

Urmila Diwekar

Menachem Elimelech

Larry Erickson

Thomas Helinski

Yinlun Huang

Kerry Kelly

Karna Krishna

JoAnn Lighty

William Matthews

V. Faye McNeill

Gabriel Mendez-Sanders

Jan Mohammad

Martin Morgan

Nga Lee Ng

Phung Ngo

Alexander Orlov

Michael Overcash

Robert Peters

Phillip Savage

Arup Sengupta

James Shumaker

Panagiotis Smirniotis

Jason Trembly

Jost Wendt

Michael Wong

# ENVIRONMENTAL DIVISION PROGRAMMING UPDATES

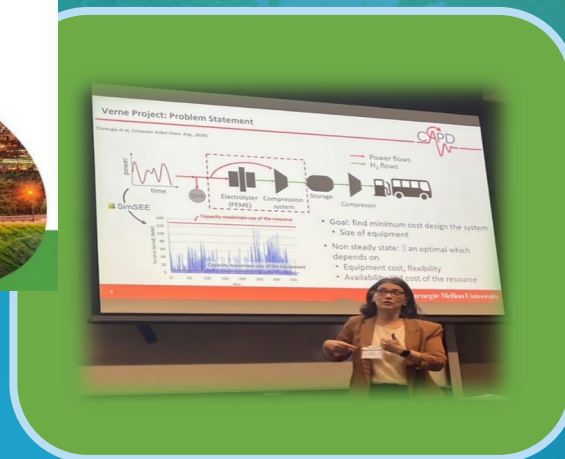
## PROGRAMMING FOR FALL 2025 ANNUAL MEETING (BOSTON, MA)

The call for abstracts for the fall meeting is open and abstracts are due no later than end of day on April 7<sup>th</sup>, 2025. [You can find the abstracts submission page here.](#) The session topics for the environmental division are listed below, along with some sessions that are co-sponsored with other divisions.

- Advanced Treatment Technologies for Water
- Advances in Environmental Chemical Engineering for Sustainable Maritime Activities
- Advances in Sustainable Aviation Fuel (SAF) Production
- Atmospheric Chemistry and Physics: Laboratory, Modeling, and Field Studies
- Building Sector: Advances in Materials and Processes for Reduced Environmental Impact
- Decarbonization by Nuclear
- Design and Analysis of Carbon Capture and Negative Emissions Technologies
- Design and Analysis of Sustainable GHG Emissions Control Technologies
- Design and Optimization of Integrated Energy Systems
- Destruction of PFAS
- Emerging Frontiers in Environmental Chemical Engineering
- Emerging Treatment Technologies and Characterization for PFAS Contamination
- Environmental Advances in Nuclear and Hazardous Waste Processing and Disposal
- Environmental Impacts of PFAS
- Environmental Impacts of the Pharmaceutical Industry
- Environmental Issues involving Biochar
- Fundamentals and Applications for Municipal Solid Waste Treatment and Valorization
- Fundamentals and Applications for Waste Treatment and Valorization
- Fundamentals of Environmental Kinetics and Food, Energy, and Water Systems
- Innovative CO<sub>2</sub> Mitigation Strategies: Engineering, Industrial, and R&D Solutions
- Methane Mitigation Technologies: Capture, Emission Control, and Conversion Innovations
- Microplastics Contamination: Research, Treatment and Mitigation
- Remediation of Emerging Contaminants and Legacy Compounds
- Separation-based Treatment Processes for Per- and Polyfluorinated Alkyl Substances (PFAS) and other Contaminants of Emerging Concern
- Sustainability Considerations for the Use and Replacement of PFAS
- Sustainability Fundamentals and Metrics Applications
- Topical Plenary: PFAS and other Contaminants of Emerging Concern
- Towards Green Crystallization and Precipitation Processes
- Value-Added Chemicals and Fuels from Coal
- Waste Feedstocks to Fuels and Petrochemicals
- Waste Plastic - Recycle, Reuse and Remediation Strategies
- Water Reuse and Recycling
- Water Treatment, Desalination, and Reuse

# ENVIRONMENTAL DIVISION REPRESENTED AT ICOSSE '25

The AIChE Environmental Division information and activities were presented at the ICOSSE'25 meeting in Auckland, NZ to encourage international participation and collaborations. Yinlun Huang, Ana Torres and Kirti Yenkie were participants from our Environmental Division. There was also an NSF sponsored workshop led by Yinlun Huang on 'AI and Digital Transformation for Advanced Industrial and Environmental Sustainability'.

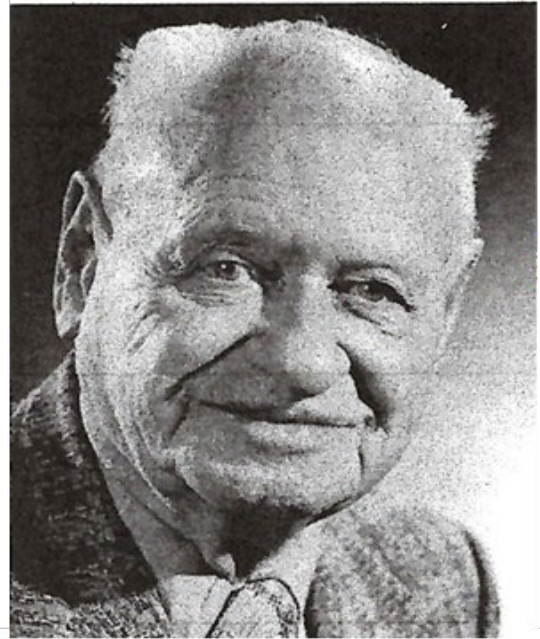


## LAWRENCE K. CECIL:

### THE FATHER OF AIChE'S ENVIRONMENTAL DIVISION AND A LEGACY OF COMPASSIONATE LEADERSHIP

Fondly known as "Larry" to all who knew him, Lawrence K. Cecil was celebrated as the "Father of AIChE's Environmental Division." A pioneering environmental chemical engineer, his dedication laid the foundations for the field within AIChE and inspired generations of engineers. His professional legacy and personal warmth have left an indelible mark on those who knew him, and his values continue to shape the field today.

Larry was born in Illinois in 1895. In November 1918, he married Jennie L. Anderson, and together they raised two daughters, Elizabeth and Patricia. He graduated in 1924 from the University of Illinois with a Bachelor of Arts in Chemistry. Following graduation, he embarked on a distinguished career at Infilco, Inc., where he served in influential roles, including Vice President, Product Manager, and Vice President of Pacific Coast and Asia Operations, over a span of 35 years. His technical contributions at Infilco were just the beginning of his environmental advocacy. After retiring in 1961, he committed himself to a second career in water pollution control, focusing on consulting, public service, and efforts to protect and restore water resources. His dedication and commitment to the environmental field, particularly in the water area, is exemplary.



Lawrence K. "Larry" Cecil  
January 17, 1895 - December 26, 1981

Within AIChE, Larry became a transformative figure. Recognizing the urgency of environmental issues, he played a pivotal role in creating the Environmental Division. Established on December 1, 1970, this Division unified the Water, Air, and Solid Waste Committees under one organizational umbrella, marking the formal beginning of environmental engineering's presence within AIChE. Membership surged in response, with over 1,100 members joining within the Division's first ten months. By early 1972, the Environmental Division had become the largest Division within AIChE, exemplifying the interest Larry had sparked and the Division's role as a pioneering force in environmental science.

In recognition of his monumental contributions, Larry was the first recipient of the Environmental Division Award in 1972. The award, later renamed the Lawrence K. Cecil Environmental Award, stands as one of AIChE's most prestigious honors, given to engineers who have made outstanding contributions to environmental preservation. Larry's influence extended deeply into the publishing world. From 1967 to 1972, he served as editor of AIChE's "Water" monograph series, which became a cornerstone for environmental research and knowledge sharing. The Water monograph series served as the basis and was the precursor to the Environmental Division's journal, *Environmental Progress (and Sustainable Energy)*. Long-time Division member and 2006 Cecil Award winner Professor Larry Erickson reflected, "I appreciated his service to the Environmental Division as editor of the AIChE Symposium Series on Water," underscoring the series' essential role in advancing the field.

Larry's spirit and leadership style were integral to the camaraderie that defined the Division. Known for hosting Division banquets with humor and charm, he often invited members to share "stupid questions" in lighthearted "panel discussions," creating an environment where everyone, regardless of rank, felt included. Dr. Richard D. Siegel, 1975 ENV Division Chair and 1985 Cecil Award winner, fondly recalled, "After one dinner, I remember receiving an unexpected letter thanking me for 'volunteering' for a new role. Of course, I'd been volunteered by Larry. It was classic Larry." His gatherings became known for their community-building spirit, bridging generational and professional divides and contributing to the Division's rapid growth.

In addition to organizing impactful conferences, Larry volunteered as Field Representative to form Pollution Solution Groups nationwide, encouraging local sections to address their unique environmental challenges. His work laid the foundation for AIChE's ongoing collaborations with government agencies, notably the EPA, and positioned AIChE as a key resource for both industry and government on environmental issues. Larry's leadership in organizing Complete WasteReuse conferences drew hundreds of professionals to explore critical topics, including municipal-industrial symbiosis and multi-media pollution control.

Reflecting on Larry's courage, A. Roy Price, the 1973 ENV Division Chair, recalled a pivotal moment in 1967 at a water pollution workshop in Houston, Texas, co-sponsored by AIChE and the League of Women Voters. The Houston League, one of the most outspoken critics of industry and scientists at the time, had a strong environmental stance that often clashed with industry's practices. Knowing this, Larry "threw down the gauntlet," boldly leading his small team into what was viewed by many as "the enemy camp." As Price described, "Not so Larry, who chose to meet them on their own ground." Price admired Larry's courage and ability to open up dialogue in challenging environments, setting a standard for transparency and collaboration in environmental engineering.

Professor Gary Bennett, the 1972 ENV Division Chair and 1975 Cecil Award winner, also spoke of Larry's lasting impact, saying, "He leaves us a legacy of 'Water,' AIChE's annual publication of water pollution papers, which was so successful it spawned, I believe, the newly inaugurated Environmental Progress (now Environmental Progress & Sustainable Energy) whose growth resulted in formation of the Environmental Division, now (then) AIChE's largest, and, lastly, of the Pollution Solution Groups for whom he went on the road that encouraged local environmental activity."

Larry passed away on December 26, 1981, in Enid, Oklahoma, at the age of 86. At the heart of his life was his love for Jennie. As a close friend and colleague put it in his eulogy, "I believe it was this love for Jennie so assiduously practiced, so constantly expressed, that spilled over for Larry into a love of people in general, man and women, and this was the basis of his power over people and of his accomplishment. There will never be another like Larry Cecil, but the many of us who knew him all carry, for the better, something of him in themselves."

Larry's legacy lives on through the Lawrence K. Cecil Environmental Award, inspiring chemical engineers to pursue innovation and collaboration. His life exemplified service to his field, family, and the public good, leaving a legacy that continues to grow through AIChE's Environmental Division and the countless lives he touched.