



# 2022 / AIChE ANNUAL MEETING

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November 13-18, 2022  
Phoenix Convention Center  
Phoenix, AZ

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**SUSTAINABILITY**  
**USERS GUIDE**

**> POWERING THE FUTURE**

# MEMBERSHIP VALUE PROP

AIChE's **Institute for Sustainability (IfS)** is a member-driven organization that aids in pushing the sustainability profession forward, engaging the community, and defining excellence across the field. IfS provides multidisciplinary scientific rigor and research for sustainability discussions, encourages the incorporation of sustainability concepts in engineering education, and facilitates the development of measurement tools to guide the design of more sustainable products and processes.



As a member of IfS, you will enjoy a vast array of opportunities to communicate with leading international engineers, researchers, academics and scientists. Connect for ideas, inspiration, and technical information.

- **Technical Resources** - Keep apprised of new developments in the chemical engineering profession through our CEP magazine, AIChExchange and SmartBrief electronic newsletters, as well as Journals published in partnership with Wiley.
- **Exclusive Technical Content** - Access scientific and technical opportunities and research for sustainability discussions. IfS approaches sustainability from the perspectives of engineering and scientific disciplines to promote the societal, economic, and environmental benefits of sustainable and green engineering.
- **Conferences** - Get the lowest rates on future conference registrations (both virtual and in-person).
- **Education** - Build new technical knowledge and skills through live and archived webinars, credentials as well as self-paced eLearning courses.
- **Advance Your Career** - Whether you are actively searching or just researching possibilities, CareerEngineer is the leading e-recruitment source for chemical engineers at every level, in every field.
- **AIChE Engage** - Cultivate meaningful professional relationships through AIChE Engage, the mobile-friendly community discussion platform.
- **Students** - Get all the up-to-date information on grants and sponsorship opportunities to support your registration to present at any of the IfS conferences. Take part in the next dedicated Poster and Short Talk Session to network with leading professionals in your field of study.

**Join today!**

[www.aiche.org/ifs/membership](http://www.aiche.org/ifs/membership)

The **Sustainable Engineering Forum** promotes Sustainable Engineering and Sustainable Development in an inclusive forum.

This technical forum is open to all disciplines to promote technical and professional development with a focus on sustainability principles and practice.

More information at: [www.aiche.org/sef](http://www.aiche.org/sef)



IfS is governed by a Managing Board of industrial and academic leaders, which sets the course for the society.

**David Shonnard**

**Darlene S Schuster**

**David Routt Shonnard**

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**Charles Collins-Chase**

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**Lise Laurin**

**Ignasi Palou Rivera**

**Jeffrey Seay**

**Debalina Sengupta**

**Subhas K Sikdar**

**Barbara Valentine**

**Kristina Wagstrom**

**Jeffrey Wilbur**

**Fengqi You**



## FEATURED PROGRAMMING Be sure to attend these conference highlights –

### SUNDAY, NOVEMBER 13, 2022

#### Discussing the 2022 NASEM Report: New Directions for Chemical Engineering

3:00 PM – 4:45 PM

N-124AB, Phoenix Convention Center

### MONDAY, NOVEMBER 14, 2022

#### IACChE's James Y. Oldshue Lecture

9:00 AM – 10:15 AM,

North Ballroom 120D, Phoenix Convention Center

#### Nanostructured Polymers for Energy Efficient Devices and Specialty Separation Applications

David Suleiman, *University of Puerto Rico at Mayagüez*

#### Powering the Future: Panel Discussion

11:00 AM – 12:20 PM

N-124AB Phoenix Convention Center

#### 2022 P.V. Danckwerts Lecture

11:15 AM – 12:15 PM

North Ballroom 120D, Phoenix Convention Center

#### Working with CO<sub>2</sub>

Diane Hildebrandt, *University of the Witwatersrand*

### TUESDAY, NOVEMBER 15, 2022

#### Topical Plenary: Frontiers in Green Process and Product Engineering

8:00 AM – 10:30 AM

N-229AB, Phoenix Convention Center

#### 2022 Andreas Acrivos Award for Professional Progress in Chemical Engineering Lecture

11:15 AM – 12:15 PM

North Ballroom 120D, Phoenix Convention Center

#### Building Microbial Chemical Factories: Design, Assembly, and Engineering of Biological Routes to Chemical Compounds

Kristala L. J. Prather, *Massachusetts Institute of Technology*

#### Topical Plenary: Environmental Analytical Technology: Sensor Applications in Sustainability

12:30 PM – 3:00 PM

N-229AB, Phoenix Convention Center

#### Plenary Session: Waste Plastics

3:30 PM – 6:00 PM

N-124AB, Phoenix Convention Center

#### SBE's James E. Bailey Award Lecture

6:15 PM – 7:00 PM

North Ballroom 120D, Phoenix Convention Center

#### Exploiting Viruses that Kill and Killing Viruses that Exploit: Some Sweet Science

Jonathan Dordick, *Rensselaer Polytechnic Institute*

### WEDNESDAY, NOVEMBER 16, 2022

#### Sustainable Engineering Forum Plenary

8:00 AM – 10:30 AM

N-224AB, Phoenix Convention Center

#### John M. Prausnitz AIChE Institute Lecture

11:15 AM – 12:15 PM

North Ballroom 120D, Phoenix Convention Center

#### From Silicon to Plastic: It's All About Surfaces, Interfaces and Processing

Elsa Reichmanis, *Lehigh University*

#### William R. Schowalter Lecture

6:15 PM – 7:15 PM

North Ballroom 120D, Phoenix Convention Center

#### From Particles to People and Complex Organizations

John L. Anderson, *National Academy of Engineering*

# SUSTAINABILITY PROGRAM GRID

**Property Key**  
Phoenix Convention Center = PCC

TIME	SESSION #	SESSION	PROPERTY	ROOM
<b>SUNDAY, NOVEMBER 13</b>				
3:00 PM	3	Discussing the 2022 NASEM Report: New Directions for Chemical Engineering	PCC	N-124AB
3:30 PM	17	Design and Analysis of Sustainable Carbon Capture and Emissions Control Technologies*	PCC	N-225B
3:30 PM	25	Advances in Biofuels Production and Alternative Fuels I*	PCC	W-103A
3:30 PM	36	Design, Analysis, and Optimization of Sustainable Energy Systems and Supply Chains I	PCC	N-226C
3:30 PM	37	Reactor Engineering for Biomass Feedstocks	PCC	N-226B
<b>MONDAY, NOVEMBER 14</b>				
8:00 AM	64	Advances in Biofuels Production and Alternative Fuels II*	PCC	W-103A
8:00 AM	65	Developments in Electrochemical Reactors, Fuel Cells, and Electrolyzers I*	PCC	W-102C
8:00 AM	66	Efficient Processing of Lignin to Bioproducts and Biofuels	PCC	N-228B
8:00 AM	86	Big Data and Analytics for Sustainability	PCC	N-226A
8:00 AM	87	Design, Analysis, and Optimization of Sustainable Energy Systems and Supply Chains II	PCC	N-226C
8:00 AM	92	Sensors and Monitoring for Health	PCC	N-231A
11:00 AM	93	Powering the Future: Panel Discussion	PCC	N-124AB
11:15 AM	94	2022 Danckwerts Lecture	PCC	North Ballroom 120D
12:30 PM	124	Materials for thermochemical and electrochemical Energy Storage	PCC	N-228B
12:30 PM	149	Novel Approaches to CO <sub>2</sub> Utilization I	PCC	N-226C
12:30 PM	150	Sustainable Biorefineries Plenary Session (Invited Talks)	PCC	N-226B
12:30 PM	151	Sustainable Management and Uses of Post-Consumer Materials and Waste	PCC	N-226A
12:30 PM	157	Student Competition in Sensors (Sponsored)	PCC	N-231A
3:30 PM	166	Poster Session: Food and Bioprocess Engineering*	PCC	Exhibit Hall E
3:30 PM	195	Integrated Biorefineries: Technologies and TEA/LCA*	PCC	W-103A
3:30 PM	196	Ionic Liquids: Novel Separation, Catalytic reaction and Electrochemical Processes	PCC	N-228B
3:30 PM	197	Climate Solutions Policy Initiative (CSPI)*	PCC	N-127A
3:30 PM	215	Feedstock Conversion Interface Consortium – Understanding Feedstock Variability to Enable Next Generation Biorefineries (Invited Talks)	PCC	N-226B
3:30 PM	216	Green Chemistry and Engineering-I	PCC	N-226A
3:30 PM	217	Novel Approaches to CO <sub>2</sub> Utilization II	PCC	N-226C
3:30 PM	223	Next-Gen Sensors	PCC	N-231A

This program is as of October 6, 2022. An up-to-date program is available at [aiche.org/annual](https://www.aiche.org/annual) and in the AIChEvents app.

# SUSTAINABILITY PROGRAM GRID

TIME	SESSION #	SESSION	PROPERTY	ROOM
<b>TUESDAY, NOVEMBER 15</b>				
8:00 AM	256	Developments in Shale Gas and Natural Gas*	PCC	W-103A
8:00 AM	257	Topical Plenary: Frontiers in Green Process and Product Engineering (Invited Talks)	PCC	N-229AB
8:00 AM	281	Concentrated Solar Power Generation and Chemical Processing I	PCC	N-226C
8:00 AM	282	Value-Added Biorefinery Co-Products	PCC	N-226B
8:00 AM	287	Field-Deployable Sensors	PCC	N-231A
8:00 AM	288	Sustainable Pathways to Clean Hydrogen and Synthetic Fuels I*	PCC	W-103B
11:15 AM	290	Andreas Acrivos Award for Professional Progress in Chemical Engineering Lecture	PCC	North Ballroom 120D
12:30 PM	320	Breakthroughs in Sustainable Chemical Production and Process	PCC	N-228B
12:30 PM	323	Leadership and Management of Sustainable Solutions in Industry*	PCC	W-102B
12:30 PM	344	Biofuels Production: Design, Simulation, and Economic Analysis	PCC	N-226B
12:30 PM	345	Concentrated Solar Power Generation and Chemical Processing II	PCC	N-226C
12:30 PM	346	The Food-Energy-Water Nexus	PCC	N-226A
12:30 PM	352	Topical Plenary: Environmental Analytical Technology: Sensor Applications in Sustainability (Invited Talks)	PCC	N-229AB
12:30 PM	353	Sustainable Pathways to Clean Hydrogen and Synthetic Fuels II*	PCC	W-103B
3:30 PM	375	General Poster Session in Sensors	PCC	Exhibit Hall E
3:30 PM	397	Integrated Process Engineering and Economic Analysis*	PCC	N-228B
3:30 PM	400	AIChE Management Award Recipient Presentation Session: Nuclear Energy in a Sustainable World*	PCC	N-229AB
3:30 PM	413	Engineering Geologic Carbon Dioxide Storage Systems	PCC	N-226A
3:30 PM	414	Feedstock Logistics for Biorefineries	PCC	N-226B
3:30 PM	415	Fuel and Energy Decarbonization	PCC	N-226C
3:30 PM	421	Sustainable Pathways to Clean Hydrogen and Synthetic Fuels III*	PCC	W-103B
3:30 PM	422	Plenary Session: Waste Plastics (Invited Talks)	PCC	N-124AB
6:15 PM	424	SBE's James E. Bailey Award Lecture	PCC	North Ballroom 120D

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# SUSTAINABILITY PROGRAM GRID

TIME	SESSION #	SESSION	PROPERTY	ROOM
<b>WEDNESDAY, NOVEMBER 16</b>				
8:00 AM	445	CO <sub>2</sub> Industrial, Engineering and R&D Approaches*	PCC	N-225B
8:00 AM	454	Conversion of plastic wastes to high value products	PCC	N-230
8:00 AM	470	Sustainable Engineering Forum Plenary (Invited Talks)	PCC	N-224AB
8:00 AM	473	Recycling and Upcycling of Plastic Waste	PCC	N-121A
11:15 AM	475	John M. Prausnitz AIChE Institute Lecture	PCC	North Ballroom 120D
12:30 PM	496	Sustainable Fuel from Renewable Resources*	PCC	N-225B
12:30 PM	501	Sustainable Biodegradable Polymers from Renewable & Waste Resources *	PCC	N-228A
12:30 PM	502	New processes for efficient CO <sub>2</sub> capture and utilization under mild conditions*	PCC	N-230
12:30 PM	523	Advances in Algae Cultivation, Conversion and Products	PCC	N-226B
12:30 PM	524	Advances in Clean Energy R&D (Invited Talks)	PCC	N-226C
12:30 PM	525	Process Design: Innovation for Sustainability	PCC	N-226A
12:30 PM	527	Interfacial Chemical Conversion*	PCC	N-227A
12:30 PM	529	Sustainable Pathways to Clean Hydrogen and Synthetic Fuels IV*	PCC	W-103B
12:30 PM	530	Conversion of Waste Plastic into Liquid Fuels	PCC	N-121A
3:30 PM	538	Poster Session: Sustainability and Sustainable Biorefineries*	PCC	Exhibit Hall E
3:30 PM	539	Poster Session: Waste Plastics	PCC	Exhibit Hall E
3:30 PM	554	Biotechnological Production of Food and Feed Ingredients*	PCC	N-126B
3:30 PM	576	Analysis and Assessment for Solving the Plastic Waste Crisis	PCC	N-121A
6:15 PM	578	William R. Schowalter Lecture	PCC	North Ballroom 120D
<b>THURSDAY, NOVEMBER 11</b>				
8:00 AM	592	Design and Analysis of Carbon Capture and Negative Emissions Technologies - Experimental	PCC	N-225B
8:00 AM	593	Environmental Issues involving Biochar	PCC	N-225A
8:00 AM	613	Advances in Life Cycle Assessment	PCC	N-226A
8:00 AM	614	Biological Conversions and Processes for Renewable Feedstocks	PCC	N-226B
8:00 AM	615	Policy and Sustainability	PCC	N-226C
12:30 PM	628	Design and Analysis of Carbon Capture and Negative Emissions Technologies - Models	PCC	N-225B
12:30 PM	629	Waste Plastic - Recycle, Reuse and Remediation Strategies*	PCC	N-225A

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TIME	SESSION #	SESSION	PROPERTY	ROOM
12:30 PM	635	Developments in Alternative Fuels and Enabling Technologies*	PCC	W-103A
12:30 PM	648	Climate Change and Engineering Sustainability	PCC	N-226A
12:30 PM	649	CO <sub>2</sub> Capture for Power Generation	PCC	N-226C
12:30 PM	650	Life Cycle Analysis of Bio-Based Fuels, Energy, and Chemicals	PCC	N-226B
3:30 PM	657	Applied Math for Energy and Environmental Applications*	PCC	W-101B
3:30 PM	661	Design and Optimization of Integrated Energy Systems	PCC	N-225B
3:30 PM	662	Waste Plastic - Recycle, Reuse and Remediation Strategies II*	PCC	N-225A
3:30 PM	679	Chemical and Catalytic Conversions and Processes for Renewable Feedstocks	PCC	N-226B
3:30 PM	680	Resilient and Sustainable Supply Chains and Product Systems	PCC	N-226A
3:30 PM	681	Sustainable Energy: Generation and Storage	PCC	N-226C
<b>FRIDAY, NOVEMBER 12</b>				
8:00 AM	692	Design and Optimization of Integrated Energy Systems II	PCC	N-225B

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