

2021 / AIChE ANNUAL MEETING

NOVEMBER 7-11 • BOSTON, MA

NOVEMBER 15-19 • VIRTUAL



Building the Bridge in 21st Century Education:
Chemical Engineering Industry + Academia

2021 ANNUAL MEETING CONTENTS

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WELCOME BACK!

Here are some useful links to help guide and enhance your meeting experience:

[2021 AIChE Annual Meeting Homepage](#)

[AIChEvents App](#)

[Technical Program](#)

[Meeting FAQs](#)

[Discover Boston](#)

[Breakout Virtual Meeting Platform](#)

A Note on Sustainability at AIChE Meetings

AIChE constantly reviews the materials used at and produced for Meetings in terms of sustainability. Every attempt is made to use sustainable products within the economic framework of the meeting. Specific items may include the use of recycled or FSC certified papers, environmentally friendly inks and solvents, use of electronic (pdf) instead of printed materials, limiting the quantities produced and use of production facilities closer to the meeting site.

Neither the American Institute of Chemical Engineers (AIChE), the presenters and author(s) of this work, their employer, nor their employer's officers and directors, warrant or represent expressly or by implication, the correctness or accuracy of the content of the information presented. As between (1) the AIChE, the presenter and author(s) of this work, their employers, and their employers' officers and directors, and (2) the user/viewer of this work, the user/viewer accepts any legal liability or responsibility whatsoever for the consequence of its use or misuse.

2021 ANNUAL MEETING WELCOME



Greetings —

On behalf of AIChE's Board of Directors, meeting programmers, and staff — welcome to the 2021 AIChE Annual Meeting.

All of us at AIChE are gratified to be able to gather with many of you again in-person at our Boston venues. We are just as pleased to continue in our new role as virtual conference hosts, and to provide the best of our profession's innovations and accomplishments to the world online.

Among the first tasks for in-person participants should be to download the [AIChEvents app](#), which allows you to maintain a personal schedule and receive meeting updates on your mobile device.

Whether you are attending in-person or online, take advantage of the opportunities for networking and discussion that you will encounter at our exhibits, poster sessions, networking events, and receptions. Of paramount importance to our in-person guests, I urge you to read our FAQs and familiarize yourself with the [COVID-19 protocols](#) in effect at our meeting venues. Your cooperation is essential to the safe execution of our meeting and the wellbeing of meeting attendees.

Our meeting's theme is Building the Bridge in 21st Century Education: Chemical Engineering Industry + Academia. That theme highlights the objects of AIChE's new [Institute for Learning and Innovation](#), and will be unveiled at two panel discussions about the academia-industry partnership, organized by the meeting program chairs. The first panel, taking place Monday, examines the undergraduate curriculum and considers how to better prepare the next generation of chemical engineers to meet the changing needs of the workforce. The second panel, on Tuesday, considers ways to inspire the profession's future entrepreneurs and leaders.

The meeting theme also underscores many of the [technical sessions](#). In addition to coverage of the fundamentals, emerging areas of study at our meeting include deep dives into next-gen manufacturing, new fuels, and topics across bioengineering. New topical conferences will explore material interfaces that address energy needs, innovations in process engineering, and the challenges surrounding waste plastics, as well as workforce equity.

Our featured lectures allow the community to meet some of the profession's exemplars.

This year, two special lectures will be given by the 2020 and 2021 recipients of the Hoover Medal, an interdisciplinary engineering prize that recognizes an engineer for contributions to humankind. **William S. Hammack** (University of Illinois at Urbana-Champaign), the 2020 honoree, is being recognized for his public education activities, including his radio and internet appearances as the Engineer Guy. The 2021 Hoover Medalist, **Cato T. Laurencin** (University of Connecticut) is being honored for mentoring underrepresented engineers and for his work at the policy level to foster justice, equity, fairness, and diversity. Both Hoover lectures will take place on the Monday of the in-person meeting.

Monday's program also includes a session celebrating the life of our colleague and former AIChE president **H. Scott Fogler** (University of Michigan), as well as a session honoring recent recipients of the AIChE Foundation-sponsored **Langer Prize for Innovation and Entrepreneurial Excellence** fellowship. Robert S. Langer himself will be in attendance to deliver remarks.

At the in-person meeting on Tuesday, **David Schaffer** (University of California, Berkeley) will present the **Andreas Acrivos Professional Progress Award Lecture**. Schaffer will describe the directed evolution of new viral vectors for gene therapy.

Also on Tuesday, AIChE's Society for Biological Engineering (SBE) sponsors the **James E. Bailey Award Lecture**. This year's lecturer, **James J. Collins** (MIT), will present an overview of synthetic biology applications in biotechnology and medicine. Tuesday also features SBE's **Daniel I. C. Wang Award Lecture**, to be presented by **William E. Bentley** (University of Maryland).

On Wednesday, the **William R. Schowalter Lecture** will be delivered by **Eric S. G. Shaqfeh** (Stanford University), who will discuss particle suspensions in elastic fluids.

Finally, Wednesday's **Prausnitz AIChE Institute Lecture** will be given by **Arup Chakraborty** (MIT), who will describe the challenges faced in developing vaccines that are effective against rapidly mutating viruses.

The AIChE Foundation endows the Prausnitz, Acrivos, Wang and Schowalter lectureships. The meeting programmers also thank the Foundation for its support of meeting sessions devoted to improving the inclusivity of our workforce.

Finally, we extend our gratitude to the meeting sponsor organizations and our Meeting Program Chairs — **Richard Braatz** of MIT, **Lucas Landherr** of Northeastern University, and General Arrangements Chair **Nese Orbey** of UMass Lowell. We also acknowledge the indispensable contributions of our presenters, authors, session chairs, and volunteers, who have demonstrated their dedication to the AIChE community through their generous collaboration and adaptability in enabling our new meeting formats.

Sincerely,

A handwritten signature in black ink, appearing to read 'Deborah Grubbe'.

Deborah Grubbe
2021 AIChE President

WELCOME

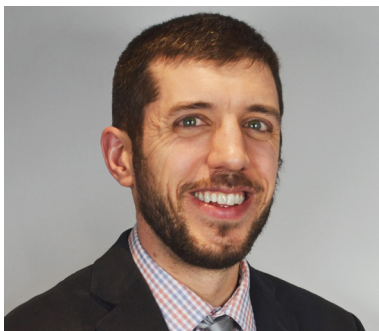
2021 ANNUAL MEETING LEADERSHIP, POLICIES AND NOTICES

2021 AIChE ANNUAL MEETING LEADERSHIP



Meeting Program Chair
Dr. Richard D. Braatz

Edwin R. Gilliland Professor
Massachusetts Institute of
Technology



Meeting Program Co-Chair
Dr. Lucas Landherr

Teaching Professor
Northeastern University



General Arrangements Chair
Dr. Nese Orbey

Associate Professor
University of Massachusetts Lowell

MEETING POLICIES AND NOTICES

Recording & Photography Policy

AIChE Meetings are one of the primary ways the Institute fulfills its mission to advance the development and exchange of relevant knowledge. The content presented at this event is the property of the presenters and the firms where they work. Recording of sessions or taking photos of slides is strictly prohibited.

General Photography Notice

Sessions and events at the meeting are being photographed by a professional photographer. These photos will be used to illustrate articles in CEP Chemical Engineering Progress® Magazine, on the AIChE website and in promotional materials for future Meetings. By registering for this conference, you consent to your likeness being used for such purposes without compensation and release AIChE from any liability on account of such usage.

Code of Conduct

All Annual Meeting attendees, volunteers, and staff are expected to abide by the AIChE Code of Conduct. Read the full [Code of Conduct](#).

Code of Ethics

All Annual Meeting attendees, volunteers, and staff are expected to abide by the AIChE Code of Ethics. Read the full [Code of Ethics](#).

AIChE Equity, Diversity, and Inclusion Statement

AIChE is committed to promoting a fair, just, and equitable profession and society. [Read the full statement](#).

Health and Safety

In accordance with guidelines and regulations outlined by the U.S. Center for Disease Control, the City of Boston, and the John B. Hynes Memorial Convention Center, the Annual Meeting has implemented a set of safety protocols to keep attendees safe. For more information on this, please consult the [Meeting FAQ](#)

This program is as of October 6, 2021. An up-to-date program is available at aiche.org/annual and in the AIChEvents app.

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2021 ANNUAL MEETING EXHIBITORS

EXHIBITORS 2021

- Alliant Insurance Services, Inc.
- **Altair** *
- American Chemistry Council
- ANSYS, Inc.
- Aon Affinity
- AVEVA Software LLC
- Brewer Science, Inc.
- Bruker Optics
- Burroughs Wellcome Fund
- Chemstations
- DigiM
- Eastman
- **Elsevier** *
- **Engineering Simulation and Scientific Software** *
- Gamry Instruments
- Genentech
- Grandperspective GmbH
- Hiden Isochema
- INFICON
- Malvern Panalytical
- **Micromeritics Instrument Corporation** †

- Molecular Knowledge
- NETL
- **Parr Instrument Company** †
- Prosim, Inc.
- **Quartic.ai** *
- **Rescale** †
- **Siemens Process Systems Engineering** *
- Surface Measurement Systems
- Technip Energies
- **Technobis Crystallization Systems** †
- Teledyne ISCO
- **TrendMiner** *
- **Unchained Labs** †
- Wiley
- XtalPi, Inc.
- Zaiput Flow Technologies

* Sponsored Technology Workshop Scheduled

† Featured Exhibitor

Exhibitors as of October 25, 2021.

SPONSORED TECHNOLOGY WORKSHOPS



Learn about the latest technologies that can help your research at Sponsored Technology Workshops. Companies will provide you with an opportunity to see the most cutting edge developments in chemical engineering technology that can help you in your current and future positions.

Tuesday, November 9, 2021



UNDERSTANDING THE CHALLENGES FACING CHEM-E EDUCATION & ASSESSING CAREER READINESS OF STUDENTS

ELSEVIER

8:00 AM – 9:00 AM • Chris Cogswell

Elsevier, Saint Paul, MN

Fairfax A/B, Sheraton Boston

Join the Elsevier engineering team for a featured participant-led session assessing the current state of Chem-E undergraduate and graduate education, as well as the industry readiness of new hires.



APPLICATION OF CFD-DEM IN THE PROCESS AND PHARMACEUTICAL INDUSTRIES

9:00 AM – 10:00 AM • Ahmad Haidari

Engineering Simulation and Scientific Software (ESSS), Boston, MA

Fairfax A/B, Sheraton Boston

Explore the latest advancements in Rocky DEM and the coupling with Ansys Fluent CFD.



STATE OF ART IN MODELING AND MODELING DEPLOYMENT FOR THE PROCESS AND PHARMA INDUSTRIES; FROM ADVANCED SIMULATIONS TO WEB APPS

11:00 AM - 12:00 PM • Hossam Metwally

ANSYS, Ann Arbor, MI

Liberty B/C, Sheraton Boston



NOVEL ALTAIR SIMULATION SOLUTIONS FOR PARTICULATE AND PARTICLE LADEN FLOWS

1:00 PM – 2:00 PM • Mohammadreza Ebrahimi

Altair, Toronto, ON, Canada

Hampton, Sheraton Boston

In this workshop, a brief overview of EDEM and coupled AcuSolve-EDEM will be presented, as well as industrial test cases performed by EDEM and AcuSolve-EDEM will be demonstrated.

Tuesday, November 9, 2021 (Continued)



Quartic.ai IMPLEMENTING AND ACCELERATING AUTONOMOUS CLOSED-LOOP CONTROL

3:30 PM – 4:30 PM • Bryan Pope

Quartic.ai, Boston, MA

Salon J/K, Marriott Copley Place

Autonomous manufacturing is becoming a reality by combining mechanistic (digital twin) and machine learning models, soft sensors and in-line-monitoring. Join us to learn how to use this data and the technology and infrastructure required to enable fully autonomous manufacturing with AI control.

Wednesday, November 10, 2021



ROLE OF PHYSICS BASED MODELS FOR DIGITAL TWINS

2:00 PM – 3:00 PM • Emilio Baglietto

Siemens, Boston, MA

Hampton, Sheraton Boston

Digital twins are the future of engineering: a way to connect the physics and virtual. This workshop presents ways to achieve this via detail physics based models.

Monday, November 15, 2021



TrendMiner BRIDGING THE KNOWLEDGE GAP BY EMPOWERING ENGINEERS WITH IIOT ADVANCED ANALYTICS

1:00 PM – 2:00 PM • Vincent Teran

TrendMiner, Houston, TX

Next-Gen Manufacturing Track, Breakout Virtual Platform

You've been gathering production process data for years, but are you leveraging its full potential? Enabling your operational experts to turn data into actionable information is crucial in accelerating growth, controlling product quality and increasing sustainability.

2021 ANNUAL MEETING INFORMATION

GENERAL INFORMATION

Registration & Badge Pick-Up

Hynes Convention Center, Exhibit Hall D

Saturday, November 6	12:00 PM - 5:00 PM
Sunday, November 7	8:00 AM - 8:00 PM
Monday, November 8	7:00 AM - 5:30 PM
Tuesday, November 9	7:00 AM - 5:30 PM
Wednesday, November 10	7:30 AM - 5:00 PM
Thursday, November 11	7:30 AM - 12:00 PM

Remote Registration is also available in the Sheraton, Marriott and Hilton on Sunday, Monday and Tuesday.

Exhibition Hours

Hynes Convention Center, Exhibit Hall D

Sunday, November 7	6:30 PM - 7:30 PM
Monday, November 8	9:30 AM - 5:00 PM
Tuesday, November 9	9:30 AM - 5:00 PM



Lost and Found

For questions and help with lost and found, please go to the registration area located in the Hynes Convention Center, Exhibit Hall D.



Wireless Internet

We are pleased to offer free, low-bandwidth wireless internet access throughout the Convention Center.

SSID/Network: AICHEAnnual21

Password: welcomeback

Free WiFi is also available in the public spaces and lobbies of the Sheraton, Marriott, and Prudential Center.



Virtual Meeting Platform

You can access the 2021 Annual Meeting Virtual Platform by visiting www.aiche.org/annual



Mobile App

Download the free mobile app to maximize your Annual Meeting experience. Visit the App Store or Google Play and search for "AIChE Events".



Shipping & Printing

A FedEx Office Print and Ship Center is available in the Sheraton Boston, 39 Dalton St, Boston, MA 02199



New Mothers' Mamava Pod

These enclosed, private spaces are lactation stations for new mothers that can be used by event attendees. The Mamava pod is located off of the south rotunda, near the Prudential Center entrance, adjacent to the restroom. Please ask convention center staff for assistance locating the pod.



Professional Headshot Photos

Hynes Convention Center, Exhibit Hall D

Update your LinkedIn profile picture or resume photo with a complimentary headshot.

Sunday, November 7	9:00 AM - 5:00 PM
Monday, November 8	9:00 AM - 5:00 PM
Tuesday, November 9	9:00 AM - 5:00 PM



Convention Center and Hotel Parking

Hynes Convention Center: Validated parking available at the [Prudential Center Parking Garage](#), enter after 9:30am. Credit card accepted.

Sheraton: Guest parking available, \$52 per day

Marriott: Guest and non-guest parking available, \$52 per day. Cash Only. Parking also available next door at Copley Place Garage, \$42 per day, credit card accepted.

REFRESHMENTS DURING THE MEETING



Coffee Breaks

Hynes Convention Center, Exhibit Hall D

Monday, November 8	10:30 AM - 11:00 AM
Tuesday, November 9	10:30 AM - 11:00 AM



Opening Reception

Hynes Convention Center, Exhibit Hall D

Sunday, November 7	6:30 PM - 7:30 PM
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Poster Receptions

Hynes Convention Center, Exhibit Hall C/D

Monday, November 8	3:30 PM - 5:00 PM
Tuesday, November 9	3:30 PM - 5:00 PM
Wednesday, November 10	3:30 PM - 5:00 PM



Featured Event Refreshments

Hynes Convention Center, Ballroom B

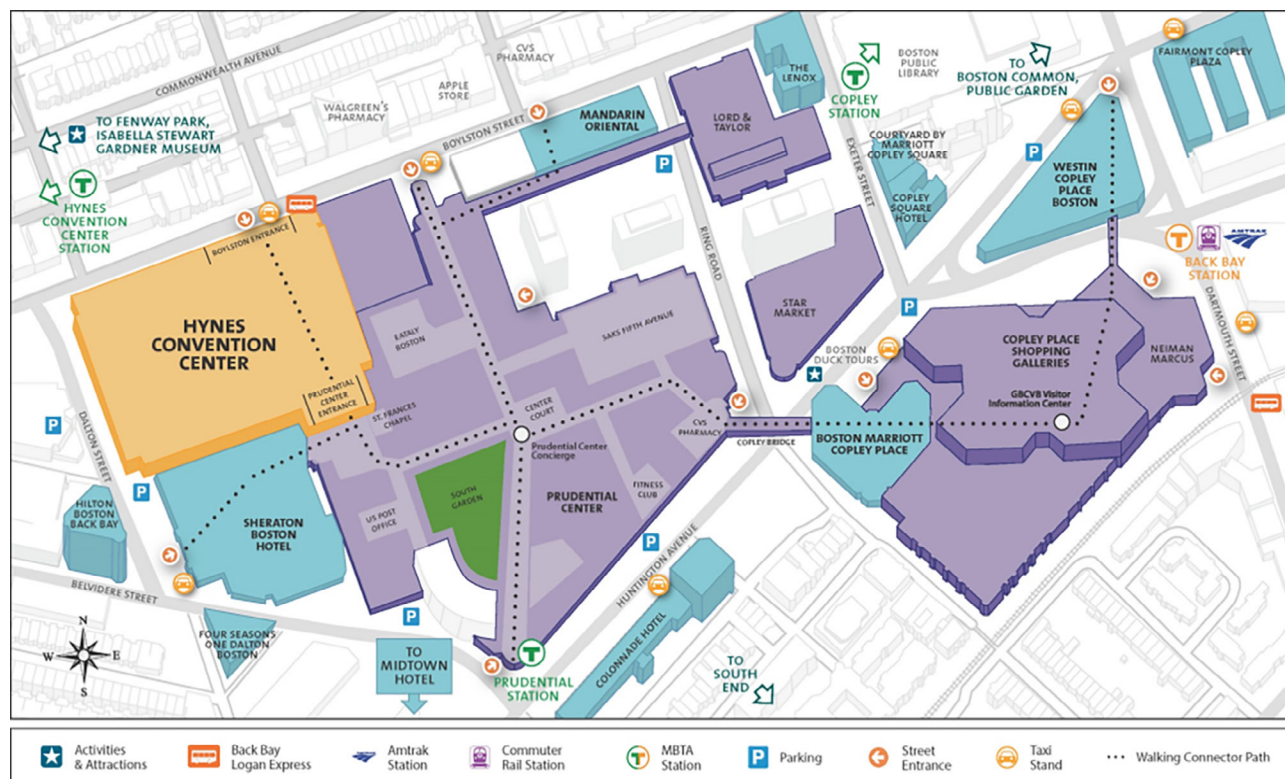
Monday, November 8	The Langer Prize for Innovation and Entrepreneurial Excellence Award Presentation and Lecture
Tuesday, November 9	2021 Andreas Acrivos Award for Professional Progress in Chemical Engineering Lecture
Wednesday, November 10	John M. Prausnitz AIChE Institute Lecture



Need to recharge? Charging Stations and Seating available in Exhibit Hall C/D.

2021 ANNUAL MEETING FLOORPLAN

HYNES COMPLEX MAP

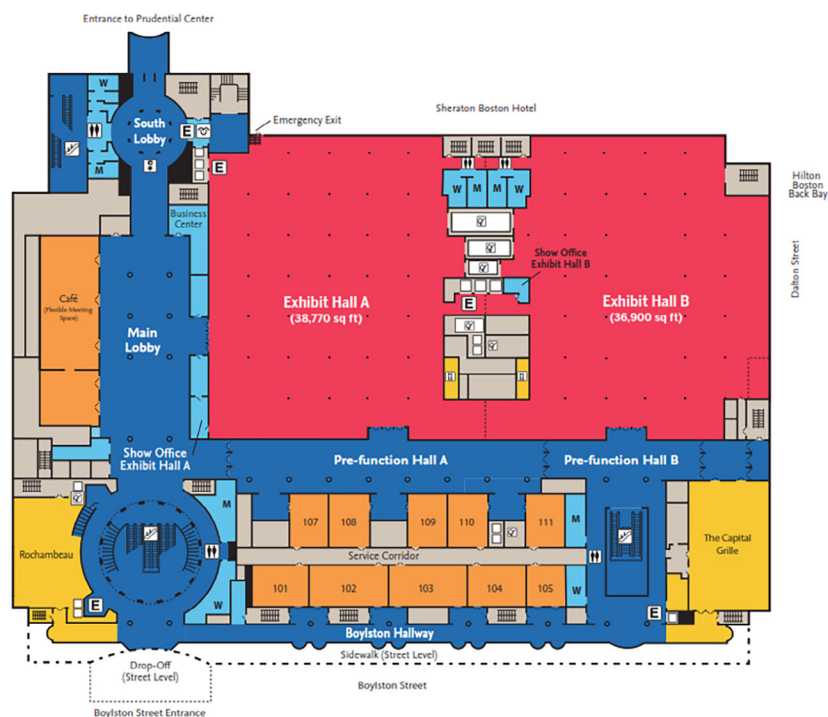
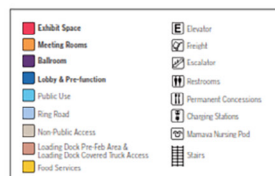


HYNES CONVENTION CENTER PLAZA LEVEL

**Signature
BOSTON**

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Plaza Level



2021 ANNUAL MEETING FLOORPLAN

HYNES CONVENTION CENTER SECOND LEVEL

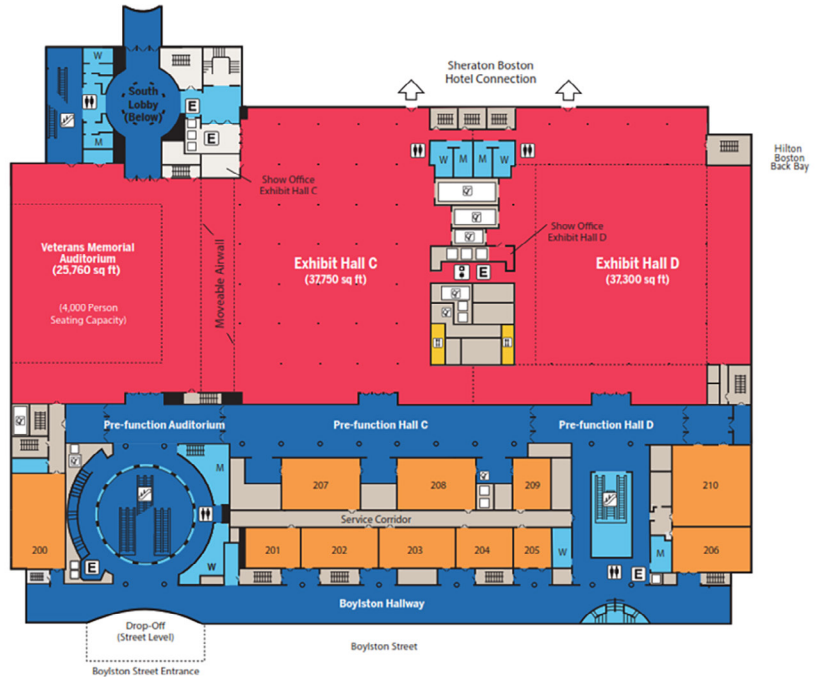


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Second Level



 Exhibit Space	 Elevator
 Meeting Rooms	 Freight
 Ballroom	 Escalator
 Lobby & Pre-function	 Restrooms
 Public Use	 Permanent Concessions
 Ring Road	 Charging Stations
 Non-Public Access	 Stairs
 Loading Dock Pre-Fab Area & Loading Dock Covered Truck Access	
 Food Services	



HYNES CONVENTION CENTER THIRD LEVEL

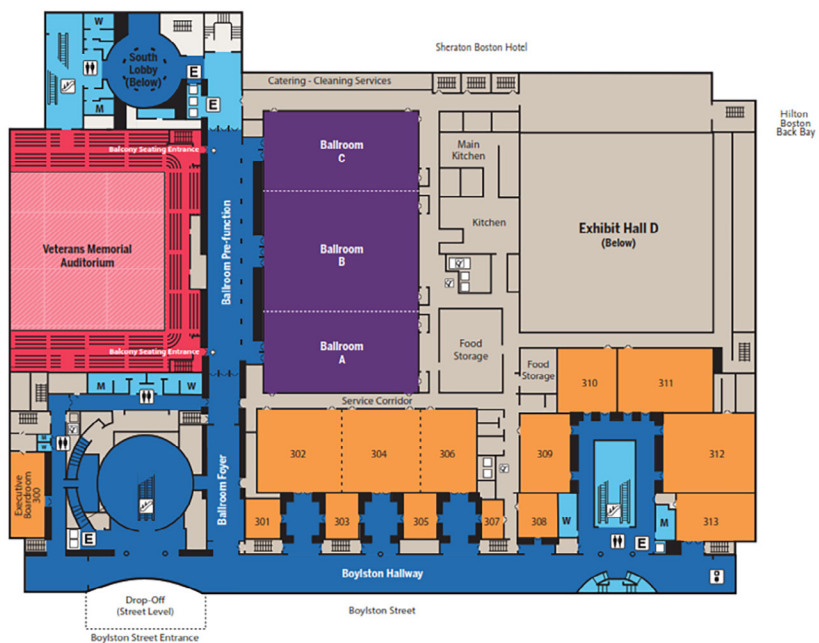


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Third Level

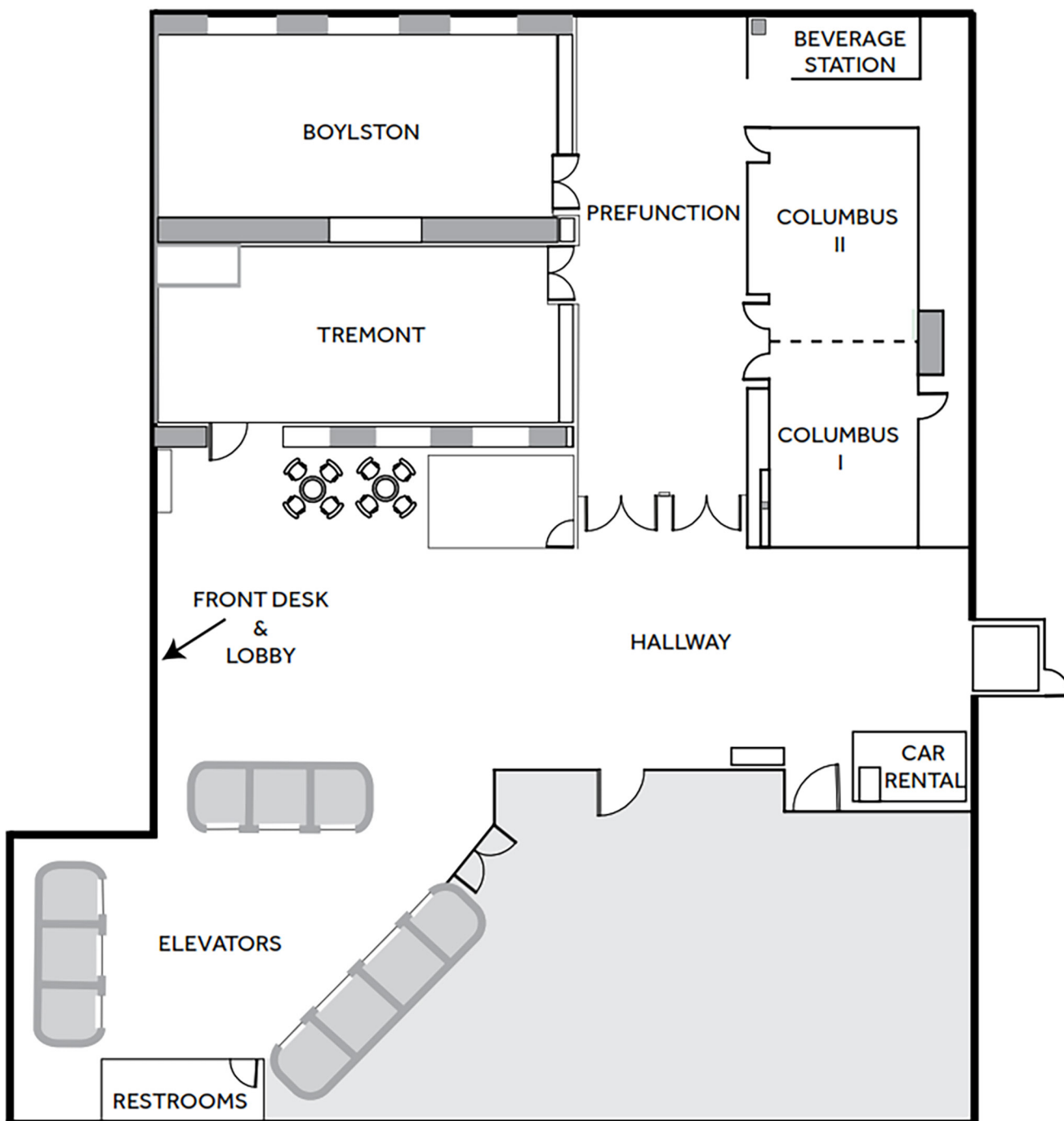


 Exhibit Space	 Elevator
 Meeting Rooms	 Freight
 Ballroom	 Escalator
 Lobby & Pre-function	 Restrooms
 Public Use	 Permanent Concessions
 Ring Road	 Charging Stations
 Non-Public Access	 Stairs
 Loading Dock Pre-Fab Area & Loading Dock Covered Truck Access	
 Food Services	



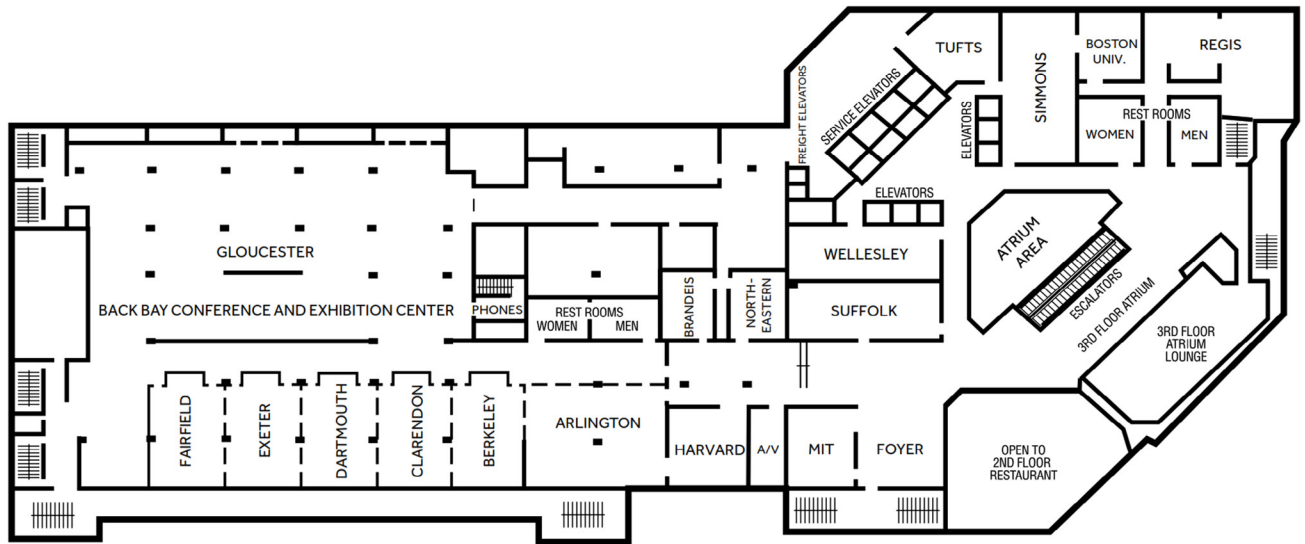
2021 ANNUAL MEETING FLOORPLAN

MARRIOTT BOSTON COPLEY PLACE 1ST FLOOR

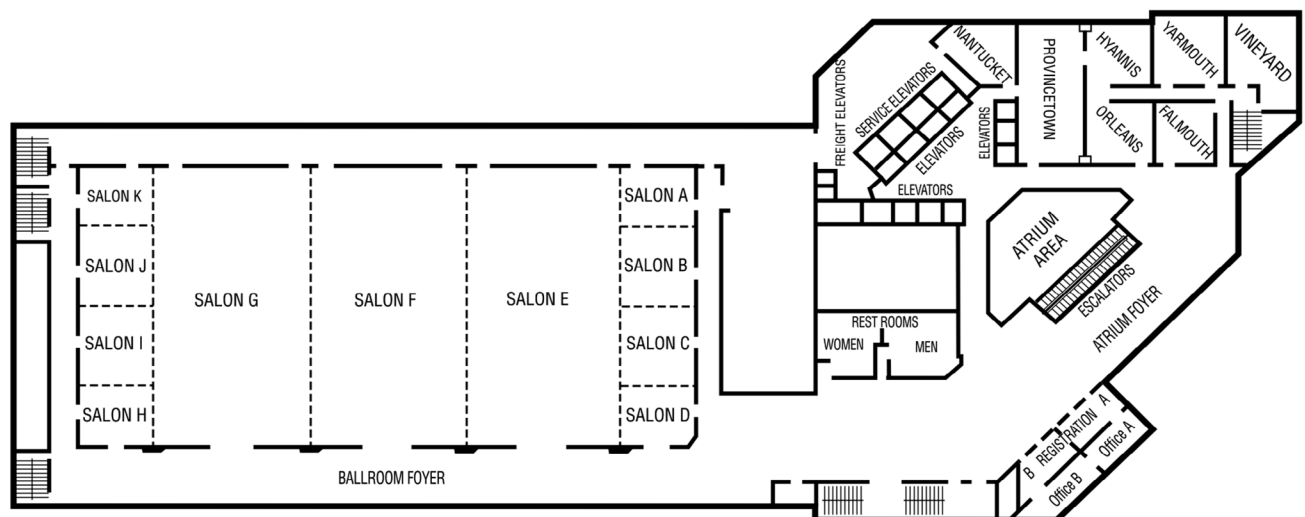


2021 ANNUAL MEETING FLOORPLAN

MARRIOTT BOSTON COPLEY PLACE 3RD FLOOR

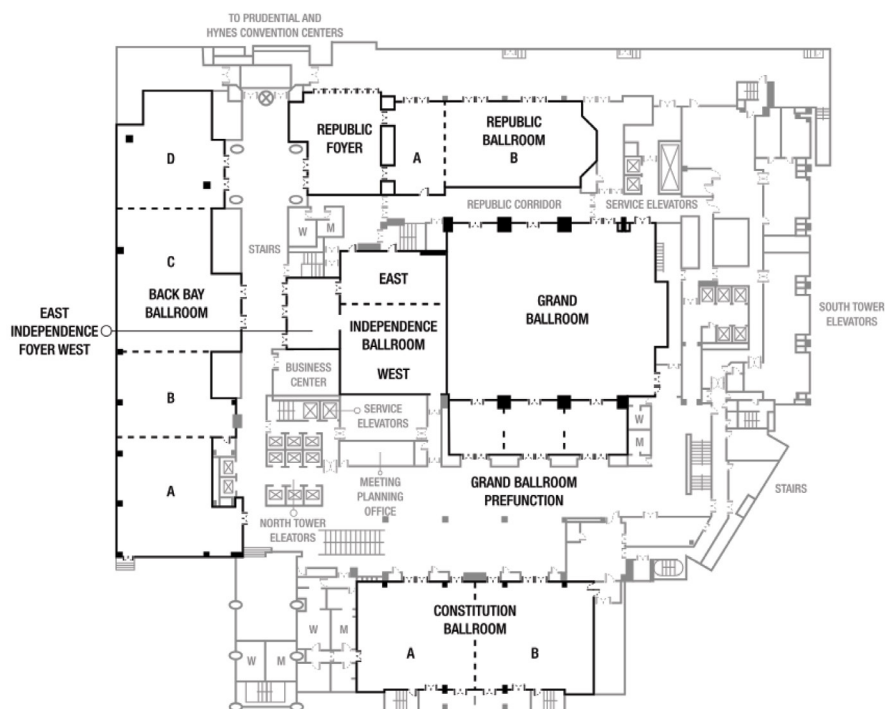


MARRIOTT BOSTON COPLEY PLACE 4TH FLOOR

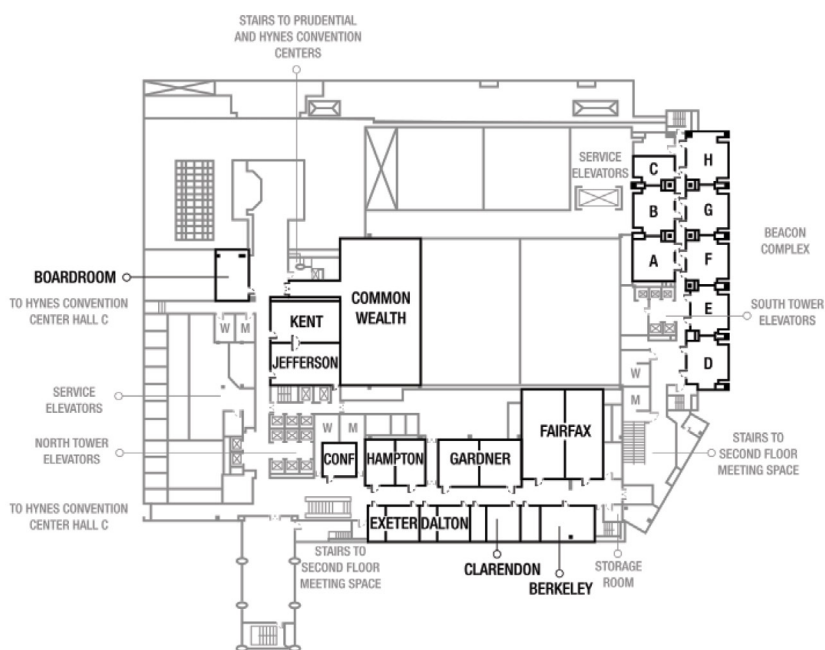


2021 ANNUAL MEETING FLOORPLAN

SHERATON 2ND FLOOR



SHERATON 3RD FLOOR



2021 ANNUAL MEETING PROGRAM GRID KEY

The full technical program of the 2021 AIChE Annual Meeting is comprised of original programming from AIChE's divisions and forums, topical conferences, and communities.

See below for a list of the subject areas covered at the 2021 AIChE Annual Meeting.

01A - Thermodynamics and Transport Properties

01C - Interfacial Phenomena

01D - Transport Processes

01E - Electrochemical Fundamentals

01F - High Pressure

01J - Fluid Mechanics

02 - Separations Division

02A - Distillation and Absorption

02B - Crystallization and Evaporation

02C - Extractions

02D - Membrane-Based Separations

02E - Adsorption and Ion Exchange

02F - Fluid-Particle Separations

02G - Bio Separations

02H - General Topics and Other Methods

03 - Particle Technology Forum

03A - Particle Production and Characterization

03B - Fluidization and Fluid- Particle Systems

03C - Solids Flow, Handling and Processing

03D - Nanoparticles

03E - Energetics

04 - Education Division

04A - Undergraduate Education

04G - Professional Development Committee Liaison

04H - Career Guidance Committee Liaison

04K - Department Heads Forum

04M - Young Faculty Forum

05 - Management Division

06 - North American Mixing Forum

07 - Transport and Energy Processes

08 - Materials Engineering and Sciences Division

08A - Polymers

08B - Biomaterials

08D - Inorganic Materials

08E - Electronics and Photonics

08F - Composites

09 - Environmental Division

09A - Air

09B - Water

09C - Solid and Hazardous Waste

09D - Process Development

09F - Fundamentals

09G - Sustainability

09H - Climate Change

09I - Fossil Energy

10 - Computing and Systems Technology Division

10A - Systems and Process Design

10B - Systems and Process Control

10C - Systems and Process Operations

10D - Applied Mathematics and Numerical Analysis

10E - Information Management and Intelligent Systems

12 - Process Development Division

12A - Process Research and Innovation

12B - Pilot Plants

12C - Technology Transfer and Manufacturing

12E - Process Intensification & Microprocess Engineering

12G - Product Design

14 - Nuclear Engineering Division

15 - Food, Pharmaceutical & Bioengineering Division

15A - Food

15C - Bioengineering

15D - Engineering Fundamentals in Life Science

16 - Fuels and Petrochemicals Division

17 - Forest and Plant Bioproducts Division



Please refrain from photographing slides or taking video of sessions and presentations.

This program is as of October 6, 2021. An up-to-date program is available at aiche.org/annual and in the AIChEvents app.

2021 ANNUAL MEETING PROGRAM GRID KEY

18 - Liaison Functions

- 18A - Miscellaneous
- 18B - Public Affairs and Information Committee (PAIC)
- 18C - Young Professionals Committee (YPC)
- 18D - Publication Committee
- 18E - Awards Committee
- 18L - International Committee

20 - Catalysis and Reaction Engineering Division

- 20C - Advances in Zeolite Science and Technology

21 - Computational Molecular Science and Engineering Forum

22 - Nanoscale Science and Engineering Forum

- 22A - Carbon Nanomaterials
- 22B - Bionanotechnology
- 22C - Nanomaterials for Energy Applications

23 - Sustainable Engineering Forum

- 23A - Sustainability Science and Engineering
- 23B - Sustainable Biorefineries
- 23C - Sustainable Energy

24 - Chemical Engineering & the Law Forum

25 - Upstream Engineering and Flow Assurance Forum

26 - Pharmaceutical Discovery, Development and Manufacturing Forum

T1 - Meet the Candidates Poster Sessions

T2 - Entrepreneurship in Chemical Engineering

T3 - Applications of Data Science to Molecules and Materials

T4 - Bridging the Skills Gap in Chemical Engineering

T5 - Material Interfaces as Energy Solutions

T6 - Next-Gen Manufacturing

- T6A - Next-Gen Manufacturing
- T6B - Process Intensification & Modular Chemical Processing
- T6C - 3D Printing

T7 - Regenerative Engineering Society

T8 - Microbes at Biomedical Interfaces

T9 - Sensors

TC - Engineering for Inclusion

- TCA - Minority Affairs Committee (MAC)
- TCB - Women in Chemical Engineering (WIC)
- TCC - LGBTQ+ and Allies Community
- TCD - Disabilities OutReach & Inclusion Community (DORIC)
- TCE - The Role of Intersectionality in Chemical Engineering

TD - Innovations in Process Engineering

- TDA - Green Process and Product Engineering
- TDB - Process Intensification & Modular Chemical Processing

TF - COVID-19 and Beyond: Managing the Unexpected

TH - Synthetic & Renewable Fuels

TJ - Waste Plastics

This program is as of October 6, 2021. An up-to-date program is available at aiche.org/annual and in the AIChEvents app.

2021 TECHNICAL PROGRAM GRID

Property Key

Hynes CC = John B. Hynes Veterans Memorial Convention Center

Sheraton = Sheraton Boston

Marriott = Marriott Copley Place

Virtual = Taking place live on Breakout virtual platform

01A - Thermodynamics and Transport Properties

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	35	Rational Design and Optimization of Soft Materials	Marriott	Salon A/B
Monday Nov. 8	8:00 AM	86	Spotlights in Thermodynamics and Computational Molecular Science (Invited Talks)*	Marriott	Salon J/K
Monday Nov. 8	12:30 PM	118	Data-Driven Design and Modeling I*	Marriott	Salon J/K
Monday Nov. 8	12:30 PM	127	Faculty Candidates in CoMSEF/Area 1a, Session 1	Marriott	Salon A/B
Monday Nov. 8	12:30 PM	142	New Frontiers of Molecular Thermodynamics (Invited Talks)	Marriott	Salon C/D
Monday Nov. 8	3:30 PM	192	Faculty Candidates in COMSEF/Area 1a, Session 2	Marriott	Salon A/B
Monday Nov. 8	3:30 PM	200	In Honor of the Chemical Engineering Professor Aryn Teja (Invited Talks)	Marriott	Salon C/D
Tuesday Nov. 9	8:00 AM	264	Nanoscale Behavior of Sustainable Processes*	Marriott	Salon J/K
Tuesday Nov. 9	8:00 AM	274	Special Session In Honor of Arup Chakraborty's 60th Birthday: Statistical Mechanics and Molecular/Materials Modeling	Marriott	Salon C/D
Tuesday Nov. 9	12:30 PM	330	Recent Advances in Multiscale Methodologies*	Marriott	Salon J/K
Tuesday Nov. 9	12:30 PM	333	Special Session In Honor of Arup Chakraborty's 60th Birthday: Biology and Immunology	Marriott	Salon C/D
Tuesday Nov. 9	3:30 PM	356	Poster Session: Thermodynamics and Transport Properties (Area 1A)	Hynes CC	Exhibit Hall C/D
Wednesday Nov. 10	8:00 AM	435	Molecular Simulation and Modeling of Complex Molecules	Marriott	Salon H/I
Wednesday Nov. 10	8:00 AM	438	Nucleation and Growth*	Hynes CC	302
Wednesday Nov. 10	8:00 AM	442	Practical Applications of Computational Chemistry and Molecular Simulation I*	Marriott	Salon J/K
Wednesday Nov. 10	8:00 AM	445	Properties and Phase Equilibria for Fuels and Petrochemicals*	Marriott	Fairfield
Wednesday Nov. 10	8:00 AM	449	Teaching Data Science to Students and Teachers I*	Hynes CC	306
Wednesday Nov. 10	8:00 AM	451	Thermophysical Properties: Theory and Experiments for Charged Systems	Marriott	Salon C/D
Wednesday Nov. 10	12:30 PM	471	Computational Studies of Self-Assembly	Marriott	Salon H/I
Wednesday Nov. 10	12:30 PM	501	Practical Applications of Computational Chemistry and Molecular Simulation II*	Marriott	Salon J/K

* This session is co-sponsored by one or more programming groups

This program is as of October 6, 2021. An up-to-date program is available at aiche.org/annual and in the AIChE app.

2021 TECHNICAL PROGRAM GRID

Wednesday Nov. 10	12:30 PM	506	Teaching Data Science to Students and Teachers II*	Hynes CC	306
Wednesday Nov. 10	12:30 PM	507	Thermodynamics of Biomolecular Folding and Assembly	Marriott	Salon C/D
Wednesday Nov. 10	3:30 PM	525	Computational Studies of Early-Stage and Low-Dimensional Self-Assembly	Marriott	Salon H/I
Wednesday Nov. 10	3:30 PM	543	Plenary Session: Computational Molecular Science and Engineering Forum (Invited only)*	Marriott	Salon J/K
Wednesday Nov. 10	3:30 PM	551	Thermophysical Properties and Phase Behavior	Marriott	Salon C/D
Thursday Nov. 11	8:00 AM	581	Modeling of Lipid Membranes and Membrane Proteins	Marriott	Salon H/I
Thursday Nov. 11	8:00 AM	588	Recent Advances in Molecular Simulation Methods*	Marriott	Salon J/K
Thursday Nov. 11	8:00 AM	593	Thermodynamics at the Nanoscale	Marriott	Salon D
Thursday Nov. 11	12:30 PM	594	Applications of Molecular Modeling to Study Interfacial Phenomena I*	Marriott	Salon J/K
Thursday Nov. 11	12:30 PM	601	Effects of Confinement on Molecular Properties	Marriott	Salon H/I
Thursday Nov. 11	12:30 PM	613	Polymer Thermodynamics and Self-Assembly*	Hynes CC	104
Thursday Nov. 11	3:30 PM	627	Applications of Molecular Modeling to Study Interfacial Phenomena II*	Marriott	Salon J/K
Thursday Nov. 11	3:30 PM	637	Development of Intermolecular Potential Models	Marriott	Salon H/I
Monday Nov. 15	8:00 AM	549	Teaching Data Science to Students and Teachers III*	Virtual	Bridging the Skills Gap in Chemical Engineering (T4)
Wednesday Nov. 17	8:00 AM	74	Gas Hydrates Science and Engineering	Virtual	Thermodynamics and Transport Properties (01A)
Wednesday Nov. 17	12:30 PM	733	Thermophysical Properties and Phase Behavior II	Virtual	Thermodynamics and Transport Properties (01A)
Wednesday Nov. 17	3:30 PM	741	Symposium on Thermophysical Properties for Industry: Models	Virtual	Thermodynamics and Transport Properties (01A)
Thursday Nov. 18	8:00 AM	747	Symposium on Thermophysical Properties for Industry: Experiments and Models	Virtual	Thermodynamics and Transport Properties (01A)
Thursday Nov. 18	12:30 PM	754	Symposium on Thermophysical Properties for Industry: Special Topics	Virtual	Thermodynamics and Transport Properties (01A)

01C - Interfacial Phenomena

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	19	Fundamentals of Interfacial Phenomena I	Sheraton	Back Bay Ballroom B
Sunday Nov. 7	3:30 PM	38	Self-Assembly in Solution	Sheraton	Back Bay Ballroom A

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2021 TECHNICAL PROGRAM GRID

TECHNICAL PROGRAM GRID

Monday Nov. 8	8:00 AM	46	Active Colloidal Systems	Sheraton	Back Bay Ballroom A
Monday Nov. 8	8:00 AM	64	Dynamic Processes at Interfaces	Sheraton	Back Bay Ballroom D
Monday Nov. 8	8:00 AM	73	Fundamentals of Interfacial Phenomena II	Sheraton	Back Bay Ballroom B
Monday Nov. 8	12:30 PM	112	Biomolecules at Interfaces	Sheraton	Back Bay Ballroom A
Monday Nov. 8	12:30 PM	327	Polymer Thin Films, Confinement, and Interfaces I*	Hynes CC	101
Monday Nov. 8	3:30 PM	163	Poster Session: Interfacial Phenomena (Area 1C)	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	8:00 AM	233	Area Plenary: Interfacial Phenomena (Invited Talks)	Sheraton	Back Bay Ballroom A
Tuesday Nov. 9	8:00 AM	256	Hybrid systems, halide perovskites, molecular modeling*	Hynes CC	306
Tuesday Nov. 9	12:30 PM	298	Colloidal Dispersions	Sheraton	Back Bay Ballroom A
Tuesday Nov. 9	12:30 PM	319	Interfacial Phenomena in Pharmaceuticals	Sheraton	Back Bay Ballroom B
Tuesday Nov. 9	3:30 PM	363	Anisotropic Particles: Synthesis, Characterization, Modeling, Assembly, and Applications	Sheraton	Back Bay Ballroom A
Tuesday Nov. 9	3:30 PM	380	Interfacial Processes at Biomembranes	Sheraton	Back Bay Ballroom B
Tuesday Nov. 9	3:30 PM	381	Interfacial Transport Phenomena	Sheraton	Back Bay Ballroom C
Wednesday Nov. 10	8:00 AM	421	Emulsions and Foams	Sheraton	Back Bay Ballroom A
Wednesday Nov. 10	12:30 PM	477	Directed and Self Assembly of Colloids	Sheraton	Back Bay Ballroom A
Wednesday Nov. 10	3:30 PM	538	Modeling of Interfacial Systems	Sheraton	Back Bay Ballroom A
Thursday Nov. 11	8:00 AM	589	Solid-Liquid Interfaces	Sheraton	Back Bay Ballroom A
Thursday Nov. 11	12:30 PM	605	Interfacial Phenomena in Electrochemical and Electrokinetic Systems	Sheraton	Back Bay Ballroom A
Tuesday Nov. 16	8:00 AM	694	Polymer Coatings*	Virtual	Materials Engineering and Sciences Division (08)
Wednesday Nov. 17	8:00 AM	720	Solid-Liquid Interfaces, Assembly, and Spreading - Virtual	Virtual	Interfacial Phenomena (01C)
Wednesday Nov. 17	12:30 PM	769	Fluid-Fluid Interfaces -Virtual	Virtual	Interfacial Phenomena (01C)
Wednesday Nov. 17	3:30 PM	770	Fundamentals and Simulations of Interfacial Phenomena -Virtual	Virtual	Interfacial Phenomena (01C)
Thursday Nov. 18	8:00 AM	779	General Topics in Interfacial Phenomena -Virtual	Virtual	Interfacial Phenomena (01C)

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2021 TECHNICAL PROGRAM GRID

01D - Transport Processes

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	48	Advanced Treatment Technologies for Water*	Hynes CC	308
Monday Nov. 8	12:30 PM	122	Dynamic Processes in Polymer Networks and Gels*	Hynes CC	104
Monday Nov. 8	3:30 PM	202	In Honor of William M. Deen (Invited Talks)	Sheraton	Independence Ballroom East
Tuesday Nov. 9	8:00 AM	248	Developments in Shale Gas and Natural Gas*	Marriott	Fairfield
Tuesday Nov. 9	12:30 PM	312	Fundamental Research in Transport Processes	Sheraton	Republic Ballroom A
Tuesday Nov. 9	3:30 PM	383	Mathematical Modeling of Transport Processes	Sheraton	Republic Ballroom A
Wednesday Nov. 10	8:00 AM	427	High-Throughput Techniques in Protein Engineering*	Hynes CC	110
Thursday Nov. 11	12:30 PM	624	Transport Phenomena in Polymer Systems I*	Hynes CC	103
Thursday Nov. 11	3:30 PM	649	Transport Phenomena in Polymer Systems II*	Hynes CC	103

01E - Electrochemical Fundamentals

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	47	Advanced batteries I*	Hynes CC	306
Monday Nov. 8	8:00 AM	67	Electrochemical CO ₂ Conversion I*	Hynes CC	206
Monday Nov. 8	8:00 AM	68	Electrochemistry for Applications in Sustainability	Sheraton	Commonwealth
Monday Nov. 8	12:30 PM	125	Emerging Topics in Electrochemical Engineering: Electrochemical Separations (Invited Talks)	Sheraton	Commonwealth
Tuesday Nov. 9	8:00 AM	276	Tutorial Session on Electrochemical Methods, Systems and Applications (Invited Talks)	Sheraton	Commonwealth
Tuesday Nov. 9	12:30 PM	307	Electrochemical Fundamentals: Faculty Candidate Session I	Sheraton	Commonwealth
Tuesday Nov. 9	3:30 PM	371	Electrochemical Fundamentals: Faculty Candidate Session II	Sheraton	Commonwealth
Wednesday Nov. 10	12:30 PM	469	Charged and Ion Containing Polymers 1*	Hynes CC	105
Wednesday Nov. 10	3:30 PM	523	Charged and Ion-Containing Polymers: Polyelectrolyte Solutions and Complex Coacervates*	Hynes CC	105
Wednesday Nov. 10	3:30 PM	528	Electrochemical Advances to Enable Efficient Oxygen, Hydrogen and Water Reactions	Sheraton	Commonwealth
Thursday Nov. 11	8:00 AM	577	Lithium and Beyond: Fundamental Advances in High Performance Batteries I	Sheraton	Commonwealth

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2021 TECHNICAL PROGRAM GRID

Thursday Nov. 11	12:30 PM	597	Catalysis in Liquid Media I*	Hynes CC	203
Thursday Nov. 11	12:30 PM	606	Lithium and Beyond: Fundamental Advances in High Performance Batteries II	Sheraton	Commonwealth
Monday Nov. 15	3:30 PM	800	Electrochemical Fundamentals General Session: Live Q&A with Authors of Recorded Talks from Week 1	Virtual	Electrochemical Fundamentals (01E)

01F - High Pressure

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	3:30 PM	215	Thermodynamic and Transport Properties Under Pressure	Sheraton	Back Bay Ballroom A
Tuesday Nov. 9	8:00 AM	248	Developments in Shale Gas and Natural Gas*	Marriott	Fairfield
Wednesday Nov. 10	8:00 AM	445	Properties and Phase Equilibria for Fuels and Petrochemicals*	Marriott	Fairfield

01J - Fluid Mechanics

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	32	Polymer Networks and Gels*	Hynes CC	104
Sunday Nov. 7	3:30 PM	33	Polymer Viscoelasticity: Mechanics, Processing, and Rheology*	Hynes CC	102
Monday Nov. 8	12:30 PM	122	Dynamic Processes in Polymer Networks and Gels*	Hynes CC	104
Monday Nov. 8	12:30 PM	147	Plenary - In Honor of Professor Paul Steen (Invited Talks)	Sheraton	Constitution A
Monday Nov. 8	3:30 PM	195	Fluid Mechanics Poster Session	Sheraton	Constitution A
Tuesday Nov. 9	8:00 AM	239	Colloidal Hydrodynamics	Sheraton	Constitution A
Tuesday Nov. 9	8:00 AM	240	Complex Fluids	Sheraton	Constitution B
Tuesday Nov. 9	12:30 PM	318	Interfacial and Nonlinear Flows	Sheraton	Constitution B
Tuesday Nov. 9	12:30 PM	326	Particulate and Multiphase Flows: Colloids and Polymers	Sheraton	Constitution A
Tuesday Nov. 9	3:30 PM	367	Characterization of Biomaterials and Biological Systems	Sheraton	Constitution B
Tuesday Nov. 9	3:30 PM	398	Soft and Active Systems	Sheraton	Constitution A
Wednesday Nov. 10	8:00 AM	432	Microfluidic and Microscale Flows: Separations and Particulates	Sheraton	Constitution B
Wednesday Nov. 10	8:00 AM	440	Particulate and Multiphase Flows: Foams and Bubbles	Sheraton	Constitution A
Wednesday Nov. 10	12:30 PM	490	Microfluidic and Microscale Flows: Multiphase and Fields	Sheraton	Constitution B

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2021 TECHNICAL PROGRAM GRID

Wednesday Nov. 10	12:30 PM	498	Particulate and Multiphase Flows: Emulsions, Bubbles, Droplets	Sheraton	Constitution A
Wednesday Nov. 10	3:30 PM	522	Characterization of Non-Newtonian Fluids	Sheraton	Constitution B
Wednesday Nov. 10	3:30 PM	554	Turbulent, Reactive Flows and Flow Characterization	Sheraton	Constitution A
Monday Nov. 15	12:30 PM	773	Fluid Mechanics General Session: Live Q&A with Authors of Recorded Talks from Week 1	Virtual	Fluid Mechanics (01J)

02 - Separations Division

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	63	Division Plenary: Gerhold and Kunesh Awards on Separations (Invited Talks)	Hynes CC	304
Monday Nov. 8	12:30 PM	125	Emerging Topics in Electrochemical Engineering: Electrochemical Separations (Invited Talks)*	Sheraton	Commonwealth
Tuesday Nov. 9	8:00 AM	248	Developments in Shale Gas and Natural Gas*	Marriott	Fairfield
Tuesday Nov. 9	8:00 AM	279	Water Reuse and Recycling II*	Hynes CC	308
Tuesday Nov. 9	3:30 PM	355	Poster Session: Separations Division	Hynes CC	Exhibit Hall C/D
Wednesday Nov. 10	12:30 PM	458	Advanced Separations Processes in Bioprocessing and Biomaterials*	Marriott	Provincetown
Monday Nov. 15	10:30 AM	767	Poster Session: Separations Division - Virtual	Virtual	Separations Division (02)

02A - Distillation and Absorption

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	3:30 PM	189	Distillation and Absorption Processes Fundamentals, Developments, Optimization, and Applications	Hynes CC	109
Tuesday Nov. 9	8:00 AM	248	Developments in Shale Gas and Natural Gas*	Marriott	Fairfield

02B - Crystallization and Evaporation

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	12:30 PM	146	Plenary Session: Crystallization and Evaporation - Area 2B (Invited Talks)	Hynes CC	304
Monday Nov. 8	3:30 PM	171	Poster Session: Pharmaceutical Discovery Development and Manufacturing (PD2M)*	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	205	Modeling and Control of Crystallization	Hynes CC	302
Tuesday Nov. 9	8:00 AM	231	Amorphous and Crystalline Particle Engineering in Pharmaceuticals and Other Novel Materials	Hynes CC	302
Tuesday Nov. 9	12:30 PM	302	Crystallization of Pharmaceutical and Biological Molecules	Hynes CC	302

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2021 TECHNICAL PROGRAM GRID

Wednesday Nov. 10	8:00 AM	438	Nucleation and Growth	Hynes CC	302
Wednesday Nov. 10	12:30 PM	472	Continuous Crystallization Processes	Hynes CC	302
Wednesday Nov. 10	3:30 PM	524	Computational Solid State Pharmaceuticals*	Hynes CC	102
Wednesday Nov. 10	3:30 PM	542	Particle Formation and Crystallization Processes from Liquids, Slurries, and Emulsions	Hynes CC	302
Thursday Nov. 11	8:00 AM	568	Crystallization Process Development	Hynes CC	302
Thursday Nov. 11	12:30 PM	617	Solid Form Selection: Cocrystals, Salts, Solvates, Polymorphs, and Beyond	Hynes CC	302
Monday Nov. 15	8:00 AM	654	Virtual Crystallization and Evaporation Talks	Virtual	Separations Division (02)
Tuesday Nov. 16	10:30 AM	666	Poster Session: Pharmaceutical Discovery Development and Manufacturing (PD2M) - Virtual*	Virtual	Posters

02C - Extractions

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	3:30 PM	188	Developments in Extractive Separations: Processes	Hynes CC	108
Tuesday Nov. 9	8:00 AM	247	Developments in Extractive Separations: Solvents	Hynes CC	301

02D - Membrane-Based Separations

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	12:30 PM	131	Honorary Session for Prof. Andrew Zydney I	Hynes CC	303
Monday Nov. 8	3:30 PM	199	Honorary Session for Prof. Andrew Zydney II	Hynes CC	304
Tuesday Nov. 9	8:00 AM	279	Water Reuse and Recycling II*	Hynes CC	308
Tuesday Nov. 9	8:00 AM	280	Water Treatment, Desalination, and Reuse I	Hynes CC	312
Tuesday Nov. 9	12:30 PM	313	Highly Selective Separations with Membranes I	Hynes CC	304
Tuesday Nov. 9	12:30 PM	339	Water Treatment, Desalination, and Reuse II	Hynes CC	312
Tuesday Nov. 9	3:30 PM	354	Poster Session: Membrane Separations	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	377	Highly Selective Separations with Membranes II	Hynes CC	111
Tuesday Nov. 9	3:30 PM	403	Water Treatment, Desalination, and Reuse III	Hynes CC	312
Wednesday Nov. 10	8:00 AM	426	Frontiers in New Materials and Membranes for Bioseparations*	Hynes CC	303

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2021 TECHNICAL PROGRAM GRID

Wednesday Nov. 10	8:00 AM	444	Process Intensification in Biorefineries*	Marriott	Exeter
Wednesday Nov. 10	12:30 PM	470	Charged Polymers for Membrane-Based Water and Energy Applications	Hynes CC	300
Wednesday Nov. 10	12:30 PM	487	Membrane Modeling and Simulation	Hynes CC	304
Wednesday Nov. 10	12:30 PM	488	Membranes for Electrochemical Conversions and Applications I	Hynes CC	301
Wednesday Nov. 10	3:30 PM	514	Advanced Organic/Inorganic Materials for Membrane Gas Separation	Hynes CC	300
Wednesday Nov. 10	3:30 PM	534	Membrane Modeling and Simulation II	Hynes CC	304
Wednesday Nov. 10	3:30 PM	535	Membranes for Electrochemical Conversions and Applications II	Hynes CC	301
Thursday Nov. 11	8:00 AM	559	Antifouling Membranes for Water Purification	Hynes CC	304
Thursday Nov. 11	8:00 AM	578	Membrane Formation	Hynes CC	301
Thursday Nov. 11	8:00 AM	579	Membranes for CO ₂ Capture	Hynes CC	306
Thursday Nov. 11	12:30 PM	607	Membrane-Based Organic Solvent Separations	Hynes CC	301
Thursday Nov. 11	12:30 PM	609	Mixed-Matrix Materials for Gas Separation	Hynes CC	304
Thursday Nov. 11	12:30 PM	619	Surface Engineered and Responsive Membranes	Hynes CC	306
Tuesday Nov. 16	3:30 PM	255	Honorary Session for Prof. Andrew Zydney III	Virtual	Separations Division (02)
Wednesday Nov. 17	3:30 PM	813	Membrane Separations (Virtual)	Virtual	Separations Division (02)

02E - Adsorption and Ion Exchange

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	12:30 PM	101	Adsorbent Materials	Hynes CC	308
Monday Nov. 8	12:30 PM	102	Adsorbent Materials and Applications for Sustainable Energy and Chemicals	Hynes CC	109
Monday Nov. 8	3:30 PM	178	Area Plenary: Fundamentals and Applications of Adsorption and Ion Exchange	Hynes CC	110
Tuesday Nov. 9	8:00 AM	272	PSA/TSA and Adsorption Processes Design and Scale-up	Hynes CC	305
Tuesday Nov. 9	12:30 PM	292	Area Plenary: Adsorption and Ion Exchange - In Honor of Prof. Stefano Brandani (Invited Talks)	Hynes CC	305
Tuesday Nov. 9	3:30 PM	352	Poster Session: Fundamentals and Applications of Adsorption and Ion Exchange	Hynes CC	Exhibit Hall C/D

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 9	3:30 PM	582	Molecular and Data Science Modeling of Adsorption I	Hynes CC	110
Wednesday Nov. 10	8:00 AM	419	Diffusion, Transport and Dynamics in Adsorption Systems	Hynes CC	300
Wednesday Nov. 10	8:00 AM	567	CO ₂ Capture By Adsorption I	Hynes CC	305
Wednesday Nov. 10	8:00 AM	618	Structured Adsorbents: Beyond Pellets and Beads	Hynes CC	311
Wednesday Nov. 10	12:30 PM	456	Adsorbent Materials: MOFs	Hynes CC	305
Wednesday Nov. 10	3:30 PM	539	Molecular Simulations for Designing Adsorbents and Adsorption Processes I	Hynes CC	305
Wednesday Nov. 10	3:30 PM	571	Experimental Methods in Adsorption	Hynes CC	308
Wednesday Nov. 10	3:30 PM	600	CO ₂ Capture By Adsorption II	Hynes CC	309
Thursday Nov. 11	12:30 PM	594	Applications of Molecular Modeling to Study Interfacial Phenomena I*	Marriott	Salon J/K
Monday Nov. 15	12:30 PM	675	Molecular and Data Science Modeling of Adsorption II	Virtual	Separations Division (02)
Monday Nov. 15	3:30 PM	684	Molecular Simulations for Designing Adsorbents and Adsorption Processes II	Virtual	Separations Division (02)
Tuesday Nov. 16	8:00 AM	689	Chromatographic Separations and SMB Virtual	Virtual	Separations Division (02)
Tuesday Nov. 16	12:30 PM	700	CO ₂ Capture By Adsorption III Virtual	Virtual	Separations Division (02)
Wednesday Nov. 17	8:00 AM	801	Adsorption Processes and Scale-up Virtual	Virtual	Separations Division (02)
Wednesday Nov. 17	12:30 PM	802	Adsorbent Materials and Applications Virtual	Virtual	Separations Division (02)

02F - Fluid-Particle Separations

Day	Time	Session #	Session Title	Property	Room
Tuesday Nov. 9	12:30 PM	285	Advances in Fluid Particle Separations	Hynes CC	301
Wednesday Nov. 10	8:00 AM	425	Fluid Particle Separations in Energy and Environmental Systems	Hynes CC	301
Wednesday Nov. 10	8:00 AM	444	Process Intensification in Biorefineries*	Marriott	Exeter

02G - Bio Separations

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	65	Efficient Processing of Lignin to Bioproducts and Biofuels*	Hynes CC	303

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 9	12:30 PM	283	Advances in bioseparations	Hynes CC	303
Tuesday Nov. 9	3:30 PM	380	Interfacial Processes at Biomembranes*	Sheraton	Back Bay Ballroom B
Wednesday Nov. 10	8:00 AM	426	Frontiers in New Materials and Membranes for Bioseparations	Hynes CC	303
Wednesday Nov. 10	8:00 AM	444	Process Intensification in Biorefineries*	Marriott	Exeter
Wednesday Nov. 10	8:00 AM	445	Properties and Phase Equilibria for Fuels and Petrochemicals*	Marriott	Fairfield
Wednesday Nov. 10	12:30 PM	493	Next Generation Biomolecules and Bioprocesses	Hynes CC	303
Wednesday Nov. 10	3:30 PM	547	Stories from Biotech Start-ups-Invited	Hynes CC	303
Monday Nov. 15	8:00 AM	653	Ionic Liquids: Properties, Thermodynamics, and Novel Separation and Reaction Processes*	Virtual	Green Process and Product Engineering

02H - General Topics and Other Methods

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Tuesday Nov. 9	3:30 PM	353	Poster Session: General Topics on Separations	Hynes CC	Exhibit Hall C/D

03 - Particle Technology Forum

Day	Time	Session #	Session Title	Property	Room
Tuesday Nov. 9	8:00 AM	231	Amorphous and Crystalline Particle Engineering in Pharmaceuticals and Other Novel Materials*	Hynes CC	302
Tuesday Nov. 9	9:00 AM	781	Sponsored Technology Workshop: Application of CFD-DEM in the Process and Pharmaceutical Industries*	Sheraton	Fairfax A/B
Tuesday Nov. 9	1:00 PM	780	Sponsored Technology Workshop: Novel Altair Simulation Solutions for Particulate and Particle Laden Flows*	Sheraton	Hampton
Wednesday Nov. 10	12:30 PM	497	Particle Technology Forum Award Presentations and Baron Award Lecture (Invited Talks)	Sheraton	Fairfax A/B
Wednesday Nov. 10	3:30 PM	511	Poster Session: Particle Technology Forum	Hynes CC	Exhibit Hall C/D
Wednesday Nov. 10	3:30 PM	542	Particle Formation and Crystallization Processes from Liquids, Slurries, and Emulsions*	Hynes CC	302
Thursday Nov. 11	8:00 AM	568	Crystallization Process Development*	Hynes CC	302
Monday Nov. 15	10:30 AM	665	Poster Session: Particle Technology Forum - Virtual	Virtual	Posters

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2021 TECHNICAL PROGRAM GRID

03A - Particle Production and Characterization

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	3:30 PM	173	3D Printing of Composites*	Hynes CC	202
Tuesday Nov. 9	12:30 PM	325	Particle Breakage and Comminution Processes	Sheraton	Fairfax A/B
Tuesday Nov. 9	3:30 PM	373	Engineered Particles and Nanostructured Particulate Systems Characterization	Sheraton	Fairfax A/B
Wednesday Nov. 10	8:00 AM	439	Particle Agglomeration and Granulation Processes	Sheraton	Fairfax A/B
Wednesday Nov. 17	8:00 AM	724	Population Balance Modeling for Particle Formation Processes: Nucleation, Aggregation and Breakage Kernels	Virtual	Particle Technology Forum (03)
Wednesday Nov. 17	3:30 PM	740	Particle Engineering and Design for Product Value Enhancement	Virtual	Particle Technology Forum (03)

03B - Fluidization and Fluid-Particle Systems

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	72	Fluidization: Fundamentals	Sheraton	Fairfax A/B
Monday Nov. 8	12:30 PM	129	Fluidization: Experimental and Modeling Investigation of Fluidization Processes & Circulating Fluidized Beds	Sheraton	Fairfax A/B
Monday Nov. 8	3:30 PM	194	Fluidization: Industrial Application of Computational and Numerical Approaches to Particle Flow & Cohesive Materials	Sheraton	Fairfax A/B
Monday Nov. 15	12:30 PM	814	Fluidization: On the Fundamentals of Experimental Study and Computational and Numerical Approaches to Particle Flow	Virtual	Particle Technology Forum (03)
Tuesday Nov. 16	12:30 PM	701	Fluidization: Modeling Approaches and Applications in Fluidization Fundamentals	Virtual	Particle Technology Forum (03)
Wednesday Nov. 17	12:30 PM	254	Honorary Session for John Grace (Invited Talks)	Virtual	Particle Technology Forum (03)

03C - Solids Flow, Handling and Processing

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	6	3D Printing Fundamentals and Applications*	Hynes CC	202
Monday Nov. 8	8:00 AM	81	Particulate Systems: Solids and Processing: In-person	Sheraton	Gardner
Monday Nov. 8	12:30 PM	144	Particulate Systems Dynamics and Modeling: In-person	Sheraton	Gardner
Monday Nov. 8	3:30 PM	208	Particulate Mixing and Segregation: In-person	Sheraton	Gardner
Tuesday Nov. 9	8:00 AM	267	Pharmaceutical Powder and Particulate Systems: In-person	Sheraton	Gardner
Tuesday Nov. 9	12:30 PM	328	Powder and Particulate Characterization and Measurement: In-person	Sheraton	Gardner

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 9	3:30 PM	389	Particle Technology: Honoring John Carson (Invited Talks)	Sheraton	Gardner
Thursday Nov. 18	8:00 AM	745	Pharmaceutical Powder and Particulate Systems: Virtual	Virtual	Particle Technology Forum (03)
Thursday Nov. 18	12:30 PM	752	Particulate Systems: Solids and Processing: Virtual	Virtual	Particle Technology Forum (03)
Thursday Nov. 18	3:30 PM	756	Particulate Systems Dynamics and Modeling: Virtual	Virtual	Particle Technology Forum (03)

03D - Nanoparticles

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	71	Environmental Sensors and Monitoring*	Hynes CC	200
Monday Nov. 8	8:00 AM	80	Nanostructured Materials for Environmental Applications	Sheraton	Hampton
Monday Nov. 8	12:30 PM	141	Nanostructured Materials for Pharmaceutical Applications	Sheraton	Hampton
Monday Nov. 8	3:30 PM	206	Novel Nanoparticles and Nanostructured Catalysis for Energy and Environmental Applications	Sheraton	Hampton
Tuesday Nov. 9	8:00 AM	266	Novel Nanoparticles and Nanostructured Materials for Pharmaceuticals and Medical Applications	Sheraton	Hampton
Tuesday Nov. 9	12:30 PM	336	Topical Plenary: Process Analytical Technology: Sensor Applications in Process Development (Invited Talks)*	Hynes CC	200
Tuesday Nov. 16	3:30 PM	708	Functional Nanoparticles and Nanocomposites	Virtual	Particle Technology Forum (03)

03E - Energetics

Day	Time	Session #	Session Title	Property	Room
Tuesday Nov. 16	8:00 AM	692	Particle Design and Processing of Energetic Materials	Virtual	Particle Technology Forum (03)

04 - Education

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	44	Workshop: Social Justice and Chemical Engineering	Sheraton	Liberty B/C
Monday Nov. 8	8:00 AM	88	Lessons Learned from Teaching Chemical Engineering Online I (How We Changed Our Courses)	Sheraton	Republic Ballroom B
Monday Nov. 8	11:00 AM	96	Academia-Industry Partnership: What New Graduates Should Know*	Hynes CC	302
Monday Nov. 8	11:00 AM	766	Celebrating the Life and Achievements of H. Scott Fogler (Invited Talks)*	Hynes CC	304
Monday Nov. 8	12:30 PM	131	Honorary Session for Prof. Andrew Zydney I*	Hynes CC	303
Monday Nov. 8	3:30 PM	213	Student Support and Professional Skill Development	Sheraton	Republic Ballroom A

* This session is co-sponsored by one or more programming groups

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 9	8:00 AM	230	Allies and Advocates Training*	Hynes CC	204
Tuesday Nov. 9	8:00 AM	260	In Honor of the 2019 Recipient of the Warren K. Lewis Award - Robert H. Davis (Invited Talks)	Sheraton	Republic Ballroom B
Tuesday Nov. 9	12:30 PM	307	Electrochemical Fundamentals: Faculty Candidate Session I*	Sheraton	Commonwealth
Tuesday Nov. 9	12:30 PM	322	Mind the Gap: Industrial Perspectives on Educating Chemical Engineers (Invited Talks / Panel Discussion)	Sheraton	Republic Ballroom B
Tuesday Nov. 9	3:30 PM	341	Academia-Industry Partnership: Preparing Students to be Leaders in Industry (Invited Talks)*	Hynes CC	302
Tuesday Nov. 9	3:30 PM	350	Poster Session: Chemical Engineering Education	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	371	Electrochemical Fundamentals: Faculty Candidate Session II*	Sheraton	Commonwealth
Wednesday Nov. 10	8:00 AM	449	Teaching Data Science to Students and Teachers I*	Hynes CC	306
Wednesday Nov. 10	12:30 PM	464	Assessing and Evaluating Student Learning and Performance	Sheraton	Liberty B/C
Wednesday Nov. 10	12:30 PM	499	Policy and Sustainability*	Hynes CC	313
Wednesday Nov. 10	12:30 PM	506	Teaching Data Science to Students and Teachers II*	Hynes CC	306
Monday Nov. 15	8:00 AM	405	Academic Ableism and Education*	Virtual	Engineering for Inclusion (TC)
Monday Nov. 15	8:00 AM	549	Teaching Data Science to Students and Teachers III*	Virtual	Bridging the Skills Gap in Chemical Engineering (T4)
Monday Nov. 15	11:30 AM	669	The Science of Intersectionality*	Virtual	Engineering for Inclusion (TC)
Monday Nov. 15	3:30 PM	805	Virtual Free Forum on Engineering Education (04 Education Division)	Virtual	Education Division (04)
Monday Nov. 15	4:30 PM	687	Step up! From bystander to action*	Virtual	Engineering for Inclusion (TC)
Thursday Nov. 18	8:00 AM	148	Practical Application of Process Data Analytics and Machine Learning (Invited Talks)*	Virtual	Bridging the Skills Gap in Chemical Engineering (T4)

04A - Undergraduate Education

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	87	Free Forum on Engineering Education: First Year and Sophomore Year	Sheraton	Liberty B/C
Monday Nov. 8	12:30 PM	130	Free Forum on Engineering Education: Junior and Senior Years	Sheraton	Liberty B/C
Monday Nov. 8	12:30 PM	137	Lessons Learned from Teaching Chemical Engineering Online II (How We Changed as Instructors)	Sheraton	Republic Ballroom B
Monday Nov. 8	3:30 PM	174	ABET Updates and Insights (Invited Talks)	Sheraton	Republic Ballroom B
Monday Nov. 8	3:30 PM	196	Free Forum on Engineering Education: Special Topics, Unique Modules, and Research-Based Electives	Sheraton	Liberty B/C

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 9	8:00 AM	241	Computing and Data Science in ChE Education	Sheraton	Republic Ballroom A
Tuesday Nov. 9	8:00 AM	277	Unit Operations: Experiments, Hands-on Demos and Virtual Labs (In Honor of Deran Hanesian and Angelo Perna's Contributions to Chemical Engineering Education)	Sheraton	Back Bay Ballroom B
Tuesday Nov. 9	3:30 PM	370	Education Division Awards Plenary (Invited Talks)	Sheraton	Republic Ballroom B
Wednesday Nov. 10	12:30 PM	503	Survey Results and Best Practices (Invited Talks)	Sheraton	Republic Ballroom B

04G - Professional Development Committee Liaison

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	43	Workshop: Effective Teaching for New or Prospective Faculty	Sheraton	Republic Ballroom B

04H - Career Guidance Committee Liaison

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	10:00 AM	3	Workshop: Career Planning for Prospective Faculty	Sheraton	Republic Ballroom B
Monday Nov. 15	8:00 AM	143	NSF Workshop I: Highlights from CBET	Virtual	Education Division (04)
Monday Nov. 15	12:30 PM	207	NSF Workshop II: Proposal Writing and Discussions with Program Managers	Virtual	Education Division (04)

04K - Department Heads Forum

Day	Time	Session #	Session Title	Property	Room
Wednesday Nov. 10	8:00 AM	416	Department Heads Forum (Invited Talks)	Sheraton	Liberty B/C

04M - Young Faculty Forum

Day	Time	Session #	Session Title	Property	Room
Wednesday Nov. 10	8:00 AM	453	Young Faculty Forum (Invited Talks)	Sheraton	Republic Ballroom A

05 - Management Division

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Monday Nov. 8	8:00 AM	78	Leading Chemical Engineering in the Era of Increased Data Utilization (Invited Talks)	Hynes CC	301
Monday Nov. 8	12:30 PM	136	Leaders driving EDI through culture change with stakeholders	Hynes CC	301
Tuesday Nov. 9	12:30 PM	320	LGBTQ+ & Allies Safe Zone Workshop*	Hynes CC	204

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 9	3:30 PM	361	AIChE Management Award Recipient Presentation Session -How to Attract, Develop and Sustain Engineering Expertise Needed by Industry	Hynes CC	301
Tuesday Nov. 9	3:30 PM	375	Future of Manufacturing and Emerging Technologies*	Hynes CC	201
Tuesday Nov. 9	3:30 PM	382	LGBTQ+ Inclusion in Engineering: Advocating for Minorities*	Hynes CC	204
Tuesday Nov. 16	8:00 AM	502	Resilient and Sustainable Supply Chains and Product Systems*	Virtual	Sustainable Engineering Forum (23)
Tuesday Nov. 16	12:30 PM	703	Leading and Managing Industry-Academia Collaborations and Partnerships	Virtual	Management Division (05)
Tuesday Nov. 16	3:30 PM	37	Retaining Women in Chemical Engineering Careers*	Virtual	Engineering for Inclusion (TC)
Tuesday Nov. 16	3:30 PM	710	Lessons learnt from Effectively Managing Projects and Teams during a Global Pandemic	Virtual	Management Division (05)
Thursday Nov. 18	8:00 AM	214	The Hard Skills of Emotional Intelligence for Effective Engineering Leaders	Virtual	Management Division (05)

06 - North American Mixing Forum

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 15	12:30 PM	671	Experimental and Computational Investigations of Mixing Processes	Virtual	North American Mixing Forum (06)
Monday Nov. 15	3:30 PM	679	Advances in Computational Tools for the Analyses of Mixing Processes	Virtual	North American Mixing Forum (06)
Tuesday Nov. 16	8:00 AM	690	Computational Fluid Dynamics Simulations of Multiphase Mixing Processes	Virtual	North American Mixing Forum (06)
Tuesday Nov. 16	12:30 PM	697	Analyses of Mixing Processes in Bioreactors	Virtual	North American Mixing Forum (06)
Tuesday Nov. 16	3:30 PM	711	Mixing in Novel, Unconventional, or Non-CSTR Systems	Virtual	North American Mixing Forum (06)
Wednesday Nov. 17	8:00 AM	721	Mixing Scale-Up and Scale-Down Issues in Pharmaceutical Processes	Virtual	North American Mixing Forum (06)
Wednesday Nov. 17	12:30 PM	728	Mixing in Rheologically Complex Fluids	Virtual	North American Mixing Forum (06)
Wednesday Nov. 17	3:30 PM	739	Division Plenary: North American Mixing Forum Award Session (Invited Talks)	Virtual	North American Mixing Forum (06)

07 - Transport and Energy Processes

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	50	Advances in Lignin Degradation Strategies*	Marriott	Exeter
Monday Nov. 8	12:30 PM	154	Transport Processes in Chemical Reactors	Sheraton	Constitution B
Monday Nov. 8	3:30 PM	216	Transport Phenomena in Sustainable Fuels: Biofuels, Hydrogen, and Syngas	Sheraton	Constitution B

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 9	8:00 AM	244	CO ₂ Capture, Utilization, and Disposal: Key to Clean Energy Production	Sheraton	Liberty B/C
Tuesday Nov. 9	12:30 PM	337	Transport In Advanced Fuel Cell Technologies	Sheraton	Liberty B/C
Tuesday Nov. 9	3:30 PM	357	Poster Session: Transport and Energy Processes Division	Hynes CC	Exhibit Hall C/D
Wednesday Nov. 10	8:00 AM	444	Process Intensification in Biorefineries*	Marriott	Exeter
Wednesday Nov. 10	8:00 AM	450	Thermal Energy Storage	Sheraton	Back Bay Ballroom B
Wednesday Nov. 10	12:30 PM	457	Advanced Electrochemical Energy Storage Technologies I	Sheraton	Back Bay Ballroom B
Wednesday Nov. 10	2:00 PM	782	Sponsored Technology Workshop: Role of physics based models for digital twins*	Sheraton	Hampton
Wednesday Nov. 10	3:30 PM	550	T&EP Graduate Student Award Session	Sheraton	Back Bay Ballroom B
Thursday Nov. 11	8:00 AM	557	Advanced Electrochemical Energy Storage Technologies II	Sheraton	Back Bay Ballroom B
Thursday Nov. 11	8:00 AM	560	Applied Math for Energy and Environmental Applications*	Sheraton	Back Bay Ballroom D
Monday Nov. 15	10:30 AM	668	Poster Session: Transport and Energy Processes Division - Virtual	Virtual	Posters
Monday Nov. 15	3:30 PM	783	Transport Processes in Chemical Reactors II	Virtual	Transport and Energy Processes (07)
Tuesday Nov. 16	8:00 AM	695	Thermal Energy Storage II	Virtual	Transport and Energy Processes (07)
Tuesday Nov. 16	3:30 PM	797	Transport Phenomena In Sustainable Fuels II	Virtual	Transport and Energy Processes (07)
Wednesday Nov. 17	8:00 AM	718	CO ₂ Capture, Utilization, and Disposal: Key to Clean Energy Production II	Virtual	Transport and Energy Processes (07)
Wednesday Nov. 17	12:30 PM	784	Advanced Electrochemical Energy Storage Technologies III	Virtual	Transport and Energy Processes (07)

08 - Materials Engineering and Sciences Division

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Sunday Nov. 7	3:30 PM	6	3D Printing Fundamentals and Applications*	Hynes CC	202
Sunday Nov. 7	3:30 PM	35	Rational Design and Optimization of Soft Materials*	Marriott	Salon A/B
Monday Nov. 8	8:00 AM	71	Environmental Sensors and Monitoring*	Hynes CC	200
Monday Nov. 8	12:30 PM	100	3D Printing Novel Methods and Applications*	Hynes CC	202

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2021 TECHNICAL PROGRAM GRID

Monday Nov. 8	12:30 PM	150	Student Competition in Sensors (Sponsored)*	Hynes CC	200
Monday Nov. 8	3:30 PM	210	Point-of-Need Sensor Applications*	Hynes CC	200
Tuesday Nov. 9	8:00 AM	224	3D Printing of Functional Materials*	Hynes CC	202
Tuesday Nov. 9	8:00 AM	231	Amorphous and Crystalline Particle Engineering in Pharmaceuticals and Other Novel Materials*	Hynes CC	302
Tuesday Nov. 9	12:30 PM	336	Topical Plenary: Process Analytical Technology: Sensor Applications in Process Development (Invited Talks)*	Hynes CC	200
Tuesday Nov. 9	3:30 PM	391	Plenary Session: Waste Plastics (Invited Talks)*	Hynes CC	200
Wednesday Nov. 10	8:00 AM	420	Division Plenary: Materials Engineering & Sciences Division (Invited Talks)	Hynes CC	103
Thursday Nov. 11	8:00 AM	577	Lithium and Beyond: Fundamental Advances in High Performance Batteries I*	Sheraton	Commonwealth
Thursday Nov. 11	12:30 PM	606	Lithium and Beyond: Fundamental Advances in High Performance Batteries II*	Sheraton	Commonwealth
Monday Nov. 15	12:30 PM	674	Materials and Processes for Thermo-, Electro- and Photo-Chemical Energy Storage*	Virtual	Green Process and Product Engineering
Tuesday Nov. 16	10:30 AM	664	Poster Session: Materials Engineering & Sciences - Virtual	Virtual	Posters
Thursday Nov. 18	3:30 PM	152	Sustainable Materials from Lignocellulosic Resources for Industrial Applications*	Virtual	Forest and Plant Bioproducts Division (17)
Friday Nov. 19	8:00 AM	306	Division Plenary: Valorization of Waste plastics including Ocean Plastics along with Agro-residues/Forestry waste for Sustainable Biocomposites (Invited Talks)*	Virtual	Forest and Plant Bioproducts Division (17)

08A - Polymers

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	31	Polymer Crystallization and Semi-Crystalline Polymers	Hynes CC	105
Sunday Nov. 7	3:30 PM	32	Polymer Networks and Gels	Hynes CC	104
Sunday Nov. 7	3:30 PM	33	Polymer Viscoelasticity: Mechanics, Processing, and Rheology	Hynes CC	102
Monday Nov. 8	8:00 AM	71	Environmental Sensors and Monitoring*	Hynes CC	200
Monday Nov. 8	8:00 AM	83	Polymer Networks and Gels 2	Hynes CC	104
Monday Nov. 8	12:30 PM	122	Dynamic Processes in Polymer Networks and Gels	Hynes CC	104
Monday Nov. 8	12:30 PM	149	Renewable Polymers and Intermediates Technology*	Hynes CC	300
Monday Nov. 8	12:30 PM	150	Student Competition in Sensors (Sponsored)*	Hynes CC	200

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2021 TECHNICAL PROGRAM GRID

Monday Nov. 8	12:30 PM	327	Polymer Thin Films, Confinement, and Interfaces I	Hynes CC	101
Monday Nov. 8	3:30 PM	164	Poster Session: Materials Engineering & Sciences (08A - Polymers)	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	8:00 AM	224	3D Printing of Functional Materials*	Hynes CC	202
Tuesday Nov. 9	8:00 AM	240	Complex Fluids*	Sheraton	Constitution B
Tuesday Nov. 9	8:00 AM	258	Hydrogel Biomaterials: Cell Instructive Platforms*	Hynes CC	105
Tuesday Nov. 9	8:00 AM	268	Polymer Viscoelasticity: Mechanics, Processing, and Rheology 2	Hynes CC	107
Tuesday Nov. 9	8:00 AM	271	Rising Stars in Industry – Polymers Research (Invited Talks)	Hynes CC	103
Tuesday Nov. 9	12:30 PM	291	Area Plenary 1: Emerging Areas in Polymer Science and Engineering (Invited Talks)	Hynes CC	103
Tuesday Nov. 9	12:30 PM	315	Hydrogel Biomaterials: Design and Characterization*	Hynes CC	105
Tuesday Nov. 9	12:30 PM	326	Particulate and Multiphase Flows: Colloids and Polymers*	Sheraton	Constitution A
Tuesday Nov. 9	12:30 PM	336	Topical Plenary: Process Analytical Technology: Sensor Applications in Process Development (Invited Talks)*	Hynes CC	200
Tuesday Nov. 9	3:30 PM	379	Hydrogel Biomaterials: Emerging Applications*	Hynes CC	105
Tuesday Nov. 9	3:30 PM	392	Polymers in Additive Manufacturing*	Hynes CC	202
Tuesday Nov. 9	3:30 PM	393	Polymer Thin Films, Confinement, and Interfaces II	Hynes CC	107
Wednesday Nov. 10	12:30 PM	465	Biodegradable Polymers from Forest Resources - Sustainable Biomaterials*	Marriott	Exeter
Wednesday Nov. 10	12:30 PM	469	Charged and Ion Containing Polymers 1	Hynes CC	105
Wednesday Nov. 10	12:30 PM	470	Charged Polymers for Membrane-Based Water and Energy Applications*	Hynes CC	300
Wednesday Nov. 10	12:30 PM	500	Polymer Simulations 1: Method and Theory	Hynes CC	209
Wednesday Nov. 10	3:30 PM	523	Charged and Ion-Containing Polymers: Polyelectrolyte Solutions and Complex Coacervates	Hynes CC	105
Thursday Nov. 11	8:00 AM	563	Biopolymers	Hynes CC	104
Thursday Nov. 11	8:00 AM	565	Charged and Ion-Containing Polymers 2	Hynes CC	105
Thursday Nov. 11	8:00 AM	585	Polymer Simulations 2: Structure and Fundamentals	Hynes CC	209
Thursday Nov. 11	12:30 PM	613	Polymer Thermodynamics and Self-Assembly	Hynes CC	104

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2021 TECHNICAL PROGRAM GRID

Thursday Nov. 11	12:30 PM	624	Transport Phenomena in Polymer Systems I	Hynes CC	103
Thursday Nov. 11	3:30 PM	642	Polymers for Energy Storage and Conversion	Hynes CC	104
Thursday Nov. 11	3:30 PM	643	Polymer Synthesis and Reaction Engineering	Hynes CC	105
Thursday Nov. 11	3:30 PM	649	Transport Phenomena in Polymer Systems II	Hynes CC	103
Monday Nov. 15	3:30 PM	682	Excellence in Graduate Student Research (Area 08A)	Virtual	Materials Engineering and Sciences Division (08)
Tuesday Nov. 16	8:00 AM	694	Polymer Coatings	Virtual	Materials Engineering and Sciences Division (08)
Tuesday Nov. 16	12:30 PM	698	Area Plenary 2: Emerging Areas in Polymer Science and Engineering (Invited Talks)	Virtual	Materials Engineering and Sciences Division (08)
Tuesday Nov. 16	3:30 PM	713	Polymer Thermodynamics and Self-Assembly 2	Virtual	Materials Engineering and Sciences Division (08)
Wednesday Nov. 17	8:00 AM	723	Polymer Simulations 3: Properties and Applications	Virtual	Materials Engineering and Sciences Division (08)
Thursday Nov. 18	8:00 AM	744	Fibers and Coatings: 1D and 2D Composites*	Virtual	Materials Engineering and Sciences Division (08)
Friday Nov. 19	8:00 AM	306	Division Plenary: Valorization of Waste plastics including Ocean Plastics along with Agro-residues/Forestry waste for Sustainable Biocomposites (Invited Talks)*	Virtual	Forest and Plant Bioproducts Division (17)

08B - Biomaterials

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	10	Biomaterials: Faculty Candidates I	Hynes CC	103
Sunday Nov. 7	3:30 PM	32	Polymer Networks and Gels*	Hynes CC	104
Monday Nov. 8	8:00 AM	54	Biomaterials: Faculty Candidates II	Hynes CC	103
Monday Nov. 8	8:00 AM	55	Biomaterials for Drug Delivery: Cancer Therapies	Hynes CC	209
Monday Nov. 8	8:00 AM	71	Environmental Sensors and Monitoring*	Hynes CC	200
Monday Nov. 8	12:30 PM	110	Area Plenary: Leaders in Biomaterials (Invited Talks)	Hynes CC	103
Monday Nov. 8	3:30 PM	165	Poster Session: Materials Engineering & Sciences (08B - Biomaterials)	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	210	Point-of-Need Sensor Applications*	Hynes CC	200
Tuesday Nov. 9	8:00 AM	232	Area Plenary: Bionanotechnology (Invited Talks)*	Marriott	Simmons
Tuesday Nov. 9	8:00 AM	235	Biomimetic Materials I	Hynes CC	209

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 9	8:00 AM	258	Hydrogel Biomaterials: Cell Instructive Platforms	Hynes CC	105
Tuesday Nov. 9	12:30 PM	294	Biomimetic Materials II	Hynes CC	209
Tuesday Nov. 9	12:30 PM	315	Hydrogel Biomaterials: Design and Characterization	Hynes CC	105
Tuesday Nov. 9	12:30 PM	336	Topical Plenary: Process Analytical Technology: Sensor Applications in Process Development (Invited Talks)*	Hynes CC	200
Tuesday Nov. 9	3:30 PM	181	Biomaterials for Drug Delivery: Nanotechnology Approaches	Hynes CC	108
Tuesday Nov. 9	3:30 PM	367	Characterization of Biomaterials and Biological Systems*	Sheraton	Constitution B
Tuesday Nov. 9	3:30 PM	379	Hydrogel Biomaterials: Emerging Applications	Hynes CC	105
Wednesday Nov. 10	12:30 PM	466	Biomaterials in Industry and the Clinic	Hynes CC	103
Wednesday Nov. 10	3:30 PM	520	Biomaterials I	Hynes CC	104
Thursday Nov. 11	8:00 AM	562	Biomaterials: Graduate Student Award Session	Hynes CC	103
Thursday Nov. 11	8:00 AM	563	Biopolymers*	Hynes CC	104
Thursday Nov. 11	12:30 PM	595	Biomaterial Scaffolds for Tissue Engineering I	Hynes CC	209
Thursday Nov. 11	12:30 PM	596	Biomaterials II	Hynes CC	105
Thursday Nov. 11	3:30 PM	628	Biomaterial Scaffolds for Tissue Engineering II	Hynes CC	209
Monday Nov. 15	12:30 PM	798	Biomaterials: Emerging Applications	Virtual	Materials Engineering and Sciences Division (08)
Thursday Nov. 18	12:30 PM	753	Recent Progress in Biomaterials Innovation and Translation I (Invited Talks)*	Virtual	Regenerative Engineering Society (T7)

08D - Inorganic Materials

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	17	Experimental and Computational Approaches to Accelerate and Discover Inorganic Materials	Hynes CC	101
Monday Nov. 8	8:00 AM	80	Nanostructured Materials for Environmental Applications*	Sheraton	Hampton
Monday Nov. 8	8:00 AM	90	Synthesis and Application of Inorganic Materials	Hynes CC	105
Monday Nov. 8	12:30 PM	155	Two-Dimensional Materials and Thin Films	Hynes CC	105
Monday Nov. 8	3:30 PM	166	Poster Session: Materials Engineering & Sciences (08D - Inorganic Materials)	Hynes CC	Exhibit Hall C/D

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 9	3:30 PM	384	MOF, COF, and Porous Polymer Materials	Hynes CC	103
Thursday Nov. 11	8:00 AM	576	In Honor of the 2018 William H. Walker Award Winner I (Invited Talks)*	Hynes CC	210
Thursday Nov. 11	12:30 PM	594	Applications of Molecular Modeling to Study Interfacial Phenomena I*	Marriott	Salon J/K
Thursday Nov. 11	12:30 PM	603	In Honor of the 2018 William H. Walker Award Winner II (Invited Talks)*	Hynes CC	210
Thursday Nov. 11	3:30 PM	639	In Honor of the 2018 William H. Walker Award Winner III (Invited Talks)*	Hynes CC	210
Wednesday Nov. 17	8:00 AM	376	Graduate Student Award Session: Inorganic Materials	Virtual	Materials Engineering and Sciences Division (08)

08E - Electronics and Photonics

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	47	Advanced batteries I*	Hynes CC	306
Monday Nov. 8	8:00 AM	71	Environmental Sensors and Monitoring*	Hynes CC	200
Monday Nov. 8	12:30 PM	138	Materials for Quantum Science	Hynes CC	209
Monday Nov. 8	12:30 PM	145	Plasma catalysis*	Hynes CC	306
Monday Nov. 8	12:30 PM	150	Student Competition in Sensors (Sponsored)*	Hynes CC	200
Monday Nov. 8	3:30 PM	167	Poster Session: Materials Engineering & Sciences (08E - Electronic and Photonic Materials)	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	209	Perovskites, spinels, energy conversion, modeling of these systems*	Hynes CC	306
Tuesday Nov. 9	8:00 AM	253	Graduate Student Award: Electronic and Photonic Materials	Hynes CC	104
Tuesday Nov. 9	12:30 PM	321	Materials for Electronics, Lighting, and Light-Matter Interactions	Hynes CC	104
Tuesday Nov. 9	12:30 PM	332	Soft systems, molecular simulation, sustainability*	Hynes CC	306
Tuesday Nov. 9	12:30 PM	336	Topical Plenary: Process Analytical Technology: Sensor Applications in Process Development (Invited Talks)*	Hynes CC	200
Tuesday Nov. 9	3:30 PM	358	Advanced batteries II*	Hynes CC	306
Tuesday Nov. 9	3:30 PM	390	Photovoltaic, Thermoelectric, and Energy Materials	Hynes CC	104
Wednesday Nov. 10	12:30 PM	496	Optoelectronic Materials Theory, Microscopy, and Spectroscopy	Hynes CC	104
Wednesday Nov. 10	3:30 PM	517	Area Plenary: Electronic and Photonic Materials - Industry and Academia (Invited Talks)	Hynes CC	103
Thursday Nov. 18	3:30 PM	757	Perovskite Semiconductors and Fundamental Mechanisms for Optoelectronic Devices	Virtual	Materials Engineering and Sciences Division (08)

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2021 TECHNICAL PROGRAM GRID

08F - Composites

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	12:30 PM	150	Student Competition in Sensors (Sponsored)*	Hynes CC	200
Monday Nov. 8	12:30 PM	327	Polymer Thin Films, Confinement, and Interfaces I*	Hynes CC	101
Monday Nov. 8	3:30 PM	168	Poster Session: Materials Engineering & Sciences (08F - Composite Materials)	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	173	3D Printing of Composites*	Hynes CC	202
Tuesday Nov. 9	3:30 PM	392	Polymers in Additive Manufacturing*	Hynes CC	202
Wednesday Nov. 10	3:30 PM	540	New Characterization, modeling, and Processing of Nanocomposites	Hynes CC	209
Thursday Nov. 11	3:30 PM	642	Polymers for Energy Storage and Conversion*	Hynes CC	104
Tuesday Nov. 16	8:00 AM	694	Polymer Coatings*	Virtual	Materials Engineering and Sciences Division (08)
Wednesday Nov. 17	12:30 PM	729	Multifunctional Composites for Thermal, Electronic, and Optical Applications	Virtual	Materials Engineering and Sciences Division (08)
Wednesday Nov. 17	3:30 PM	734	Advanced Manufacturing of Composites: 3D and 4D Composites	Virtual	Materials Engineering and Sciences Division (08)
Thursday Nov. 18	8:00 AM	744	Fibers and Coatings: 1D and 2D Composites	Virtual	Materials Engineering and Sciences Division (08)
Thursday Nov. 18	12:30 PM	751	General Composites and Applications	Virtual	Materials Engineering and Sciences Division (08)

09 - Environmental Division

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Monday Nov. 8	8:00 AM	71	Environmental Sensors and Monitoring*	Hynes CC	200
Monday Nov. 8	12:30 PM	107	Advances in Zeolite Science and Technology I - Synthesis and Characterization (Invited Talks)*	Hynes CC	208
Monday Nov. 8	12:30 PM	126	Environmental Division Awards and Honors (Invited Talks)	Hynes CC	309
Tuesday Nov. 9	8:00 AM	229	Advances in Zeolite Science and Technology II - Applications and Explorations in New Catalysis (Invited Talks)*	Hynes CC	208
Tuesday Nov. 9	8:00 AM	248	Developments in Shale Gas and Natural Gas*	Marriott	Fairfield
Tuesday Nov. 9	12:30 PM	336	Topical Plenary: Process Analytical Technology: Sensor Applications in Process Development (Invited Talks)*	Hynes CC	200
Tuesday Nov. 9	3:30 PM	349	Poster Session: Advances in Zeolite Science and Technology*	Hynes CC	Exhibit Hall C/D

* This session is co-sponsored by one or more programming groups

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 9	3:30 PM	391	Plenary Session: Waste Plastics (Invited Talks)*	Hynes CC	200
Wednesday Nov. 10	8:00 AM	436	Next-Gen Manufacturing for Resilience and Sustainability*	Hynes CC	202
Wednesday Nov. 10	12:30 PM	499	Policy and Sustainability*	Hynes CC	313
Wednesday Nov. 10	3:30 PM	510	Poster Session: Environmental Division	Hynes CC	Exhibit Hall C/D
Thursday Nov. 11	8:00 AM	560	Applied Math for Energy and Environmental Applications*	Sheraton	Back Bay Ballroom D
Thursday Nov. 11	8:00 AM	576	In Honor of the 2018 William H. Walker Award Winner I (Invited Talks)*	Hynes CC	210
Thursday Nov. 11	12:30 PM	603	In Honor of the 2018 William H. Walker Award Winner II (Invited Talks)*	Hynes CC	210
Thursday Nov. 11	3:30 PM	639	In Honor of the 2018 William H. Walker Award Winner III (Invited Talks)*	Hynes CC	210
Monday Nov. 15	10:30 AM	662	Poster Session: Environmental Division - Virtual	Virtual	Posters
Tuesday Nov. 16	3:30 PM	709	Integrated Process Engineering and Economic Analysis*	Virtual	Green Process and Product Engineering
Friday Nov. 19	8:00 AM	306	Division Plenary: Valorization of Waste plastics including Ocean Plastics along with Agro-residues/Forestry waste for Sustainable Biocomposites (Invited Talks)*	Virtual	Forest and Plant Bioproducts Division (17)
Friday Nov. 19	12:30 PM	423	Environmental Advances in Nuclear and Hazardous Waste Processing and Disposal*	Virtual	Nuclear Engineering Division (14)

09A - Air					
Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Monday Nov. 8	8:00 AM	52	Atmospheric Chemistry and Physics: Modeling and Field Studies	Hynes CC	309
Tuesday Nov. 16	12:30 PM	810	Design and Analysis of Carbon Capture and Emissions Control Technologies - Virtual*	Virtual	Environmental Division (09)
Thursday Nov. 18	12:30 PM	748	Atmospheric Chemistry and Physics: Laboratory Studies - Virtual	Virtual	Environmental Division (09)
Thursday Nov. 18	3:30 PM	755	Atmospheric Chemistry and Physics: Nanoparticles and Health - Virtual	Virtual	Environmental Division (09)
Friday Nov. 19	3:30 PM	811	Fundamentals and Applications for Waste Treatment and Valorization - VIRTUAL*	Virtual	Environmental Division (09)

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2021 TECHNICAL PROGRAM GRID

09B - Water

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Monday Nov. 8	8:00 AM	48	Advanced Treatment Technologies for Water	Hynes CC	308
Monday Nov. 8	3:30 PM	218	Water Reuse and Recycling	Hynes CC	308
Tuesday Nov. 9	8:00 AM	279	Water Reuse and Recycling II	Hynes CC	308
Tuesday Nov. 9	12:30 PM	331	Remediation of Emerging Contaminants and Legacy Compounds	Hynes CC	308
Tuesday Nov. 9	12:30 PM	334	The Food-Energy-Water Nexus *	Hynes CC	311
Tuesday Nov. 9	3:30 PM	396	Remediation of Emerging Contaminants and Legacy Compounds II	Hynes CC	308
Tuesday Nov. 16	3:30 PM	709	Integrated Process Engineering and Economic Analysis*	Virtual	Green Process and Product Engineering
Thursday Nov. 18	8:00 AM	746	Remediation of Emerging Contaminants and Legacy Compounds - Virtual	Virtual	Environmental Division (09)
Friday Nov. 19	3:30 PM	811	Fundamentals and Applications for Waste Treatment and Valorization - VIRTUAL*	Virtual	Environmental Division (09)

09C - Solid and Hazardous Waste

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Monday Nov. 8	3:30 PM	217	Waste Plastic - Recycle, Reuse and Remediation Strategies	Hynes CC	309
Thursday Nov. 11	8:00 AM	573	Fundamentals and Applications for Municipal Solid Waste Treatment and Valorization	Hynes CC	309
Wednesday Nov. 17	12:30 PM	727	Conversion of Solid Wastes to Energy and/or Products*	Virtual	Green Process and Product Engineering
Friday Nov. 19	3:30 PM	811	Fundamentals and Applications for Waste Treatment and Valorization - VIRTUAL*	Virtual	Environmental Division (09)

09D - Process Development

Day	Time	Session #	Session Title	Property	Room
Wednesday Nov. 10	3:30 PM	531	Innovations in Concept-to-Manufacturing and Distribution II*	Hynes CC	201
Friday Nov. 19	12:30 PM	812	Sustainable Fuel from Renewable Resources & End-of-Life Material Management - VIRTUAL	Virtual	Environmental Division (09)

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2021 TECHNICAL PROGRAM GRID

09F - Fundamentals					
Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	18	Fundamentals of Food, Energy, and Water Systems	Hynes CC	308
Tuesday Nov. 9	8:00 AM	252	Fundamentals of Environmental Kinetics and Reaction Engineering	Hynes CC	309
Wednesday Nov. 17	12:30 PM	732	Sustainability Fundamentals and Metrics Applications	Virtual	Environmental Division (09)
Friday Nov. 19	3:30 PM	811	Fundamentals and Applications for Waste Treatment and Valorization - VIRTUAL	Virtual	Environmental Division (09)

09G - Sustainability					
Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Wednesday Nov. 10	8:00 AM	407	Advanced Biomass Conversion Technologies *	Marriott	Provincetown
Wednesday Nov. 10	8:00 AM	447	Recycling and Upcycling of Plastic Waste*	Hynes CC	200
Wednesday Nov. 10	12:30 PM	480	Environmental Issues involving Biochar	Hynes CC	308
Wednesday Nov. 10	3:30 PM	515	Analysis and Assessment for Solving the Plastic Waste Crisis*	Hynes CC	200
Thursday Nov. 11	12:30 PM	621	Sustainable Fuel from Renewable Resources	Hynes CC	309
Monday Nov. 15	8:00 AM	414	CO ₂ Industrial, Engineering and R&D Approaches I	Virtual	Environmental Division (09)
Monday Nov. 15	8:00 AM	653	Ionic Liquids: Properties, Thermodynamics, and Novel Separation and Reaction Processes*	Virtual	Green Process and Product Engineering
Tuesday Nov. 16	8:00 AM	474	CO ₂ Industrial, Engineering and R&D Approaches II	Virtual	Environmental Division (09)

09H - Climate Change					
Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Tuesday Nov. 9	12:30 PM	304	Design and Analysis of Carbon Capture and Negative Emissions Technologies - Experimental	Hynes CC	309
Tuesday Nov. 9	3:30 PM	368	Design and Analysis of Carbon Capture and Negative Emissions Technologies - Models	Hynes CC	309
Wednesday Nov. 10	8:00 AM	418	Design and Optimization of Integrated Energy Systems	Hynes CC	308
Monday Nov. 15	8:00 AM	414	CO ₂ Industrial, Engineering and R&D Approaches I*	Virtual	Environmental Division (09)

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 16	12:30 PM	810	Design and Analysis of Carbon Capture and Emissions Control Technologies - Virtual*	Virtual	Environmental Division (09)
Wednesday Nov. 17	3:30 PM	738	Design and Optimization of Integrated Energy Systems - Virtual	Virtual	Environmental Division (09)

09I - Fossil Energy

Day	Time	Session #	Session Title	Property	Room
Tuesday Nov. 9	8:00 AM	248	Developments in Shale Gas and Natural Gas*	Marriott	Fairfield
Wednesday Nov. 10	8:00 AM	445	Properties and Phase Equilibria for Fuels and Petrochemicals*	Marriott	Fairfield
Tuesday Nov. 16	12:30 PM	810	Design and Analysis of Carbon Capture and Emissions Control Technologies - Virtual	Virtual	Environmental Division (09)

10 - Computing Systems and Technology Division

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	40	Software Tools and Implementations for Process Systems Engineering	Sheraton	Back Bay Ballroom C
Monday Nov. 8	8:00 AM	62	Division Plenary: CAST (Invited Talks)	Sheraton	Back Bay Ballroom C
Monday Nov. 8	3:30 PM	182	CAST Director's Student Presentation Award Finalists (Invited Talks)	Sheraton	Back Bay Ballroom C

10A - Systems and Process Design

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	12:30 PM	106	Advances in Process Design	Sheraton	Independence Ballroom West
Tuesday Nov. 9	12:30 PM	317	Integrated Product and Process Design	Sheraton	Back Bay Ballroom C
Tuesday Nov. 9	3:30 PM	347	Interactive Session: Systems and Process Design	Hynes CC	Exhibit Hall C/D
Wednesday Nov. 10	8:00 AM	417	Design and Operations Under Uncertainty*	Sheraton	Independence Ballroom West
Wednesday Nov. 10	8:00 AM	418	Design and Optimization of Integrated Energy Systems*	Hynes CC	308
Wednesday Nov. 10	8:00 AM	428	Industrial Applications in Design and Operations	Sheraton	Back Bay Ballroom C
Wednesday Nov. 10	8:00 AM	436	Next-Gen Manufacturing for Resilience and Sustainability*	Hynes CC	202
Wednesday Nov. 10	12:30 PM	460	Advances in Process Design II	Sheraton	Back Bay Ballroom C
Wednesday Nov. 10	3:30 PM	544	Process Design in Energy and Sustainability	Sheraton	Back Bay Ballroom C
Thursday Nov. 11	8:00 AM	586	Process Intensification through Process Systems Engineering	Sheraton	Back Bay Ballroom C

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2021 TECHNICAL PROGRAM GRID

10B - Systems and Process Control

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	16	Estimation and Control under uncertainty	Sheraton	Back Bay Ballroom D
Monday Nov. 8	12:30 PM	105	Advances in Process Control I	Sheraton	Back Bay Ballroom D
Monday Nov. 8	12:30 PM	132	In Honor of Erik Ydstie and his Distinguished Academic Career (Invited Talks)*	Sheraton	Back Bay Ballroom C
Monday Nov. 8	3:30 PM	176	Advances in Process Control II	Sheraton	Back Bay Ballroom D
Monday Nov. 8	3:30 PM	205	Modeling and Control of Crystallization*	Hynes CC	302
Tuesday Nov. 9	8:00 AM	245	Cybersecurity and High-Performance Computing in Next-Gen Manufacturing*	Hynes CC	201
Tuesday Nov. 9	8:00 AM	246	Data-Driven Techniques for Dynamic Modeling, Estimation and Control I	Sheraton	Back Bay Ballroom D
Tuesday Nov. 9	12:30 PM	303	Data-Driven Techniques for Dynamic Modeling, Estimation and Control II	Sheraton	Back Bay Ballroom D
Tuesday Nov. 9	3:30 PM	346	Interactive Session: Systems and Process Control	Hynes CC	Exhibit Hall C/D
Wednesday Nov. 10	8:00 AM	434	Modeling, Control and Optimization of Manufacturing Systems	Sheraton	Back Bay Ballroom D
Wednesday Nov. 10	12:30 PM	492	Modeling, Control, and Optimization of Energy Systems I	Sheraton	Back Bay Ballroom D
Wednesday Nov. 10	3:30 PM	516	Applied Math for Biological and Biomedical Systems*	Sheraton	Independence Ballroom East
Wednesday Nov. 10	3:30 PM	537	Modeling, Control, and Optimization of Energy Systems II	Sheraton	Back Bay Ballroom D
Thursday Nov. 11	12:30 PM	610	Modeling, Estimation and Control of Industrial Processes	Sheraton	Back Bay Ballroom D
Thursday Nov. 11	3:30 PM	644	Predictive Control and Optimization	Sheraton	Back Bay Ballroom D

10C - Systems and Process Operations

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	21	Industry 4.0, Digital Twins, and Digital Transformation I*	Hynes CC	201
Sunday Nov. 7	3:30 PM	29	Operation of Energy Systems	Sheraton	Independence Ballroom East
Monday Nov. 8	3:30 PM	177	Applied Artificial Intelligence, Big Data, and Data Analytics Methods for Next-Gen Manufacturing Efficiency II*	Hynes CC	201
Monday Nov. 8	3:30 PM	212	Prof C A Floudas: Five Years later – Where are we now?	Sheraton	Independence Ballroom West
Tuesday Nov. 9	8:00 AM	227	Advances in global optimization	Sheraton	Independence Ballroom West

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 9	8:00 AM	245	Cybersecurity and High-Performance Computing in Next-Gen Manufacturing*	Hynes CC	201
Tuesday Nov. 9	3:30 PM	348	Interactive Session: Systems and Process Operations	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	375	Future of Manufacturing and Emerging Technologies*	Hynes CC	201
Wednesday Nov. 10	8:00 AM	417	Design and Operations Under Uncertainty	Sheraton	Independence Ballroom West
Wednesday Nov. 10	8:00 AM	428	Industrial Applications in Design and Operations*	Sheraton	Back Bay Ballroom C
Wednesday Nov. 10	8:00 AM	436	Next-Gen Manufacturing for Resilience and Sustainability*	Hynes CC	202
Wednesday Nov. 10	12:30 PM	476	Data-driven optimization	Sheraton	Independence Ballroom West
Wednesday Nov. 10	12:30 PM	485	Innovations in Concept-to-Manufacturing and Distribution I*	Hynes CC	201
Wednesday Nov. 10	12:30 PM	494	Next-Gen Manufacturing in Pharma, Food, and Bioprocessing I*	Hynes CC	202
Wednesday Nov. 10	3:30 PM	529	Foundations of Systems and Process Operations	Sheraton	Independence Ballroom West
Wednesday Nov. 10	3:30 PM	531	Innovations in Concept-to-Manufacturing and Distribution II*	Hynes CC	201
Thursday Nov. 11	8:00 AM	558	Advances in nonlinear and surrogate optimization	Sheraton	Independence Ballroom West
Thursday Nov. 11	12:30 PM	612	Planning, Scheduling, Supply Chain and Logistics	Sheraton	Independence Ballroom West
Thursday Nov. 11	3:30 PM	626	Advances in mixed-integer optimization and optimization with logistics applications	Sheraton	Independence Ballroom West

10D - Applied Mathematics and Numerical Analysis					
Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	12:30 PM	132	In Honor of Erik Ydstie and his Distinguished Academic Career (Invited Talks)	Sheraton	Back Bay Ballroom C
Tuesday Nov. 9	8:00 AM	226	Advances in Computational Methods and Numerical Analysis I	Sheraton	Independence Ballroom East
Tuesday Nov. 9	12:30 PM	284	Advances in Computational Methods and Numerical Analysis II	Sheraton	Independence Ballroom East
Tuesday Nov. 9	3:30 PM	344	Interactive Session: Applied Mathematics and Numerical Analysis	Hynes CC	Exhibit Hall C/D
Wednesday Nov. 10	3:30 PM	516	Applied Math for Biological and Biomedical Systems	Sheraton	Independence Ballroom East
Thursday Nov. 11	8:00 AM	560	Applied Math for Energy and Environmental Applications	Sheraton	Back Bay Ballroom D

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2021 TECHNICAL PROGRAM GRID

10E - Information Management and Intelligent Systems					
Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	8	Applications of Data Science in Catalysis and Reaction Engineering I*	Marriott	Salon H/I
Monday Nov. 8	8:00 AM	51	Applications of Data Science in Molecular Sciences I*	Marriott	Salon H/I
Monday Nov. 8	12:30 PM	104	Advances in Machine Learning and Intelligent Systems I	Sheraton	Independence Ballroom East
Monday Nov. 8	12:30 PM	108	Applications of Data Science to High Throughput Experimentation*	Marriott	Salon H/I
Monday Nov. 8	12:30 PM	109	Applied Artificial Intelligence, Big Data, and Data Analytics Methods for Next-Gen Manufacturing Efficiency I*	Hynes CC	201
Monday Nov. 8	12:30 PM	118	Data-Driven Design and Modeling I*	Marriott	Salon J/K
Monday Nov. 8	3:30 PM	177	Applied Artificial Intelligence, Big Data, and Data Analytics Methods for Next-Gen Manufacturing Efficiency II*	Hynes CC	201
Monday Nov. 8	3:30 PM	203	Innovations in Methods of Data Science*	Marriott	Salon H/I
Tuesday Nov. 9	8:00 AM	259	In Honor of Professor Venkat Venkatasubramanian's 65th Birthday (Invited Talks)	Sheraton	Back Bay Ballroom C
Tuesday Nov. 9	8:00 AM	275	Topical Plenary: Topical Conference in Molecular and Materials Data Science (Invited Talks)*	Marriott	Salon H/I
Tuesday Nov. 9	12:30 PM	287	Advances in Machine Learning and Intelligent Systems II	Sheraton	Independence Ballroom West
Tuesday Nov. 9	12:30 PM	290	Applications of Data Science in Catalysis and Reaction Engineering II*	Marriott	Salon H/I
Tuesday Nov. 9	3:30 PM	345	Interactive Session: Data and Information Systems	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	364	Applications of Data Science in Molecular Sciences II*	Marriott	Salon H/I
Wednesday Nov. 10	8:00 AM	415	Data-Driven and Hybrid Modeling for Decision Making I	Sheraton	Independence Ballroom East
Wednesday Nov. 10	8:00 AM	429	Industrial Internet of Things (IIoT), Smart and Soft Sensors in Process Manufacturing and Beyond*	Hynes CC	201
Wednesday Nov. 10	8:00 AM	449	Teaching Data Science to Students and Teachers I*	Hynes CC	306
Wednesday Nov. 10	12:30 PM	475	Data-Driven and Hybrid Modeling for Decision Making II	Sheraton	Independence Ballroom East
Wednesday Nov. 10	12:30 PM	476	Data-driven optimization*	Sheraton	Independence Ballroom West
Wednesday Nov. 10	12:30 PM	506	Teaching Data Science to Students and Teachers II*	Hynes CC	306

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2021 TECHNICAL PROGRAM GRID

Thursday Nov. 11	12:30 PM	614	Process Monitoring & Fault Detection	Sheraton	Back Bay Ballroom C
Thursday Nov. 11	3:30 PM	635	Data Science/Analytics for Process Applications	Sheraton	Back Bay Ballroom C
Monday Nov. 15	8:00 AM	549	Teaching Data Science to Students and Teachers III*	Virtual	Bridging the Skills Gap in Chemical Engineering (T4)
Thursday Nov. 18	12:30 PM	749	Big Data and Analytics for Sustainability*	Virtual	Sustainable Engineering Forum (23)

12 - Process Development Division

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	84	Predictive Scale-Up/Scale-Down for Production of Pharmaceuticals and Biopharmaceuticals*	Hynes CC	101
Monday Nov. 8	12:30 PM	106	Advances in Process Design*	Sheraton	Independence Ballroom West
Monday Nov. 8	12:30 PM	109	Applied Artificial Intelligence, Big Data, and Data Analytics Methods for Next-Gen Manufacturing Efficiency I*	Hynes CC	201
Monday Nov. 8	3:30 PM	177	Applied Artificial Intelligence, Big Data, and Data Analytics Methods for Next-Gen Manufacturing Efficiency II*	Hynes CC	201
Monday Nov. 8	3:30 PM	188	Developments in Extractive Separations: Processes*	Hynes CC	108
Monday Nov. 8	3:30 PM	198	Green Chemistry and Engineering-I*	Hynes CC	311
Tuesday Nov. 9	8:00 AM	243	Control Strategies in Pharmaceutical Development and Manufacturing I*	Hynes CC	101
Tuesday Nov. 9	8:00 AM	269	Process Design: Innovation for Sustainability*	Hynes CC	311
Tuesday Nov. 9	12:30 PM	301	Control Strategies in Pharmaceutical Development and Manufacturing II*	Hynes CC	101
Tuesday Nov. 9	12:30 PM	317	Integrated Product and Process Design*	Sheraton	Back Bay Ballroom C
Tuesday Nov. 9	3:30 PM	347	Interactive Session: Systems and Process Design*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	360	Advances in New Modalities (Large Molecule, Oligos, Peptides, ADCs, Gene therapy, etc.) Product and Process Development (includes invited talks)*	Hynes CC	101
Tuesday Nov. 9	3:30 PM	375	Future of Manufacturing and Emerging Technologies*	Hynes CC	201
Tuesday Nov. 9	3:30 PM	391	Plenary Session: Waste Plastics (Invited Talks)*	Hynes CC	200
Tuesday Nov. 9	3:30 PM	400	Technology Transfer and Industrial-Academic Interfaces*	Hynes CC	203
Wednesday Nov. 10	8:00 AM	428	Industrial Applications in Design and Operations*	Sheraton	Back Bay Ballroom C
Wednesday Nov. 10	8:00 AM	429	Industrial Internet of Things (IIoT), Smart and Soft Sensors in Process Manufacturing and Beyond*	Hynes CC	201

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2021 TECHNICAL PROGRAM GRID

Wednesday Nov. 10	8:00 AM	436	Next-Gen Manufacturing for Resilience and Sustainability*	Hynes CC	202
Wednesday Nov. 10	12:30 PM	472	Continuous Crystallization Processes*	Hynes CC	302
Wednesday Nov. 10	12:30 PM	485	Innovations in Concept-to-Manufacturing and Distribution I*	Hynes CC	201
Wednesday Nov. 10	12:30 PM	486	Integrated Design of Drug Product Formulation, Manufacture and Delivery*	Hynes CC	101
Wednesday Nov. 10	12:30 PM	494	Next-Gen Manufacturing in Pharma, Food, and Bioprocessing I*	Hynes CC	202
Wednesday Nov. 10	3:30 PM	512	Poster Session: Process Development	Hynes CC	Exhibit Hall C/D
Wednesday Nov. 10	3:30 PM	532	Integrated Design of Drug Substance and Drug Product Manufacture*	Hynes CC	101
Wednesday Nov. 10	3:30 PM	535	Membranes for Electrochemical Conversions and Applications II*	Hynes CC	301
Wednesday Nov. 10	3:30 PM	541	Next-Gen Manufacturing in Pharma, Food, and Bioprocessing II*	Hynes CC	202
Wednesday Nov. 10	3:30 PM	544	Process Design in Energy and Sustainability*	Sheraton	Back Bay Ballroom C
Thursday Nov. 11	8:00 AM	563	Biopolymers*	Hynes CC	104
Thursday Nov. 11	8:00 AM	586	Process Intensification through Process Systems Engineering*	Sheraton	Back Bay Ballroom C
Thursday Nov. 11	3:30 PM	635	Data Science/Analytics for Process Applications*	Sheraton	Back Bay Ballroom C
Monday Nov. 15	8:00 AM	652	General Session: Process Development I - Virtual	Virtual	Process Development Division (12)
Monday Nov. 15	12:30 PM	809	General Session: Process Development II - Virtual	Virtual	Process Development Division (12)
Wednesday Nov. 17	12:30 PM	725	Advancements in Particle Engineering and Material Sciences in Pharmaceutical Process Development I*	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
Wednesday Nov. 17	3:30 PM	103	Advancements in Particle Engineering and Material Sciences in Pharmaceutical Process Development II*	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)

12A - Process Research and Innovation

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	70	Environmentally Friendly Product and Process Development for Sustainability	Hynes CC	300
Monday Nov. 8	12:30 PM	149	Renewable Polymers and Intermediates Technology	Hynes CC	300
Monday Nov. 8	3:30 PM	211	Process Research for Improved Throughput & Efficiency, and Reduced Cost	Hynes CC	300

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2021 TECHNICAL PROGRAM GRID

Wednesday Nov. 10	8:00 AM	444	Process Intensification in Biorefineries*	Marriott	Exeter
Thursday Nov. 11	8:00 AM	568	Crystallization Process Development*	Hynes CC	302
Monday Nov. 15	3:30 PM	679	Advances in Computational Tools for the Analyses of Mixing Processes*	Virtual	North American Mixing Forum (06)
Tuesday Nov. 16	3:30 PM	709	Integrated Process Engineering and Economic Analysis*	Virtual	Green Process and Product Engineering

12B - Pilot Plants

Day	Time	Session #	Session Title	Property	Room
Tuesday Nov. 9	8:00 AM	270	Process Development: Design, Risk Reduction, Implementation and Operations*	Hynes CC	300
Wednesday Nov. 10	8:00 AM	721	Mixing Scale-Up and Scale-Down Issues in Pharmaceutical Processes*	Virtual	North American Mixing Forum (06)

12C - Technology Transfer and Manufacturing

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Tuesday Nov. 9	8:00 AM	270	Process Development: Design, Risk Reduction, Implementation and Operations	Hynes CC	300
Wednesday Nov. 10	12:30 PM	504	Sustainable Energy: Generation and Storage *	Hynes CC	310
Thursday Nov. 11	12:30 PM	620	Sustainability and Consumer Products *	Hynes CC	311
Tuesday Nov. 16	3:30 PM	709	Integrated Process Engineering and Economic Analysis*	Virtual	Green Process and Product Engineering

12E - Process Intensification & Microprocess Engineering

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Sunday Nov. 7	3:30 PM	11	Carbon, Coal and Biomass Management	Hynes CC	300
Monday Nov. 8	8:00 AM	45	3D Printing in Catalysts, Reaction, and Energy Industry*	Hynes CC	202
Tuesday Nov. 9	12:30 PM	324	Novel Reactors I (Targeted/Localized Heating Strategies)	Hynes CC	300
Tuesday Nov. 9	3:30 PM	388	Novel Reactors II (Novel Reactor Configurations)	Hynes CC	300
Wednesday Nov. 10	8:00 AM	618	Structured Adsorbents: Beyond Pellets and Beads*	Hynes CC	311

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2021 TECHNICAL PROGRAM GRID

12G - Product Design					
Day	Time	Session #	Session Title	Property	Room
Tuesday Nov. 9	3:30 PM	401	Tools and Techniques for Sustainable/Green Product Design	Hynes CC	303
Thursday Nov. 18	12:30 PM	752	Particulate Systems: Solids and Processing: Virtual*	Virtual	Particle Technology Forum (03)
Friday Nov. 19	3:30 PM	30	Panel Discussion: Chemical Process and Product Design Careers in Industry & Academia (Invited Talks)	Virtual	Process Development Division (12)

14 - Nuclear Engineering Division					
Day	Time	Session #	Session Title	Property	Room
Tuesday Nov. 9	12:30 PM	335	Theory, Modeling, and Simulation of Nuclear Chemical Processes	Marriott	Salon A/B
Thursday Nov. 18	12:30 PM	156	Wilson Award Presentation (Invited Talks)	Virtual	Nuclear Engineering Division (14)
Friday Nov. 19	8:00 AM	263	Models and Applications of Nuclear Chemical and Separation Processes	Virtual	Nuclear Engineering Division (14)
Friday Nov. 19	12:30 PM	423	Environmental Advances in Nuclear and Hazardous Waste Processing and Disposal	Virtual	Nuclear Engineering Division (14)

15 - Food, Pharmaceutical & Bioengineering Division					
Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	3:30 PM	171	Poster Session: Pharmaceutical Discovery Development and Manufacturing (PD2M)*	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	175	Advances in Drug Discovery Processes (including HTE)*	Hynes CC	101
Monday Nov. 8	3:30 PM	210	Point-of-Need Sensor Applications*	Hynes CC	200
Tuesday Nov. 9	8:00 AM	274	Special Session In Honor of Arup Chakraborty's 60th Birthday: Statistical Mechanics and Molecular/Materials Modeling*	Marriott	Salon C/D
Tuesday Nov. 9	12:30 PM	283	Advances in bioseparations*	Hynes CC	303
Tuesday Nov. 9	12:30 PM	302	Crystallization of Pharmaceutical and Biological Molecules*	Hynes CC	302
Tuesday Nov. 9	12:30 PM	319	Interfacial Phenomena in Pharmaceuticals*	Sheraton	Back Bay Ballroom B
Tuesday Nov. 9	12:30 PM	336	Topical Plenary: Process Analytical Technology: Sensor Applications in Process Development (Invited Talks)*	Hynes CC	200
Tuesday Nov. 9	3:30 PM	369	Division Plenary: Food, Pharmaceutical, and Bioengineering Division (Invited Talks)	Hynes CC	109
Wednesday Nov. 10	8:00 AM	441	Pharmaceutical Discovery, Development, and Manufacturing Forum Awards Ceremony*	Hynes CC	102
Wednesday Nov. 10	12:30 PM	493	Next Generation Biomolecules and Bioprocesses*	Hynes CC	303

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Wednesday Nov. 10	12:30 PM	494	Next-Gen Manufacturing in Pharma, Food, and Bioprocessing I*	Hynes CC	202
Wednesday Nov. 10	3:30 PM	516	Applied Math for Biological and Biomedical Systems*	Sheraton	Independence Ballroom East
Wednesday Nov. 10	3:30 PM	541	Next-Gen Manufacturing in Pharma, Food, and Bioprocessing II*	Hynes CC	202
Wednesday Nov. 10	3:30 PM	542	Particle Formation and Crystallization Processes from Liquids, Slurries, and Emulsions*	Hynes CC	302
Thursday Nov. 11	8:00 AM	588	Recent Advances in Molecular Simulation Methods*	Marriott	Salon J/K
Thursday Nov. 11	12:30 PM	617	Solid Form Selection: Cocrystals, Salts, Solvates, Polymorphs, and Beyond*	Hynes CC	302
Thursday Nov. 11	12:30 PM	620	Sustainability and Consumer Products *	Hynes CC	311
Tuesday Nov. 16	10:30 AM	666	Poster Session: Pharmaceutical Discovery Development and Manufacturing (PD2M) - Virtual*	Virtual	Posters
Tuesday Nov. 16	10:30 AM	663	Poster Session: Food, Pharmaceuticals, and Bioengineering Division - Virtual	Virtual	Posters
Tuesday Nov. 16	3:30 PM	777	Cellular Engineering - Virtual	Virtual	Food, Pharmaceutical & Bioengineering Division (15)
Wednesday Nov. 17	8:00 AM	716	Biodiagnostics and Biosensors - Virtual	Virtual	Food, Pharmaceutical & Bioengineering Division (15)
Wednesday Nov. 17	12:30 PM	726	Bioengineering Modeling - Virtual	Virtual	Food, Pharmaceutical & Bioengineering Division (15)
Wednesday Nov. 17	3:30 PM	778	Biomolecular Engineering - Virtual	Virtual	Food, Pharmaceutical & Bioengineering Division (15)
Thursday Nov. 18	8:00 AM	742	Biotherapeutic Development and Delivery - Virtual	Virtual	Food, Pharmaceutical & Bioengineering Division (15)
Thursday Nov. 18	12:30 PM	750	Bioprocessing - Virtual	Virtual	Food, Pharmaceutical & Bioengineering Division (15)
Thursday Nov. 18	3:30 PM	759	Understanding and Engineering Cellular Responses - Virtual	Virtual	Food, Pharmaceutical & Bioengineering Division (15)

15A - Food					
Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	12:30 PM	113	Biotechnological Production of Food and Feed Ingredients	Hynes CC	107
Monday Nov. 8	3:30 PM	162	Poster Session: Food and Bioprocess Engineering	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	12:30 PM	334	The Food-Energy-Water Nexus *	Hynes CC	311
Wednesday Nov. 10	8:00 AM	424	Fermentation and Process Engineering in Food and Bioprocess Industries	Hynes CC	107
Wednesday Nov. 10	12:30 PM	489	Metabolic Engineering for Food, Feed, and Bioproducts	Hynes CC	107
Wednesday Nov. 10	3:30 PM	536	Microbiome and Natural Products in Food, Health, and Bioprocessing	Hynes CC	107

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2021 TECHNICAL PROGRAM GRID

15C - Bioengineering					
Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	7	Advances in Biosensors, Protein Production, and Protein Engineering	Hynes CC	111
Sunday Nov. 7	3:30 PM	9	Biocatalysis and Biobased Products	Hynes CC	110
Monday Nov. 8	8:00 AM	61	Diagnostic Technologies for Clinical Applications	Hynes CC	111
Monday Nov. 8	8:00 AM	65	Efficient Processing of Lignin to Bioproducts and Biofuels*	Hynes CC	303
Monday Nov. 8	12:30 PM	115	Cellular and Biochemical Sensing Technologies	Hynes CC	110
Monday Nov. 8	12:30 PM	139	Metabolic Platform Development- Non-Conventional Species and Systems	Hynes CC	111
Monday Nov. 8	3:30 PM	160	Poster Session: Bioengineering	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	8:00 AM	228	Advances in Metabolic Engineering- Eukaryotic Organisms	Hynes CC	111
Tuesday Nov. 9	8:00 AM	234	Biomanufacturing with Advanced Mammalian Cell Culture Technologies	Hynes CC	110
Tuesday Nov. 9	12:30 PM	288	Advances in Metabolic Engineering- Prokaryotic Organisms	Hynes CC	111
Tuesday Nov. 9	12:30 PM	293	Biomanufacturing with Advanced Bioreactor and Bioprocess Engineering	Hynes CC	110
Tuesday Nov. 9	12:30 PM	333	Special Session In Honor of Arup Chakraborty's 60th Birthday: Biology and Immunology*	Marriott	Salon C/D
Wednesday Nov. 10	8:00 AM	413	Computational and Experimental Studies on Protein Structure, Function, and Developability	Hynes CC	111
Wednesday Nov. 10	8:00 AM	427	High-Throughput Techniques in Protein Engineering	Hynes CC	110
Wednesday Nov. 10	12:30 PM	462	Applications of Therapeutic and Enzymatic Protein Engineering	Hynes CC	110
Wednesday Nov. 10	12:30 PM	505	Systems and Quantitative Biology: Disease Mechanisms, Biomarkers, and Therapies	Hynes CC	111
Wednesday Nov. 10	3:30 PM	546	Proteins in Biomedical and Biomaterials Engineering	Hynes CC	110
Wednesday Nov. 10	3:30 PM	548	Systems Biology in Human Health and Disease	Hynes CC	111
Thursday Nov. 11	8:00 AM	590	Synthetic Biology: Microbiome Engineering	Hynes CC	110
Thursday Nov. 11	8:00 AM	591	Systems and Quantitative Biology: Metabolic Modeling	Hynes CC	111

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2021 TECHNICAL PROGRAM GRID

Thursday Nov. 11	8:00 AM	648	Systems and Quantitative Biology: Modeling Biological Processes	Hynes CC	107
Thursday Nov. 11	12:30 PM	622	Synthetic Biology: Cell Free Systems, Biosensors, and Genetic Circuits	Hynes CC	110
Thursday Nov. 11	12:30 PM	623	Systems and Quantitative Biology: Microbial Traits, Regulation, and Interactions	Hynes CC	111
Thursday Nov. 11	3:30 PM	647	Synthetic Biology: Tool and Method Development	Hynes CC	110

15D - Engineering Fundamentals in Life Science

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	25	Mechanical Cues and Cell Behavior	Hynes CC	108
Sunday Nov. 7	3:30 PM	41	Systems Biology Approaches to Cancer	Hynes CC	109
Sunday Nov. 7	3:30 PM	42	Systems Developmental Biology and Differentiation	Hynes CC	107
Monday Nov. 8	8:00 AM	56	Biomolecular Engineering and Analyses to Understand Cell Migration, Membrane Components, and Genomic Structure	Hynes CC	108
Monday Nov. 8	8:00 AM	89	Stem Cells and Tissue Engineering	Hynes CC	110
Monday Nov. 8	8:00 AM	91	Systems Biology Methods and Technologies	Hynes CC	107
Monday Nov. 8	12:30 PM	128	Flexible Platforms for Investigating Cellular Processes	Hynes CC	108
Monday Nov. 8	3:30 PM	161	Poster Session: Engineering Fundamentals in Life Science	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	8:00 AM	238	Clinical Impacts of Micro- and Nano-Scale Technologies	Hynes CC	109
Tuesday Nov. 9	8:00 AM	250	Engineering Strategies to Combat COVID-19	Hynes CC	108
Tuesday Nov. 9	8:00 AM	274	Special Session In Honor of Arup Chakraborty's 60th Birthday: Statistical Mechanics and Molecular/Materials Modeling*	Marriott	Salon C/D
Tuesday Nov. 9	12:30 PM	305	Design, Engineering, and Structural Prediction of Peptides and Proteins	Hynes CC	108
Tuesday Nov. 9	12:30 PM	333	Special Session In Honor of Arup Chakraborty's 60th Birthday: Biology and Immunology*	Marriott	Salon C/D
Tuesday Nov. 9	12:30 PM	338	Understanding the Rules of Life at the Micro- and Nano-Scale	Hynes CC	109
Wednesday Nov. 10	8:00 AM	422	Engineering in Aging and Aging-Associated Diseases	Hynes CC	108
Wednesday Nov. 10	8:00 AM	431	Large-Scale Models in Systems Biology	Hynes CC	109
Wednesday Nov. 10	12:30 PM	479	Engineering Drug Delivery Strategies and Biomolecular Sensors	Hynes CC	108

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2021 TECHNICAL PROGRAM GRID

Wednesday Nov. 10	12:30 PM	483	Immunoengineering	Hynes CC	109
Wednesday Nov. 10	12:30 PM	507	Thermodynamics of Biomolecular Folding and Assembly*	Marriott	Salon C/D
Wednesday Nov. 10	3:30 PM	526	Drug Delivery for Regenerative Medicine	Hynes CC	108
Wednesday Nov. 10	3:30 PM	530	Immunoengineering for Cancer, Vaccines, and Autoimmunity	Hynes CC	109
Thursday Nov. 11	8:00 AM	569	Drug Delivery for Infectious Diseases	Hynes CC	108
Thursday Nov. 11	8:00 AM	575	Immunotherapy	Hynes CC	109
Thursday Nov. 11	12:30 PM	604	In Vitro and In Vivo Cancer Models	Hynes CC	109
Thursday Nov. 11	12:30 PM	611	Novel Drug Carrier Formulations	Hynes CC	108
Thursday Nov. 11	3:30 PM	636	Delivery of Cancer Therapeutics	Hynes CC	108
Tuesday Nov. 16	8:00 AM	771	Development and Delivery of Bioactive Factors - Virtual	Virtual	Food, Pharmaceutical & Bioengineering Division (15)
Tuesday Nov. 16	12:30 PM	776	Cancer Microenvironment - Virtual	Virtual	Food, Pharmaceutical & Bioengineering Division (15)

16 - Fuels and Petrochemicals Division

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Sunday Nov. 7	3:30 PM	13	Developments in Electrochemical Reactors, Fuel Cells, and Electrolyzers	Marriott	Fairfield
Monday Nov. 8	8:00 AM	60	Developments in Petroleum and Biofuels Refining Technologies	Marriott	Fairfield
Monday Nov. 8	12:30 PM	107	Advances in Zeolite Science and Technology I - Synthesis and Characterization (Invited Talks)*	Hynes CC	208
Monday Nov. 8	12:30 PM	121	Developments in Alternative Fuels and Enabling Technologies	Marriott	Fairfield
Monday Nov. 8	3:30 PM	184	Conceptual Process Design and Operational Improvements in Refining, Petrochemicals and Gas Processing	Marriott	Fairfield
Tuesday Nov. 9	8:00 AM	229	Advances in Zeolite Science and Technology II - Applications and Explorations in New Catalysis (Invited Talks)*	Hynes CC	208
Tuesday Nov. 9	8:00 AM	248	Developments in Shale Gas and Natural Gas	Marriott	Fairfield
Tuesday Nov. 9	12:30 PM	310	Fuel Processing for Hydrogen Production	Marriott	Fairfield
Tuesday Nov. 9	3:30 PM	349	Poster Session: Advances in Zeolite Science and Technology*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	351	Poster Session: Fuels and Petrochemicals Division	Hynes CC	Exhibit Hall C/D

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 9	3:30 PM	400	Technology Transfer and Industrial-Academic Interfaces*	Hynes CC	203
Wednesday Nov. 10	8:00 AM	445	Properties and Phase Equilibria for Fuels and Petrochemicals	Marriott	Fairfield
Wednesday Nov. 10	12:30 PM	508	Value-Added Chemicals from Natural Gas I	Marriott	Fairfield
Wednesday Nov. 10	3:30 PM	555	Value-Added Chemicals for Natural Gas II	Marriott	Fairfield
Thursday Nov. 11	8:00 AM	576	In Honor of the 2018 William H. Walker Award Winner I (Invited Talks)*	Hynes CC	210
Thursday Nov. 11	12:30 PM	603	In Honor of the 2018 William H. Walker Award Winner II (Invited Talks)*	Hynes CC	210
Thursday Nov. 11	3:30 PM	639	In Honor of the 2018 William H. Walker Award Winner III (Invited Talks)*	Hynes CC	210
Tuesday Nov. 16	12:30 PM	706	Unconventional Oil and Natural Gas: Science & Technology Advancement I	Virtual	Fuels and Petrochemicals Division (16)
Tuesday Nov. 16	3:30 PM	715	Unconventional Oil and Natural Gas: Science & Technology Advancement II	Virtual	Fuels and Petrochemicals Division (16)
Wednesday Nov. 17	8:00 AM	772	Value-Added Chemicals from Natural Gas – Virtual	Virtual	Fuels and Petrochemicals Division (16)
Wednesday Nov. 17	12:30 PM	803	Advances in Petroleum Production, Refining and Alternative Fuels	Virtual	Fuels and Petrochemicals Division (16)

17 - Forest and Plant Bioproducts Division

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	50	Advances in Lignin Degradation Strategies	Marriott	Exeter
Monday Nov. 8	3:30 PM	170	Poster Session: Novel Products from Forest and Plant Biomass	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	8:00 AM	278	Waste Valorization	Marriott	Provincetown
Tuesday Nov. 9	3:30 PM	362	Andrew Chase Award (Invited Talks)	Marriott	Provincetown
Wednesday Nov. 10	8:00 AM	407	Advanced Biomass Conversion Technologies	Marriott	Provincetown
Wednesday Nov. 10	8:00 AM	444	Process Intensification in Biorefineries	Marriott	Exeter
Wednesday Nov. 10	12:30 PM	458	Advanced Separations Processes in Bioprocessing and Biomaterials	Marriott	Provincetown
Wednesday Nov. 10	12:30 PM	465	Biodegradable Polymers from Forest Resources - Sustainable Biomaterials	Marriott	Exeter
Wednesday Nov. 10	3:30 PM	518	Biochemical Conversion Processes in Forest/Plant Biomass Biorefineries	Marriott	Exeter
Wednesday Nov. 10	3:30 PM	519	Biomass Characterization, Pretreatment, and Fractionation	Marriott	Provincetown
Thursday Nov. 11	8:00 AM	592	Thermochemical Conversion of Biomass	Marriott	Provincetown

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2021 TECHNICAL PROGRAM GRID

Thursday Nov. 11	3:30 PM	633	Chemical Modifications and Processing of Biomaterials	Marriott	Provincetown
Thursday Nov. 18	8:00 AM	806	Forest and Plant Bioproducts General Session: Live Q&A with Authors of Recorded Talks from Week 1	Virtual	Forest and Plant Bioproducts Division (17)
Thursday Nov. 18	12:30 PM	24	Lignin for Sustainable Industrial Uses	Virtual	Forest and Plant Bioproducts Division (17)
Thursday Nov. 18	3:30 PM	152	Sustainable Materials from Lignocellulosic Resources for Industrial Applications	Virtual	Forest and Plant Bioproducts Division (17)
Friday Nov. 19	8:00 AM	306	Division Plenary: Valorization of Waste plastics including Ocean Plastics along with Agro-residues/Forestry waste for Sustainable Biocomposites (Invited Talks)	Virtual	Forest and Plant Bioproducts Division (17)
Friday Nov. 19	12:30 PM	625	Value-Added Uses of Industrial Coproducts and Natural Fibres in Sustainable Uses	Virtual	Forest and Plant Bioproducts Division (17)

18A - Miscellaneous

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	11:00 AM	766	Celebrating the Life and Achievements of H. Scott Fogler (Invited Talks)	Hynes CC	304
Monday Nov. 8	3:30 PM	807	How to Maintain Productivity in a Crisis	Hynes CC	303
Monday Nov. 8	4:45 PM	808	Optimize Your Postdoc – How to Leverage All the Opportunities Your Postdoc Offers You (#Spoileralert: There's Much More Than You Think!) to Advance in Your Career	Hynes CC	303
Monday Nov. 15	12:30 PM	670	Chinese-American Chemical Society (CACS) 40th Anniversary Symposium I (Invited Talks)	Virtual	Chinese-American Chemical Society (CACS) 40th Anniversary Symposium
Monday Nov. 15	3:30 PM	681	Chinese-American Chemical Society (CACS) 40th Anniversary Symposium II (Invited Talks)	Virtual	Chinese-American Chemical Society (CACS) 40th Anniversary Symposium

18B - Public Affairs and Information Committee (PAIC)

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall	Hynes CC	303
Monday Nov. 15	3:30 PM	655	Chemical Engineering Policy (WISE) Award Recipient Talks (Invited Talks)	Virtual	Featured & Specialty Programming (18)

18C - Young Professionals Committee (YPC)

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	82	Pioneers of Catalysis and Reaction Engineering (Invited Talks)*	Hynes CC	208
Monday Nov. 8	12:30 PM	126	Environmental Division Awards and Honors (Invited Talks)*	Hynes CC	309

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2021 TECHNICAL PROGRAM GRID

Monday Nov. 8	4:45 PM	808	Optimize Your Postdoc – How to Leverage All the Opportunities Your Postdoc Offers You (#Spoileralert: There's Much More Than You Think!) to Advance in Your Career*	Hynes CC	303
Tuesday Nov. 9	3:30 PM	382	LGBTQ+ Inclusion in Engineering: Advocating for Minorities*	Hynes CC	204
Wednesday Nov. 10	12:30 PM	482	How to Share Your Research with Everyone	Hynes CC	312
Wednesday Nov. 10	12:30 PM	499	Policy and Sustainability*	Hynes CC	313
Wednesday Nov. 10	3:30 PM	553	Transitioning from Graduate School to Your Future (Panel Discussion)	Hynes CC	312
Monday Nov. 15	12:30 PM	677	Undergraduate Research Presentations - Chemicals, Biotechnology, and Environment	Virtual	Young Professionals Committee (YPC)
Monday Nov. 15	3:30 PM	686	Undergraduate Research Presentations - Energy, Materials, and Petrochemicals	Virtual	Young Professionals Committee (YPC)
Tuesday Nov. 16	3:30 PM	37	Retaining Women in Chemical Engineering Careers*	Virtual	Engineering for Inclusion (TC)
Thursday Nov. 18	8:00 AM	214	The Hard Skills of Emotional Intelligence for Effective Engineering Leaders*	Virtual	Management Division (05)

18D - Publication Committee

Day	Time	Session #	Session Title	Property	Room
Tuesday Nov. 9	3:30 PM	764	AIChE Journal Futures: New Directions in Chemical Engineering Research (Invited Talks)	Sheraton	Back Bay Ballroom D

18E - Awards Committee

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	12:15 PM	98	2021 Hoover Medal Lecture	Hynes CC	Ballroom B
Monday Nov. 8	1:45 PM	158	The Langer Prize for Innovation and Entrepreneurial Excellence Award Presentation and Lecture	Hynes CC	Ballroom B
Monday Nov. 8	6:15 PM	222	2020 Hoover Medal Lecture	Hynes CC	Ballroom B
Tuesday Nov. 9	11:15 AM	282	Andreas Acrivos Award for Professional Progress in Chemical Engineering Lecture	Hynes CC	Ballroom B
Tuesday Nov. 9	6:15 PM	404	D.I.C. Wang Award Lecture	Hynes CC	302
Tuesday Nov. 9	7:00 PM	223	SBE's James E. Bailey Award Lecture	Hynes CC	302
Wednesday Nov. 10	11:15 AM	454	John M. Prausnitz AIChE Institute Lecture	Hynes CC	Ballroom B
Wednesday Nov. 10	6:15 PM	556	William R. Schowalter Lecture	Hynes CC	Ballroom B

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2021 TECHNICAL PROGRAM GRID

18L - International Committee

Day	Time	Session #	Session Title	Property	Room
Tuesday Nov. 9	12:30 PM	298	Colloidal Dispersions*	Sheraton	Back Bay Ballroom A
Wednesday Nov. 10	12:30 PM	478	Emerging Junior Investigator Open Innovation Forum (Invited Talks)	Sheraton	Republic Ballroom A
Wednesday Nov. 10	3:30 PM	533	KICHe-US Chapter Open Forum (Invited Talks)	Sheraton	Republic Ballroom A

20 - Catalysis and Reaction Engineering Division

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	8	Applications of Data Science in Catalysis and Reaction Engineering I*	Marriott	Salon H/I
Sunday Nov. 7	3:30 PM	12	CO ₂ Upgrading: Photo/Reduction, Hydrogenation, and Thermal Upgrading	Hynes CC	206
Sunday Nov. 7	3:30 PM	15	Electrocatalysis and Photoelectrocatalysis I: Photocatalysis and Oxygen Electrocatalysis	Hynes CC	203
Sunday Nov. 7	3:30 PM	20	Green Chemical Reaction Engineering for Sustainability	Hynes CC	205
Sunday Nov. 7	3:30 PM	27	Multiphase & Liquid Phase Reaction Engineering	Hynes CC	208
Sunday Nov. 7	3:30 PM	34	Pyrolysis of Biomass	Hynes CC	207
Sunday Nov. 7	3:30 PM	36	Reactor Engineering for Biomass Feedstocks*	Hynes CC	312
Monday Nov. 8	8:00 AM	45	3D Printing in Catalysts, Reaction, and Energy Industry*	Hynes CC	202
Monday Nov. 8	8:00 AM	57	Chemical Recycling of Waste Plastics I	Hynes CC	205
Monday Nov. 8	8:00 AM	60	Developments in Petroleum and Biofuels Refining Technologies *	Marriott	Fairfield
Monday Nov. 8	8:00 AM	66	Electrocatalysis and Photoelectrocatalysis II: Oxygen and Organic Electrocatalysis	Hynes CC	203
Monday Nov. 8	8:00 AM	67	Electrochemical CO ₂ Conversion I	Hynes CC	206
Monday Nov. 8	8:00 AM	77	In Honor of the 2019 R.H. Wilhelm Award Winner I (Invited Talks)	Hynes CC	210
Monday Nov. 8	8:00 AM	82	Pioneers of Catalysis and Reaction Engineering (Invited Talks)	Hynes CC	208
Monday Nov. 8	8:00 AM	85	Reactor Engineering for Biomass Feedstocks II*	Hynes CC	312
Monday Nov. 8	12:30 PM	107	Advances in Zeolite Science and Technology I - Synthesis and Characterization (Invited Talks)*	Hynes CC	208
Monday Nov. 8	12:30 PM	108	Applications of Data Science to High Throughput Experimentation*	Marriott	Salon H/I

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Monday Nov. 8	12:30 PM	111	Biomass Upgrading I: Reaction Fundamentals	Hynes CC	207
Monday Nov. 8	12:30 PM	116	Chemical Recycling of Waste Plastics II	Hynes CC	205
Monday Nov. 8	12:30 PM	123	Electrocatalysis and Photoelectrocatalysis III: Organic Electrocatalysis	Hynes CC	203
Monday Nov. 8	12:30 PM	124	Electrochemical CO ₂ Conversion II	Hynes CC	206
Monday Nov. 8	12:30 PM	134	In Honor of the 2019 R.H. Wilhelm Award Winner II (Invited Talks)	Hynes CC	210
Monday Nov. 8	3:30 PM	179	Biological Catalysis and Enzymatic Catalysis	Hynes CC	208
Monday Nov. 8	3:30 PM	180	Biomass Upgrading II: Novel Catalytic Materials	Hynes CC	207
Monday Nov. 8	3:30 PM	183	Chemical Recycling of Waste Plastics III	Hynes CC	205
Monday Nov. 8	3:30 PM	190	Electrocatalysis and Photoelectrocatalysis IV: Hot Topics	Hynes CC	203
Monday Nov. 8	3:30 PM	191	Electrochemistry and Electrocatalysis	Hynes CC	206
Monday Nov. 8	3:30 PM	203	Innovations in Methods of Data Science*	Marriott	Salon H/I
Tuesday Nov. 9	8:00 AM	229	Advances in Zeolite Science and Technology II - Applications and Explorations in New Catalysis (Invited Talks)*	Hynes CC	208
Tuesday Nov. 9	8:00 AM	257	Hydrocarbon Conversion: C1 Aromatization and Coupling	Hynes CC	205
Tuesday Nov. 9	8:00 AM	261	In Honor of the 2020 CRE Young Investigator Award Winner (Invited Talks)	Hynes CC	210
Tuesday Nov. 9	8:00 AM	262	Microreaction Engineering	Hynes CC	207
Tuesday Nov. 9	8:00 AM	265	New Developments in Computational Catalysis I: Method Accuracy and Kinetic Modeling	Hynes CC	206
Tuesday Nov. 9	8:00 AM	275	Topical Plenary: Topical Conference in Molecular and Materials Data Science (Invited Talks)*	Marriott	Salon H/I
Tuesday Nov. 9	12:30 PM	290	Applications of Data Science in Catalysis and Reaction Engineering II*	Marriott	Salon H/I
Tuesday Nov. 9	12:30 PM	296	Catalysis on Low Dimensional Materials II	Hynes CC	203
Tuesday Nov. 9	12:30 PM	314	Hydrocarbon Conversion: Catalytic Pathways	Hynes CC	205
Tuesday Nov. 9	12:30 PM	316	In Honor of Johannes Schwank's 70th Birthday (Invited Talks)	Hynes CC	210
Tuesday Nov. 9	12:30 PM	323	New Developments in Computational Catalysis II: Active Sites in Complex Materials	Hynes CC	206
Tuesday Nov. 9	12:30 PM	329	Reaction Chemistry and Engineering I	Hynes CC	207

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 9	3:30 PM	349	Poster Session: Advances in Zeolite Science and Technology*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	378	Hydrocarbon Conversion: Light Alkane Dehydrogenation and Aromatization	Hynes CC	205
Tuesday Nov. 9	3:30 PM	387	New Developments in Computational Catalysis III: Structure-Property Relationships	Hynes CC	206
Tuesday Nov. 9	3:30 PM	395	Reaction Chemistry and Engineering II	Hynes CC	207
Tuesday Nov. 9	3:30 PM	400	Technology Transfer and Industrial-Academic Interfaces	Hynes CC	203
Tuesday Nov. 9	3:30 PM	763	Panel: Next Generation on CRE (Invited Talks)	Hynes CC	208
Wednesday Nov. 10	8:00 AM	411	Catalyst Design, Synthesis, and Characterization I - Characterization and Spectroscopic Studies	Hynes CC	205
Wednesday Nov. 10	8:00 AM	433	Modeling and Analysis of Chemical Reactors I	Hynes CC	206
Wednesday Nov. 10	8:00 AM	437	Nitrogen Chemistry I: Nitrate Reduction	Hynes CC	203
Wednesday Nov. 10	8:00 AM	446	Reaction Engineering in Pharmaceuticals and Fine Chemicals	Hynes CC	207
Wednesday Nov. 10	12:30 PM	468	Catalyst Design, Synthesis, and Characterization II - Atomically Dispersed Catalysts	Hynes CC	205
Wednesday Nov. 10	12:30 PM	481	Fundamentals of Catalysis and Surface Science I: Single Atoms & Alloys	Hynes CC	207
Wednesday Nov. 10	12:30 PM	491	Modeling and Analysis of Chemical Reactors II	Hynes CC	206
Wednesday Nov. 10	12:30 PM	495	Nitrogen Chemistry II: N ₂ Reduction	Hynes CC	203
Wednesday Nov. 10	3:30 PM	509	Poster Session: Catalysis and Reaction Engineering (CRE) Division	Hynes CC	Exhibit Hall C/D
Thursday Nov. 11	8:00 AM	564	Catalyst Design, Synthesis, and Characterization III - Structure/Activity relationships studies	Hynes CC	205
Thursday Nov. 11	8:00 AM	570	Environmental and Automotive Catalysis I: Passive NOx Adsorber and NOx Reduction	Hynes CC	203
Thursday Nov. 11	8:00 AM	574	Fundamentals of Catalysis and Surface Science II: Metals	Hynes CC	207
Thursday Nov. 11	8:00 AM	576	In Honor of the 2018 William H. Walker Award Winner I (Invited Talks)	Hynes CC	210
Thursday Nov. 11	8:00 AM	580	Microporous and Mesoporous Materials I: Synthesis-Structure-Function Relations	Hynes CC	208
Thursday Nov. 11	8:00 AM	583	Multi-Scale Modeling	Hynes CC	206
Thursday Nov. 11	12:30 PM	597	Catalysis in Liquid Media I	Hynes CC	203
Thursday Nov. 11	12:30 PM	598	Catalyst Design, Synthesis, and Characterization IV - Structure/Activity relationships studies II	Hynes CC	205
Thursday Nov. 11	12:30 PM	599	Chemical and Catalytic Conversions and Processes for Renewable Feedstocks *	Hynes CC	312

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2021 TECHNICAL PROGRAM GRID

Thursday Nov. 11	12:30 PM	602	Fundamentals of Catalysis and Surface Science III: Metal Oxides	Hynes CC	207
Thursday Nov. 11	12:30 PM	603	In Honor of the 2018 William H. Walker Award Winner II (Invited Talks)	Hynes CC	210
Thursday Nov. 11	12:30 PM	608	Microporous and Mesoporous Materials II: Hydrocarbon Catalysis	Hynes CC	208
Thursday Nov. 11	12:30 PM	616	Reaction Path Analysis I	Hynes CC	206
Thursday Nov. 11	3:30 PM	630	Catalysis in Liquid Media II	Hynes CC	203
Thursday Nov. 11	3:30 PM	631	Catalyst Design, Synthesis, and Characterization V - Structure/Activity relationship studies III	Hynes CC	205
Thursday Nov. 11	3:30 PM	632	Chemical and Catalytic Conversions and Processes for Renewable Feedstocks II*	Hynes CC	312
Thursday Nov. 11	3:30 PM	638	Fundamentals of Catalysis and Surface Science IV: Catalytic Mechanisms & Kinetics	Hynes CC	207
Thursday Nov. 11	3:30 PM	639	In Honor of the 2018 William H. Walker Award Winner III (Invited Talks)	Hynes CC	210
Thursday Nov. 11	3:30 PM	641	Microporous and Mesoporous Materials III: Reaction Pathways and Effects Beyond the Binding Site	Hynes CC	208
Thursday Nov. 11	3:30 PM	645	Reaction Path Analysis II	Hynes CC	206
Monday Nov. 15	8:00 AM	650	CO ₂ Upgrading: Electrochemical Conversion, Hydrogenation, and Thermal Upgrading (Virtual)	Virtual	Catalysis and Reaction Engineering Division (20)
Monday Nov. 15	8:00 AM	785	Hydrocarbon Conversion I (Virtual)	Virtual	Catalysis and Reaction Engineering Division (20)
Monday Nov. 15	10:30 AM	661	Poster Session: Catalysis and Reaction Engineering (CRE) Division - Virtual	Virtual	Posters
Monday Nov. 15	12:30 PM	673	Hydrocarbon Conversion II (Virtual)	Virtual	Catalysis and Reaction Engineering Division (20)
Monday Nov. 15	3:30 PM	683	Fundamentals of Catalysis and Surface Science: Virtual	Virtual	Catalysis and Reaction Engineering Division (20)
Monday Nov. 15	3:30 PM	786	Electrochemical CO ₂ Conversion (Virtual)	Virtual	Catalysis and Reaction Engineering Division (20)
Tuesday Nov. 16	8:00 AM	691	Environmental and Automotive Catalysis II: Pollutant Control	Virtual	Catalysis and Reaction Engineering Division (20)
Tuesday Nov. 16	8:00 AM	787	Catalysis on Low Dimensional Materials (Virtual)	Virtual	Catalysis and Reaction Engineering Division (20)
Tuesday Nov. 16	12:30 PM	702	In Memory of Arvind Varma (Invited Talks)	Virtual	Catalysis and Reaction Engineering Division (20)
Tuesday Nov. 16	3:30 PM	788	Electrocatalysis and Photoelectrocatalysis (Virtual)	Virtual	Catalysis and Reaction Engineering Division (20)
Wednesday Nov. 17	8:00 AM	717	Combustion Kinetics and Emissions	Virtual	Catalysis and Reaction Engineering Division (20)
Wednesday Nov. 17	12:30 PM	731	Reaction Engineering for Combustion and Pyrolysis	Virtual	Catalysis and Reaction Engineering Division (20)

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2021 TECHNICAL PROGRAM GRID

Wednesday Nov. 17	3:30 PM	735	Catalysis in Liquid Media III (Virtual)	Virtual	Catalysis and Reaction Engineering Division (20)
Wednesday Nov. 17	3:30 PM	792	Reaction Path Analysis (Virtual)	Virtual	Catalysis and Reaction Engineering Division (20)
Thursday Nov. 18	8:00 AM	789	Biomass and Waste Plastics Upgrading (Virtual)	Virtual	Catalysis and Reaction Engineering Division (20)
Thursday Nov. 18	12:30 PM	790	Catalyst Design, Synthesis, and Characterization (Virtual)	Virtual	Catalysis and Reaction Engineering Division (20)
Thursday Nov. 18	3:30 PM	793	Reaction Engineering Virtual Session II	Virtual	Catalysis and Reaction Engineering Division (20)

20C - Advances in Zeolite Science and Technology

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	77	In Honor of the 2019 R.H. Wilhelm Award Winner I (Invited Talks)*	Hynes CC	210
Monday Nov. 8	12:30 PM	107	Advances in Zeolite Science and Technology I - Synthesis and Characterization (Invited Talks)	Hynes CC	208
Monday Nov. 8	12:30 PM	134	In Honor of the 2019 R.H. Wilhelm Award Winner II (Invited Talks)*	Hynes CC	210
Tuesday Nov. 9	8:00 AM	229	Advances in Zeolite Science and Technology II - Applications and Explorations in New Catalysis (Invited Talks)	Hynes CC	208
Tuesday Nov. 9	8:00 AM	261	In Honor of the 2020 CRE Young Investigator Award Winner (Invited Talks)*	Hynes CC	210
Tuesday Nov. 9	12:30 PM	316	In Honor of Johannes Schwank's 70th Birthday (Invited Talks)*	Hynes CC	210
Tuesday Nov. 9	3:30 PM	349	Poster Session: Advances in Zeolite Science and Technology	Hynes CC	Exhibit Hall C/D
Wednesday Nov. 10	12:30 PM	461	Advances in Zeolite Science and Technology III - New Horizons (Invited Talks)	Hynes CC	208
Thursday Nov. 11	8:00 AM	576	In Honor of the 2018 William H. Walker Award Winner I (Invited Talks)*	Hynes CC	210
Thursday Nov. 11	12:30 PM	603	In Honor of the 2018 William H. Walker Award Winner II (Invited Talks)*	Hynes CC	210
Thursday Nov. 11	3:30 PM	639	In Honor of the 2018 William H. Walker Award Winner III (Invited Talks)*	Hynes CC	210
Tuesday Nov. 16	12:30 PM	699	Breakthroughs in C1 to Chemicals and Processing Engineering*	Virtual	Green Process and Product Engineering
Tuesday Nov. 16	12:30 PM	702	In Memory of Arvind Varma (Invited Talks)*	Virtual	Catalysis and Reaction Engineering Division (20)
Wednesday Nov. 17	12:30 PM	795	Advances in Zeolite Science and Technology IV (Virtual)	Virtual	Catalysis and Reaction Engineering Division (20)

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2021 TECHNICAL PROGRAM GRID

21 - Computational Molecular Science and Engineering Forum					
Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	8	Applications of Data Science in Catalysis and Reaction Engineering I*	Marriott	Salon H/I
Sunday Nov. 7	3:30 PM	35	Rational Design and Optimization of Soft Materials*	Marriott	Salon A/B
Sunday Nov. 7	3:30 PM	39	Software Engineering in and for the Molecular Sciences	Marriott	Salon J/K
Monday Nov. 8	8:00 AM	47	Advanced batteries I*	Hynes CC	306
Monday Nov. 8	8:00 AM	51	Applications of Data Science in Molecular Sciences I*	Marriott	Salon H/I
Monday Nov. 8	8:00 AM	86	Spotlights in Thermodynamics and Computational Molecular Science (Invited Talks)	Marriott	Salon J/K
Monday Nov. 8	12:30 PM	108	Applications of Data Science to High Throughput Experimentation*	Marriott	Salon H/I
Monday Nov. 8	12:30 PM	118	Data-Driven Design and Modeling I	Marriott	Salon J/K
Monday Nov. 8	12:30 PM	127	Faculty Candidates in CoMSEF/Area 1a, Session 1*	Marriott	Salon A/B
Monday Nov. 8	12:30 PM	145	Plasma catalysis*	Hynes CC	306
Monday Nov. 8	3:30 PM	186	Data-Driven Design and Modeling II	Marriott	Salon J/K
Monday Nov. 8	3:30 PM	192	Faculty Candidates in CoMSEF/Area 1a, Session 2*	Marriott	Salon A/B
Monday Nov. 8	3:30 PM	203	Innovations in Methods of Data Science*	Marriott	Salon H/I
Monday Nov. 8	3:30 PM	209	Perovskites, spinels, energy conversion, modeling of these systems*	Hynes CC	306
Tuesday Nov. 9	8:00 AM	256	Hybrid systems, halide perovskites, molecular modeling*	Hynes CC	306
Tuesday Nov. 9	8:00 AM	264	Nanoscale Behavior of Sustainable Processes	Marriott	Salon J/K
Tuesday Nov. 9	8:00 AM	274	Special Session In Honor of Arup Chakraborty's 60th Birthday: Statistical Mechanics and Molecular/Materials Modeling*	Marriott	Salon C/D
Tuesday Nov. 9	8:00 AM	275	Topical Plenary: Topical Conference in Molecular and Materials Data Science (Invited Talks)*	Marriott	Salon H/I
Tuesday Nov. 9	12:30 PM	290	Applications of Data Science in Catalysis and Reaction Engineering II*	Marriott	Salon H/I
Tuesday Nov. 9	12:30 PM	330	Recent Advances in Multiscale Methodologies	Marriott	Salon J/K
Tuesday Nov. 9	12:30 PM	332	Soft systems, molecular simulation, sustainability*	Hynes CC	306
Tuesday Nov. 9	12:30 PM	333	Special Session In Honor of Arup Chakraborty's 60th Birthday: Biology and Immunology*	Marriott	Salon C/D

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 9	3:30 PM	342	CoMSEF Poster Session	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	358	Advanced batteries II*	Hynes CC	306
Tuesday Nov. 9	3:30 PM	364	Applications of Data Science in Molecular Sciences II*	Marriott	Salon H/I
Tuesday Nov. 9	3:30 PM	582	Molecular and Data Science Modeling of Adsorption I*	Hynes CC	110
Wednesday Nov. 10	8:00 AM	442	Practical Applications of Computational Chemistry and Molecular Simulation I	Marriott	Salon J/K
Wednesday Nov. 10	8:00 AM	449	Teaching Data Science to Students and Teachers I*	Hynes CC	306
Wednesday Nov. 10	12:30 PM	501	Practical Applications of Computational Chemistry and Molecular Simulation II	Marriott	Salon J/K
Wednesday Nov. 10	12:30 PM	506	Teaching Data Science to Students and Teachers II*	Hynes CC	306
Wednesday Nov. 10	3:30 PM	525	Computational Studies of Early-Stage and Low-Dimensional Self-Assembly*	Marriott	Salon H/I
Wednesday Nov. 10	3:30 PM	539	Molecular Simulations for Designing Adsorbents and Adsorption Processes I*	Hynes CC	305
Wednesday Nov. 10	3:30 PM	543	Plenary Session: Computational Molecular Science and Engineering Forum (Invited only)	Marriott	Salon J/K
Thursday Nov. 11	8:00 AM	588	Recent Advances in Molecular Simulation Methods	Marriott	Salon J/K
Thursday Nov. 11	12:30 PM	594	Applications of Molecular Modeling to Study Interfacial Phenomena I	Marriott	Salon J/K
Thursday Nov. 11	3:30 PM	627	Applications of Molecular Modeling to Study Interfacial Phenomena II	Marriott	Salon J/K
Thursday Nov. 11	3:30 PM	637	Development of Intermolecular Potential Models*	Marriott	Salon H/I
Monday Nov. 15	8:00 AM	549	Teaching Data Science to Students and Teachers III*	Virtual	Bridging the Skills Gap in Chemical Engineering (T4)
Monday Nov. 15	10:30 AM	656	CoMSEF Poster Session - Virtual	Virtual	Posters
Monday Nov. 15	12:30 PM	675	Molecular and Data Science Modeling of Adsorption II*	Virtual	Separations Division (02)
Monday Nov. 15	3:30 PM	684	Molecular Simulations for Designing Adsorbents and Adsorption Processes II*	Virtual	Separations Division (02)
Tuesday Nov. 16	8:00 AM	774	Recent Advances and Applications of Molecular Modeling Virtual	Virtual	Computational Molecular Science and Engineering Forum (21)
Tuesday Nov. 16	12:30 PM	775	Practical Applications of Molecular Simulation Virtual	Virtual	Computational Molecular Science and Engineering Forum (21)
Tuesday Nov. 16	3:30 PM	707	Data-Driven Design and Modeling Virtual	Virtual	Computational Molecular Science and Engineering Forum (21)
Thursday Nov. 18	8:00 AM	148	Practical Application of Process Data Analytics and Machine Learning (Invited Talks)*	Virtual	Bridging the Skills Gap in Chemical Engineering (T4)

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2021 TECHNICAL PROGRAM GRID

22 - Nanoscale Science and Engineering Forum

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	71	Environmental Sensors and Monitoring*	Hynes CC	200
Monday Nov. 8	8:00 AM	79	Nanoscale Science and Engineering Forum Division Plenary	Marriott	Wellesley
Monday Nov. 8	8:00 AM	80	Nanostructured Materials for Environmental Applications*	Sheraton	Hampton
Monday Nov. 8	12:30 PM	141	Nanostructured Materials for Pharmaceutical Applications*	Sheraton	Hampton
Monday Nov. 8	12:30 PM	150	Student Competition in Sensors (Sponsored)*	Hynes CC	200
Monday Nov. 8	3:30 PM	169	Poster Session: Nanoscale Science and Engineering	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	8:00 AM	264	Nanoscale Behavior of Sustainable Processes*	Marriott	Salon J/K
Tuesday Nov. 9	12:30 PM	299	Computational Approaches for Studies at the Nanoscale	Marriott	Wellesley
Tuesday Nov. 9	12:30 PM	336	Topical Plenary: Process Analytical Technology: Sensor Applications in Process Development (Invited Talks)*	Hynes CC	200
Tuesday Nov. 9	3:30 PM	386	Nanoscale Materials-Novel Synthesis Methods and Catalytic Applications	Marriott	Wellesley
Thursday Nov. 18	12:30 PM	26	Microfluidic and Millifluidic Techniques to Study Nanoscale Materials	Virtual	Nanoscale Science and Engineering Forum (22)

22A - Carbon Nanomaterials

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	12:30 PM	114	Carbon Nanomaterials: Graduate Student Award Session	Marriott	Wellesley
Tuesday Nov. 9	8:00 AM	236	Carbon Nanomaterials: Dispersion, Surface Structure, and Biointeractions	Marriott	Wellesley
Wednesday Nov. 10	8:00 AM	410	Carbon Nanomaterials: Adsorption, Separations, and Transport Processes	Marriott	Wellesley
Monday Nov. 15	3:30 PM	680	Carbon Nanomaterials: Synthesis, Functionalization, Assembly, and Applications I	Virtual	Nanoscale Science and Engineering Forum (22)
Tuesday Nov. 16	8:00 AM	688	Carbon Nanomaterials: Synthesis, Functionalization, Assembly, and Applications II	Virtual	Nanoscale Science and Engineering Forum (22)

22B - Bionanotechnology

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	28	Nanobiotechnology for Sensors and Imaging	Marriott	Simmons
Monday Nov. 8	3:30 PM	210	Point-of-Need Sensor Applications*	Hynes CC	200

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 9	8:00 AM	232	Area Plenary: Bionanotechnology (Invited Talks)	Marriott	Simmons
Tuesday Nov. 9	12:30 PM	295	Biomimetic Structures and Biomolecular Self-Assembly	Marriott	Simmons
Wednesday Nov. 10	8:00 AM	409	Bionanotechnology for Drug Delivery	Marriott	Simmons
Wednesday Nov. 10	12:30 PM	467	Bionanotechnology Graduate Student Award Session I	Marriott	Simmons
Wednesday Nov. 10	3:30 PM	521	Bionanotechnology Graduate Student Award Session II	Marriott	Simmons
Monday Nov. 15	12:30 PM	676	Nanomaterial interactions with cells and biological barriers	Virtual	Nanoscale Science and Engineering Forum (22)

22C - Nanomaterials for Energy Applications

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	80	Nanostructured Materials for Environmental Applications*	Sheraton	Hampton
Monday Nov. 8	12:30 PM	140	Nanomaterials for Energy Storage and Conversion 1	Marriott	Simmons
Tuesday Nov. 9	3:30 PM	704	Nanomaterials for Energy Storage and Conversion 3	Marriott	Simmons
Tuesday Nov. 16	12:30 PM	385	Nanomaterials for Energy Storage and Conversion 2	Virtual	Nanoscale Science and Engineering Forum (22)
Tuesday Nov. 16	3:30 PM	712	Nanomaterials for Energy Storage and Conversion 4	Virtual	Nanoscale Science and Engineering Forum (22)

23 - Sustainable Engineering Forum

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Monday Nov. 8	8:00 AM	50	Advances in Lignin Degradation Strategies*	Marriott	Exeter
Monday Nov. 8	8:00 AM	68	Electrochemistry for Applications in Sustainability*	Sheraton	Commonwealth
Monday Nov. 8	12:30 PM	126	Environmental Division Awards and Honors (Invited Talks)*	Hynes CC	309
Monday Nov. 8	3:30 PM	209	Perovskites, spinels, energy conversion, modeling of these systems*	Hynes CC	306
Tuesday Nov. 9	8:00 AM	256	Hybrid systems, halide perovskites, molecular modeling*	Hynes CC	306
Tuesday Nov. 9	8:00 AM	264	Nanoscale Behavior of Sustainable Processes*	Marriott	Salon J/K
Tuesday Nov. 9	3:30 PM	358	Advanced batteries II*	Hynes CC	306
Tuesday Nov. 9	3:30 PM	391	Plenary Session: Waste Plastics (Invited Talks)*	Hynes CC	200

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2021 TECHNICAL PROGRAM GRID

Wednesday Nov. 10	8:00 AM	407	Advanced Biomass Conversion Technologies *	Marriott	Provincetown
Wednesday Nov. 10	8:00 AM	436	Next-Gen Manufacturing for Resilience and Sustainability*	Hynes CC	202
Wednesday Nov. 10	8:00 AM	437	Nitrogen Chemistry I: Nitrate Reduction*	Hynes CC	203
Wednesday Nov. 10	8:00 AM	444	Process Intensification in Biorefineries*	Marriott	Exeter
Wednesday Nov. 10	8:00 AM	448	Sustainable Engineering Forum Plenary (Invited Talks)	Hynes CC	312
Wednesday Nov. 10	12:30 PM	458	Advanced Separations Processes in Bioprocessing and Biomaterials*	Marriott	Provincetown
Wednesday Nov. 10	12:30 PM	465	Biodegradable Polymers from Forest Resources - Sustainable Biomaterials*	Marriott	Exeter
Monday Nov. 15	10:30 AM	667	Poster Session: Sustainable Engineering Forum - Virtual	Virtual	Posters
Tuesday Nov. 16	3:30 PM	709	Integrated Process Engineering and Economic Analysis*	Virtual	Green Process and Product Engineering
Wednesday Nov. 17	12:30 PM	727	Conversion of Solid Wastes to Energy and/or Products*	Virtual	Green Process and Product Engineering
Wednesday Nov. 17	3:30 PM	736	Chemical Looping Processes*	Virtual	Green Process and Product Engineering
Thursday Nov. 18	3:30 PM	152	Sustainable Materials from Lignocellulosic Resources for Industrial Applications*	Virtual	Forest and Plant Bioproducts Division (17)
Friday Nov. 19	8:00 AM	306	Division Plenary: Valorization of Waste plastics including Ocean Plastics along with Agro-residues/Forestry waste for Sustainable Biocomposites (Invited Talks)*	Virtual	Forest and Plant Bioproducts Division (17)

23A - Sustainability Science and Engineering

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Monday Nov. 8	8:00 AM	49	Advances in Life Cycle Assessment	Hynes CC	311
Monday Nov. 8	8:00 AM	68	Electrochemistry for Applications in Sustainability*	Sheraton	Commonwealth
Monday Nov. 8	12:30 PM	120	Design for a Circular Economy-I	Hynes CC	311
Monday Nov. 8	3:30 PM	198	Green Chemistry and Engineering-I	Hynes CC	311
Tuesday Nov. 9	8:00 AM	264	Nanoscale Behavior of Sustainable Processes*	Marriott	Salon J/K
Tuesday Nov. 9	8:00 AM	269	Process Design: Innovation for Sustainability	Hynes CC	311
Tuesday Nov. 9	12:30 PM	334	The Food-Energy-Water Nexus	Hynes CC	311

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2021 TECHNICAL PROGRAM GRID

Wednesday Nov. 10	8:00 AM	436	Next-Gen Manufacturing for Resilience and Sustainability*	Hynes CC	202
Wednesday Nov. 10	8:00 AM	447	Recycling and Upcycling of Plastic Waste*	Hynes CC	200
Wednesday Nov. 10	3:30 PM	544	Process Design in Energy and Sustainability*	Sheraton	Back Bay Ballroom C
Thursday Nov. 11	12:30 PM	620	Sustainability and Consumer Products	Hynes CC	311
Thursday Nov. 11	3:30 PM	646	Sustainable Management and Uses of Post-Consumer Materials and Waste	Hynes CC	311
Tuesday Nov. 16	8:00 AM	502	Resilient and Sustainable Supply Chains and Product Systems	Virtual	Sustainable Engineering Forum (23)
Thursday Nov. 18	12:30 PM	749	Big Data and Analytics for Sustainability	Virtual	Sustainable Engineering Forum (23)
Friday Nov. 19	8:00 AM	566	Climate Change and Engineering Sustainability	Virtual	Sustainable Engineering Forum (23)

23B - Sustainable Biorefineries

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Sunday Nov. 7	3:30 PM	23	Life Cycle Analysis of Bio-Based Fuels, Energy, and Chemicals	Hynes CC	311
Sunday Nov. 7	3:30 PM	36	Reactor Engineering for Biomass Feedstocks	Hynes CC	312
Monday Nov. 8	8:00 AM	85	Reactor Engineering for Biomass Feedstocks II	Hynes CC	312
Monday Nov. 8	12:30 PM	151	Sustainable Biorefineries Plenary Session (Invited Talks)	Hynes CC	312
Tuesday Nov. 9	8:00 AM	264	Nanoscale Behavior of Sustainable Processes*	Marriott	Salon J/K
Tuesday Nov. 9	3:30 PM	365	Biofuels Production: Design, Simulation, and Economic Analysis	Hynes CC	311
Wednesday Nov. 10	8:00 AM	444	Process Intensification in Biorefineries*	Marriott	Exeter
Wednesday Nov. 10	8:00 AM	445	Properties and Phase Equilibria for Fuels and Petrochemicals*	Marriott	Fairfield
Wednesday Nov. 10	3:30 PM	513	Poster Session: Sustainability and Sustainable Biorefineries	Hynes CC	Exhibit Hall C/D
Thursday Nov. 11	8:00 AM	561	Biological Conversions and Processes for Renewable Feedstocks	Hynes CC	312
Thursday Nov. 11	12:30 PM	599	Chemical and Catalytic Conversions and Processes for Renewable Feedstocks	Hynes CC	312
Thursday Nov. 11	3:30 PM	632	Chemical and Catalytic Conversions and Processes for Renewable Feedstocks II	Hynes CC	312

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2021 TECHNICAL PROGRAM GRID

Monday Nov. 15	12:30 PM	251	Feedstock Conversion Interface Consortium – Understanding Feedstock Variability to Enable Next Generation Biorefineries (Invited Talks)	Virtual	Sustainable Engineering Forum (23)
Monday Nov. 16	3:30 PM	309	Feedstock Conversion Interface Consortium – Understanding Feedstock Variability to Enable Next Generation Biorefineries II (Invited Talks)	Virtual	Sustainable Engineering Forum (23)
Tuesday Nov. 17	3:30 PM	193	Feedstock Logistics for Biorefineries	Virtual	Sustainable Engineering Forum (23)
Thursday Nov. 18	3:30 PM	760	Value-Added Biorefinery Co-Products	Virtual	Sustainable Engineering Forum (23)
Friday Nov. 19	8:00 AM	306	Division Plenary: Valorization of Waste plastics including Ocean Plastics along with Agro-residues/Forestry waste for Sustainable Biocomposites (Invited Talks)*	Virtual	Forest and Plant Bioproducts Division (17)
Friday Nov. 19	12:30 PM	359	Advances in Algae Cultivation, Conversion and Products	Virtual	Sustainable Engineering Forum (23)

23C - Sustainable Energy

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Sunday Nov. 7	3:30 PM	14	Distributed Chemical and Energy Processes for Sustainability	Hynes CC	313
Monday Nov. 8	8:00 AM	47	Advanced batteries I*	Hynes CC	306
Monday Nov. 8	8:00 AM	59	Design, Analysis, and Optimization of Sustainable Energy Systems and Supply Chains	Hynes CC	313
Monday Nov. 8	8:00 AM	68	Electrochemistry for Applications in Sustainability*	Sheraton	Commonwealth
Monday Nov. 8	12:30 PM	119	Design, Analysis, and Optimization of Sustainable Energy Systems and Supply Chains II	Hynes CC	313
Monday Nov. 8	12:30 PM	145	Plasma catalysis*	Hynes CC	306
Monday Nov. 8	3:30 PM	187	Design, Analysis, and Optimization of Sustainable Energy Systems and Supply Chains III	Hynes CC	313
Tuesday Nov. 9	8:00 AM	242	Concentrated Solar Power Generation and Chemical Processing I	Hynes CC	313
Tuesday Nov. 9	8:00 AM	248	Developments in Shale Gas and Natural Gas*	Marriott	Fairfield
Tuesday Nov. 9	8:00 AM	264	Nanoscale Behavior of Sustainable Processes*	Marriott	Salon J/K
Tuesday Nov. 9	12:30 PM	300	Concentrated Solar Power Generation and Chemical Processing II	Hynes CC	313
Tuesday Nov. 9	3:30 PM	374	Fuel and Energy Decarbonization	Hynes CC	305
Wednesday Nov. 10	8:00 AM	445	Properties and Phase Equilibria for Fuels and Petrochemicals*	Marriott	Fairfield

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2021 TECHNICAL PROGRAM GRID

Wednesday Nov. 10	12:30 PM	473	Conversion of Waste Plastic into Liquid Fuels*	Hynes CC	200
Wednesday Nov. 10	12:30 PM	499	Policy and Sustainability	Hynes CC	313
Wednesday Nov. 10	12:30 PM	504	Sustainable Energy: Generation and Storage	Hynes CC	310
Thursday Nov. 11	3:30 PM	634	CO ₂ Capture for Power Generation	Hynes CC	313
Monday Nov. 15	12:30 PM	674	Materials and Processes for Thermo-, Electro- and Photo-Chemical Energy Storage*	Virtual	Green Process and Product Engineering
Tuesday Nov. 16	12:30 PM	459	Advances in Clean Energy R&D (Invited Talks)	Virtual	Sustainable Engineering Forum (23)
Wednesday Nov. 17	8:00 AM	722	Novel Approaches to CO ₂ Utilization I	Virtual	Sustainable Engineering Forum (23)
Wednesday Nov. 17	12:30 PM	730	Novel Approaches to CO ₂ Utilization II	Virtual	Sustainable Engineering Forum (23)
Wednesday Nov. 17	3:30 PM	737	Concentrated Solar Power Generation and Chemical Processing III	Virtual	Sustainable Engineering Forum (23)
Thursday Nov. 18	8:00 AM	743	Engineering Geologic Carbon Dioxide Storage Systems	Virtual	Sustainable Engineering Forum (23)

24 - Chemical Engineering & the Law Forum

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Wednesday Nov. 10	12:30 PM	499	Policy and Sustainability*	Hynes CC	313
Wednesday Nov. 17	12:30 PM	204	Intellectual Property for Practicing Engineers: Patents and Trade Secrets	Virtual	Chemical Engineering & the Law Forum (24)

25 - Upstream Engineering and Flow Assurance Forum

Day	Time	Session #	Session Title	Property	Room
Tuesday Nov. 9	8:00 AM	248	Developments in Shale Gas and Natural Gas*	Marriott	Fairfield
Wednesday Nov. 10	8:00 AM	445	Properties and Phase Equilibria for Fuels and Petrochemicals*	Marriott	Fairfield
Monday Nov. 15	8:00 AM	651	Flow Assurance and Asset Integrity	Virtual	Upstream Engineering and Flow Assurance Forum (25)
Monday Nov. 15	12:30 PM	672	Fundamentals and Applications of Flow Assurance	Virtual	Upstream Engineering and Flow Assurance Forum (25)
Monday Nov. 15	3:30 PM	685	Phase Behavior and Flow of Reservoir Fluids	Virtual	Upstream Engineering and Flow Assurance Forum (25)

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2021 TECHNICAL PROGRAM GRID

26 - Pharmaceutical Discovery, Development and Manufacturing Forum

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	8	Applications of Data Science in Catalysis and Reaction Engineering I*	Marriott	Salon H/I
Sunday Nov. 7	3:30 PM	21	Industry 4.0, Digital Twins, and Digital Transformation I*	Hynes CC	201
Monday Nov. 8	8:00 AM	75	Industry 4.0, Digital Twins, and Digital Transformation II*	Hynes CC	201
Monday Nov. 8	8:00 AM	84	Predictive Scale-Up/Scale-Down for Production of Pharmaceuticals and Biopharmaceuticals	Hynes CC	101
Monday Nov. 8	12:30 PM	108	Applications of Data Science to High Throughput Experimentation*	Marriott	Salon H/I
Monday Nov. 8	12:30 PM	117	Continuous Drug Substance – Integrated Processes - Session 2	Hynes CC	102
Monday Nov. 8	3:30 PM	171	Poster Session: Pharmaceutical Discovery Development and Manufacturing (PD2M)	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	175	Advances in Drug Discovery Processes (including HTE)	Hynes CC	101
Monday Nov. 8	3:30 PM	179	Biological Catalysis and Enzymatic Catalysis*	Hynes CC	208
Monday Nov. 8	3:30 PM	185	Continuous Drug Product	Hynes CC	102
Monday Nov. 8	3:30 PM	205	Modeling and Control of Crystallization*	Hynes CC	302
Tuesday Nov. 9	8:00 AM	243	Control Strategies in Pharmaceutical Development and Manufacturing I	Hynes CC	101
Tuesday Nov. 9	8:00 AM	275	Topical Plenary: Topical Conference in Molecular and Materials Data Science (Invited Talks)*	Marriott	Salon H/I
Tuesday Nov. 9	12:30 PM	290	Applications of Data Science in Catalysis and Reaction Engineering II*	Marriott	Salon H/I
Tuesday Nov. 9	12:30 PM	301	Control Strategies in Pharmaceutical Development and Manufacturing II	Hynes CC	101
Tuesday Nov. 9	12:30 PM	302	Crystallization of Pharmaceutical and Biological Molecules*	Hynes CC	302
Tuesday Nov. 9	12:30 PM	308	Enabling Technologies Relevant to Drug Substance and Drug Product II	Hynes CC	102
Tuesday Nov. 9	12:30 PM	325	Particle Breakage and Comminution Processes*	Sheraton	Fairfax A/B
Tuesday Nov. 9	12:30 PM	329	Reaction Chemistry and Engineering I*	Hynes CC	207
Tuesday Nov. 9	12:30 PM	336	Topical Plenary: Process Analytical Technology: Sensor Applications in Process Development (Invited Talks)*	Hynes CC	200
Tuesday Nov. 9	1:00 PM	340	Meet the Industry Candidates Poster Session: Pharmaceutical Discovery, Development and Manufacturing Forum*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	360	Advances in New Modalities (Large Molecule, Oligos, Peptides, ADCs, Gene therapy, etc.) Product and Process Development (includes invited talks)	Hynes CC	101

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2021 TECHNICAL PROGRAM GRID

TECHNICAL PROGRAM GRID

Tuesday Nov. 9	3:30 PM	369	Division Plenary: Food, Pharmaceutical, and Bioengineering Division (Invited Talks)*	Hynes CC	109
Tuesday Nov. 9	3:30 PM	372	Enabling Technologies Relevant to Drug Substance and Drug Product III	Hynes CC	102
Tuesday Nov. 9	3:30 PM	395	Reaction Chemistry and Engineering II*	Hynes CC	207
Wednesday Nov. 10	8:00 AM	429	Industrial Internet of Things (IIoT), Smart and Soft Sensors in Process Manufacturing and Beyond*	Hynes CC	201
Wednesday Nov. 10	8:00 AM	438	Nucleation and Growth*	Hynes CC	302
Wednesday Nov. 10	8:00 AM	439	Particle Agglomeration and Granulation Processes *	Sheraton	Fairfax A/B
Wednesday Nov. 10	8:00 AM	441	Pharmaceutical Discovery, Development, and Manufacturing Forum Awards Ceremony	Hynes CC	102
Wednesday Nov. 10	8:00 AM	446	Reaction Engineering in Pharmaceuticals and Fine Chemicals*	Hynes CC	207
Wednesday Nov. 10	12:30 PM	463	Applied Formulation Design	Hynes CC	102
Wednesday Nov. 10	12:30 PM	472	Continuous Crystallization Processes*	Hynes CC	302
Wednesday Nov. 10	12:30 PM	486	Integrated Design of Drug Product Formulation, Manufacture and Delivery	Hynes CC	101
Wednesday Nov. 10	12:30 PM	494	Next-Gen Manufacturing in Pharma, Food, and Bioprocessing I*	Hynes CC	202
Wednesday Nov. 10	3:30 PM	524	Computational Solid State Pharmaceuticals	Hynes CC	102
Wednesday Nov. 10	3:30 PM	532	Integrated Design of Drug Substance and Drug Product Manufacture	Hynes CC	101
Wednesday Nov. 10	3:30 PM	541	Next-Gen Manufacturing in Pharma, Food, and Bioprocessing II*	Hynes CC	202
Wednesday Nov. 10	3:30 PM	542	Particle Formation and Crystallization Processes from Liquids, Slurries, and Emulsions*	Hynes CC	302
Thursday Nov. 11	8:00 AM	568	Crystallization Process Development*	Hynes CC	302
Thursday Nov. 11	8:00 AM	572	Formulation for Drug Delivery	Hynes CC	101
Thursday Nov. 11	8:00 AM	584	Pharma 4.0 (Advanced Controls, Process Automation, Data Analytics, etc.) in Drug Substance and Drug Product	Hynes CC	102
Thursday Nov. 11	12:30 PM	617	Solid Form Selection: Cocrystals, Salts, Solvates, Polymorphs, and Beyond*	Hynes CC	302
Monday Nov. 15	8:00 AM	58	Continuous Drug Substance – Single Unit Operations - Session 1	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
Tuesday Nov. 16	8:00 AM	693	PD2M Panel Discussion (Invited Talks)	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 16	10:30 AM	666	Poster Session: Pharmaceutical Discovery Development and Manufacturing (PD2M) - Virtual	Virtual	Posters
Tuesday Nov. 16	12:30 PM	705	PD2M Plenary Session (Invited Talks)	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
Tuesday Nov. 16	1:00 PM	660	Meet the Industry Candidates Poster Session: Pharmaceutical Discovery, Development and Manufacturing Forum - Virtual*	Virtual	Posters
Tuesday Nov. 16	3:30 PM	714	Predictive Scale-Up/Scale-Down for Production of Pharmaceuticals and Biopharmaceuticals (Virtual)	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
Wednesday Nov. 17	8:00 AM	719	Enabling Technologies Relevant to Drug Substance and Drug Product IV	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
Wednesday Nov. 17	8:00 AM	721	Mixing Scale-Up and Scale-Down Issues in Pharmaceutical Processes*	Virtual	North American Mixing Forum (06)
Wednesday Nov. 17	12:30 PM	249	Enabling Technologies Relevant to Drug Substance and Drug Product I	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
Wednesday Nov. 17	12:30 PM	725	Advancements in Particle Engineering and Material Sciences in Pharmaceutical Process Development I	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
Wednesday Nov. 17	3:30 PM	103	Advancements in Particle Engineering and Material Sciences in Pharmaceutical Process Development II	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
Thursday Nov. 18	8:00 AM	768	Advances in Drug Discovery and Drug Delivery	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)

POSTERSESSIONS - Poster Sessions

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	1:00 PM	4	Meet the Faculty and Post-Doc Candidates Poster Session*	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	159	General Poster Session	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	160	Poster Session: Bioengineering*	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	162	Poster Session: Food and Bioprocess Engineering*	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	163	Poster Session: Interfacial Phenomena (Area 1C)*	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	164	Poster Session: Materials Engineering & Sciences (08A - Polymers)*	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	165	Poster Session: Materials Engineering & Sciences (08B - Biomaterials)*	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	166	Poster Session: Materials Engineering & Sciences (08D - Inorganic Materials)*	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	167	Poster Session: Materials Engineering & Sciences (08E - Electronic and Photonic Materials)*	Hynes CC	Exhibit Hall C/D

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2021 TECHNICAL PROGRAM GRID

TECHNICAL PROGRAM GRID

Monday Nov. 8	3:30 PM	168	Poster Session: Materials Engineering & Sciences (08F - Composite Materials)*	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	169	Poster Session: Nanoscale Science and Engineering*	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	170	Poster Session: Novel Products from Forest and Plant Biomass*	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	171	Poster Session: Pharmaceutical Discovery Development and Manufacturing (PD2M)*	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	3:30 PM	195	Fluid Mechanics Poster Session*	Sheraton	Constitution A
Monday Nov. 8	5:15 PM	219	MAC Eminent Engineers Awards Poster Session*	Hynes CC	203
Tuesday Nov. 9	1:00 PM	340	Meet the Industry Candidates Poster Session: Pharmaceutical Discovery, Development and Manufacturing Forum*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	342	CoMSEF Poster Session*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	343	General Poster Session in Sensors*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	344	Interactive Session: Applied Mathematics and Numerical Analysis*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	345	Interactive Session: Data and Information Systems*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	346	Interactive Session: Systems and Process Control*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	347	Interactive Session: Systems and Process Design*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	348	Interactive Session: Systems and Process Operations*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	349	Poster Session: Advances in Zeolite Science and Technology*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	350	Poster Session: Chemical Engineering Education*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	351	Poster Session: Fuels and Petrochemicals Division*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	352	Poster Session: Fundamentals and Applications of Adsorption and Ion Exchange*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	353	Poster Session: General Topics on Separations *	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	354	Poster Session: Membrane Separations*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	355	Poster Session: Separations Division*	Hynes CC	Exhibit Hall C/D
Tuesday Nov. 9	3:30 PM	356	Poster Session: Thermodynamics and Transport Properties (Area 1A)*	Hynes CC	Exhibit Hall C/D
Wednesday Nov. 10	3:30 PM	509	Poster Session: Catalysis and Reaction Engineering (CRE) Division*	Hynes CC	Exhibit Hall C/D

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2021 TECHNICAL PROGRAM GRID

Wednesday Nov. 10	3:30 PM	510	Poster Session: Environmental Division*	Hynes CC	Exhibit Hall C/D
Wednesday Nov. 10	3:30 PM	511	Poster Session: Particle Technology Forum*	Hynes CC	Exhibit Hall C/D
Wednesday Nov. 10	3:30 PM	512	Poster Session: Process Development*	Hynes CC	Exhibit Hall C/D
Wednesday Nov. 10	3:30 PM	513	Poster Session: Sustainability and Sustainable Biorefineries*	Hynes CC	Exhibit Hall C/D
Monday Nov. 15	10:30 AM	656	CoMSEF Poster Session - Virtual*	Virtual	Posters
Monday Nov. 15	10:30 AM	657	General Poster Session in Sensors - Virtual*	Virtual	Posters
Monday Nov. 15	10:30 AM	661	Poster Session: Catalysis and Reaction Engineering (CRE) Division - Virtual*	Virtual	Posters
Monday Nov. 15	10:30 AM	665	Poster Session: Particle Technology Forum - Virtual*	Virtual	Posters
Monday Nov. 15	10:30 AM	667	Poster Session: Sustainable Engineering Forum - Virtual*	Virtual	Posters
Monday Nov. 15	10:30 AM	767	Poster Session: Separations Division - Virtual*	Virtual	Posters
Monday Nov. 15	1:00 PM	659	Meet the Faculty and Post-Doc Candidates Poster Session - Virtual*	Virtual	Posters
Tuesday Nov. 16	10:30 AM	666	Poster Session: Pharmaceutical Discovery Development and Manufacturing (PD2M) - Virtual*	Virtual	Posters
Tuesday Nov. 16	10:30 AM	663	Poster Session: Food, Pharmaceuticals, and Bioengineering Division - Virtual*	Virtual	Posters
Tuesday Nov. 16	10:30 AM	664	Poster Session: Materials Engineering & Sciences - Virtual*	Virtual	Posters
Tuesday Nov. 16	10:30 AM	658	General Poster Session - Virtual	Virtual	Posters
Tuesday Nov. 16	1:00 PM	660	Meet the Industry Candidates Poster Session: Pharmaceutical Discovery, Development and Manufacturing Forum - Virtual*	Virtual	Posters

T1 - Meet the Candidates Poster Sessions

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	1:00 PM	4	Meet the Faculty and Post-Doc Candidates Poster Session	Hynes CC	Exhibit Hall C/D
Monday Nov. 8	4:45 PM	808	Optimize Your Postdoc – How to Leverage All the Opportunities Your Postdoc Offers You (#Spoileralert: There's Much More Than You Think!) to Advance in Your Career*	Hynes CC	303
Tuesday Nov. 9	1:00 PM	340	Meet the Industry Candidates Poster Session: Pharmaceutical Discovery, Development and Manufacturing Forum	Hynes CC	Exhibit Hall C/D
Monday Nov. 15	1:00 PM	659	Meet the Faculty and Post-Doc Candidates Poster Session - Virtual	Virtual	Posters
Tuesday Nov. 16	1:00 PM	660	Meet the Industry Candidates Poster Session: Pharmaceutical Discovery, Development and Manufacturing Forum - Virtual	Virtual	Posters

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2021 TECHNICAL PROGRAM GRID

T2 - Entrepreneurship in Chemical Engineering

Day	Time	Session #	Session Title	Property	Room
Tuesday Nov. 9	3:30 PM	400	Technology Transfer and Industrial-Academic Interfaces*	Hynes CC	203
Wednesday Nov. 10	3:30 PM	547	Stories from Biotech Start-ups-Invited*	Hynes CC	303
Wednesday Nov. 17	3:30 PM	297	Chemical Angels Network (CAN) Session: Entrepreneurship & Investing in Early-Stage Chemical Companies	Virtual	Entrepreneurship in Chemical Engineering (T2)

T3 - Applications of Data Science to Molecules and Materials

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	8	Applications of Data Science in Catalysis and Reaction Engineering I	Marriott	Salon H/I
Monday Nov. 8	8:00 AM	51	Applications of Data Science in Molecular Sciences I	Marriott	Salon H/I
Monday Nov. 8	12:30 PM	108	Applications of Data Science to High Throughput Experimentation	Marriott	Salon H/I
Monday Nov. 8	3:30 PM	203	Innovations in Methods of Data Science	Marriott	Salon H/I
Tuesday Nov. 9	8:00 AM	275	Topical Plenary: Topical Conference in Molecular and Materials Data Science (Invited Talks)	Marriott	Salon H/I
Tuesday Nov. 9	12:30 PM	290	Applications of Data Science in Catalysis and Reaction Engineering II	Marriott	Salon H/I
Tuesday Nov. 9	3:30 PM	364	Applications of Data Science in Molecular Sciences II	Marriott	Salon H/I
Tuesday Nov. 9	3:30 PM	804	Sponsored Technology Workshop: Implementing and Accelerating Autonomous Closed-Loop Control *	Marriott	Salon J/K
Wednesday Nov. 10	8:00 AM	449	Teaching Data Science to Students and Teachers I*	Hynes CC	306
Wednesday Nov. 10	12:30 PM	506	Teaching Data Science to Students and Teachers II*	Hynes CC	306
Monday Nov. 15	8:00 AM	549	Teaching Data Science to Students and Teachers III*	Virtual	Bridging the Skills Gap in Chemical Engineering (T4)
Wednesday Nov. 17	8:00 AM	799	T3 Virtual Talks: Applications of Data Science to Molecules and Materials	Virtual	Applications of Data Science to Molecules and Materials (T3)
Thursday Nov. 18	8:00 AM	148	Practical Application of Process Data Analytics and Machine Learning (Invited Talks)*	Virtual	Bridging the Skills Gap in Chemical Engineering (T4)

T4 - Bridging the Skills Gap in Chemical Engineering

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	11:00 AM	96	Academia-Industry Partnership: What New Graduates Should Know	Hynes CC	302
Monday Nov. 8	12:30 PM	136	Leaders driving EDI through culture change with stakeholders*	Hynes CC	301

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2021 TECHNICAL PROGRAM GRID

Monday Nov. 8	3:30 PM	807	How to Maintain Productivity in a Crisis*	Hynes CC	303
Tuesday Nov. 9	8:00 AM	273	Sensors in Startup Companies: Bridging Academia and Industry*	Hynes CC	200
Tuesday Nov. 9	3:30 PM	341	Academia-Industry Partnership: Preparing Students to be Leaders in Industry (Invited Talks)	Hynes CC	302
Wednesday Nov. 10	8:00 AM	449	Teaching Data Science to Students and Teachers I	Hynes CC	306
Wednesday Nov. 10	12:30 PM	506	Teaching Data Science to Students and Teachers II	Hynes CC	306
Wednesday Nov. 10	3:30 PM	553	Transitioning from Graduate School to Your Future (Panel Discussion)*	Hynes CC	312
Monday Nov. 15	8:00 AM	549	Teaching Data Science to Students and Teachers III	Virtual	Bridging the Skills Gap in Chemical Engineering (T4)
Tuesday Nov. 16	12:30 PM	703	Leading and Managing Industry-Academia Collaborations and Partnerships*	Virtual	Management Division (05)
Thursday Nov. 18	8:00 AM	148	Practical Application of Process Data Analytics and Machine Learning (Invited Talks)	Virtual	Bridging the Skills Gap in Chemical Engineering (T4)
Thursday Nov. 18	8:00 AM	214	The Hard Skills of Emotional Intelligence for Effective Engineering Leaders*	Virtual	Management Division (05)
Friday Nov. 19	3:30 PM	30	Panel Discussion: Chemical Process and Product Design Careers in Industry & Academia (Invited Talks)*	Virtual	Process Development Division (12)

T5 - Material Interfaces as Energy Solutions

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	47	Advanced batteries I	Hynes CC	306
Monday Nov. 8	12:30 PM	145	Plasma catalysis	Hynes CC	306
Monday Nov. 8	3:30 PM	209	Perovskites, spinels, energy conversion, modeling of these systems	Hynes CC	306
Tuesday Nov. 9	8:00 AM	256	Hybrid systems, halide perovskites, molecular modeling	Hynes CC	306
Tuesday Nov. 9	12:30 PM	332	Soft systems, molecular simulation, sustainability	Hynes CC	306
Tuesday Nov. 9	3:30 PM	358	Advanced batteries II	Hynes CC	306
Tuesday Nov. 9	3:30 PM	390	Photovoltaic, Thermoelectric, and Energy Materials*	Hynes CC	104
Wednesday Nov. 10	8:00 AM	426	Frontiers in New Materials and Membranes for Bioseparations*	Hynes CC	303
Thursday Nov. 11	8:00 AM	577	Lithium and Beyond: Fundamental Advances in High Performance Batteries I*	Sheraton	Commonwealth
Thursday Nov. 11	12:30 PM	606	Lithium and Beyond: Fundamental Advances in High Performance Batteries II*	Sheraton	Commonwealth

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2021 TECHNICAL PROGRAM GRID

T6A - Next-Gen Manufacturing					
Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Sunday Nov. 7	3:30 PM	21	Industry 4.0, Digital Twins, and Digital Transformation I	Hynes CC	201
Monday Nov. 8	8:00 AM	65	Efficient Processing of Lignin to Bioproducts and Biofuels*	Hynes CC	303
Monday Nov. 8	8:00 AM	75	Industry 4.0, Digital Twins, and Digital Transformation II	Hynes CC	201
Monday Nov. 8	12:30 PM	109	Applied Artificial Intelligence, Big Data, and Data Analytics Methods for Next-Gen Manufacturing Efficiency I	Hynes CC	201
Monday Nov. 8	12:30 PM	117	Continuous Drug Substance – Integrated Processes - Session 2*	Hynes CC	102
Monday Nov. 8	3:30 PM	177	Applied Artificial Intelligence, Big Data, and Data Analytics Methods for Next-Gen Manufacturing Efficiency II	Hynes CC	201
Monday Nov. 8	3:30 PM	185	Continuous Drug Product*	Hynes CC	102
Tuesday Nov. 9	8:00 AM	245	Cybersecurity and High-Performance Computing in Next-Gen Manufacturing	Hynes CC	201
Tuesday Nov. 9	8:00 AM	273	Sensors in Startup Companies: Bridging Academia and Industry*	Hynes CC	200
Tuesday Nov. 9	12:30 PM	336	Topical Plenary: Process Analytical Technology: Sensor Applications in Process Development (Invited Talks)*	Hynes CC	200
Tuesday Nov. 9	3:30 PM	375	Future of Manufacturing and Emerging Technologies	Hynes CC	201
Wednesday Nov. 10	8:00 AM	429	Industrial Internet of Things (IIoT), Smart and Soft Sensors in Process Manufacturing and Beyond	Hynes CC	201
Wednesday Nov. 10	8:00 AM	436	Next-Gen Manufacturing for Resilience and Sustainability	Hynes CC	202
Wednesday Nov. 10	8:00 AM	449	Teaching Data Science to Students and Teachers I*	Hynes CC	306
Wednesday Nov. 10	12:30 PM	485	Innovations in Concept-to-Manufacturing and Distribution I	Hynes CC	201
Wednesday Nov. 10	12:30 PM	494	Next-Gen Manufacturing in Pharma, Food, and Bioprocessing I	Hynes CC	202
Wednesday Nov. 10	12:30 PM	506	Teaching Data Science to Students and Teachers II*	Hynes CC	306
Wednesday Nov. 10	3:30 PM	531	Innovations in Concept-to-Manufacturing and Distribution II	Hynes CC	201
Wednesday Nov. 10	3:30 PM	541	Next-Gen Manufacturing in Pharma, Food, and Bioprocessing II	Hynes CC	202
Thursday Nov. 11	8:00 AM	584	Pharma 4.0 (Advanced Controls, Process Automation, Data Analytics, etc.) in Drug Substance and Drug Product*	Hynes CC	102
Monday Nov. 15	8:00 AM	58	Continuous Drug Substance – Single Unit Operations - Session 1*	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)

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2021 TECHNICAL PROGRAM GRID

Monday Nov. 15	8:00 AM	549	Teaching Data Science to Students and Teachers III*	Virtual	Bridging the Skills Gap in Chemical Engineering (T4)
Monday Nov. 15	8:00 AM	653	Ionic Liquids: Properties, Thermodynamics, and Novel Separation and Reaction Processes*	Virtual	Green Process and Product Engineering
Monday Nov. 15	12:30 PM	674	Materials and Processes for Thermo-, Electro- and Photo-Chemical Energy Storage*	Virtual	Green Process and Product Engineering
Tuesday Nov. 16	8:00 AM	696	Topical Plenary: Frontiers in Green Process and Product Engineering (Invited Talks)*	Virtual	Green Process and Product Engineering
Tuesday Nov. 16	12:30 PM	699	Breakthroughs in C1 to Chemicals and Processing Engineering*	Virtual	Green Process and Product Engineering
Tuesday Nov. 16	3:30 PM	709	Integrated Process Engineering and Economic Analysis*	Virtual	Green Process and Product Engineering
Wednesday Nov. 17	12:30 PM	727	Conversion of Solid Wastes to Energy and/or Products*	Virtual	Green Process and Product Engineering
Wednesday Nov. 17	3:30 PM	736	Chemical Looping Processes*	Virtual	Green Process and Product Engineering
Thursday Nov. 18	8:00 AM	148	Practical Application of Process Data Analytics and Machine Learning (Invited Talks)*	Virtual	Bridging the Skills Gap in Chemical Engineering (T4)

T6C - 3D Printing

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	6	3D Printing Fundamentals and Applications	Hynes CC	202
Monday Nov. 8	8:00 AM	45	3D Printing in Catalysts, Reaction, and Energy Industry	Hynes CC	202
Monday Nov. 8	12:30 PM	100	3D Printing Novel Methods and Applications	Hynes CC	202
Monday Nov. 8	12:30 PM	150	Student Competition in Sensors (Sponsored)*	Hynes CC	200
Monday Nov. 8	3:30 PM	173	3D Printing of Composites	Hynes CC	202
Tuesday Nov. 9	8:00 AM	224	3D Printing of Functional Materials	Hynes CC	202
Tuesday Nov. 9	3:30 PM	392	Polymers in Additive Manufacturing	Hynes CC	202

T7 - Regenerative Engineering Society

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 15	3:30 PM	655	Chemical Engineering Policy (WISE) Award Recipient Talks (Invited Talks)*	Virtual	Featured & Specialty Programming (18)
Thursday Nov. 18	12:30 PM	753	Recent Progress in Biomaterials Innovation and Translation I (Invited Talks)	Virtual	Regenerative Engineering Society (T7)
Thursday Nov. 18	3:30 PM	758	Recent Progress in Biomaterials Innovation and Translation II (Invited Talks)	Virtual	Regenerative Engineering Society (T7)

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2021 TECHNICAL PROGRAM GRID

T8 - Microbes at Biomedical Interfaces

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	92	Topical Plenary: Fundamentals of Microbial Interactions with Interfaces (Invited Talks)	Hynes CC	310
Monday Nov. 8	12:30 PM	153	Technologies for Understanding Microbial Interactions	Hynes CC	310
Monday Nov. 8	3:30 PM	197	Graduate Student Competition in Microbiointerface Research	Hynes CC	310
Tuesday Nov. 9	8:00 AM	225	Advances in Antimicrobial and Antifouling Materials	Hynes CC	310
Tuesday Nov. 9	12:30 PM	311	Fundamental Interactions of Microbes and Microbial Communities with Materials	Hynes CC	310
Tuesday Nov. 9	3:30 PM	402	Topical Plenary: Antimicrobial Platforms and Materials Addressing Current Health Challenges (Invited Talks)	Hynes CC	310

T9 - Sensors

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	71	Environmental Sensors and Monitoring	Hynes CC	200
Monday Nov. 8	12:30 PM	109	Applied Artificial Intelligence, Big Data, and Data Analytics Methods for Next-Gen Manufacturing Efficiency I*	Hynes CC	201
Monday Nov. 8	12:30 PM	150	Student Competition in Sensors (Sponsored)	Hynes CC	200
Monday Nov. 8	3:30 PM	177	Applied Artificial Intelligence, Big Data, and Data Analytics Methods for Next-Gen Manufacturing Efficiency II*	Hynes CC	201
Monday Nov. 8	3:30 PM	210	Point-of-Need Sensor Applications	Hynes CC	200
Tuesday Nov. 9	8:00 AM	273	Sensors in Startup Companies: Bridging Academia and Industry	Hynes CC	200
Tuesday Nov. 9	12:30 PM	336	Topical Plenary: Process Analytical Technology: Sensor Applications in Process Development (Invited Talks)	Hynes CC	200
Tuesday Nov. 9	3:30 PM	343	General Poster Session in Sensors	Hynes CC	Exhibit Hall C/D
Wednesday Nov. 10	8:00 AM	429	Industrial Internet of Things (IIoT), Smart and Soft Sensors in Process Manufacturing and Beyond*	Hynes CC	201
Monday Nov. 15	10:30 AM	657	General Poster Session in Sensors - Virtual	Virtual	Posters

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2021 TECHNICAL PROGRAM GRID

TC - Engineering for Inclusion

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Sunday Nov. 7	3:30 PM	44	Workshop: Social Justice and Chemical Engineering*	Sheraton	Liberty B/C
Monday Nov. 8	8:00 AM	93	Unconscious Bias	Hynes CC	204
Monday Nov. 8	12:30 PM	136	Leaders driving EDI through culture change with stakeholders*	Hynes CC	301
Wednesday Nov. 10	3:30 PM	527	IDEAL Featured Session: A Conversation on Equity, Diversity, and Inclusion	Hynes CC	203
Thursday Nov. 18	8:00 AM	214	The Hard Skills of Emotional Intelligence for Effective Engineering Leaders*	Virtual	Management Division (05)

TCA - Minority Affairs Committee (MAC)

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	12:30 PM	126	Environmental Division Awards and Honors (Invited Talks)*	Hynes CC	309
Monday Nov. 8	12:30 PM	136	Leaders driving EDI through culture change with stakeholders*	Hynes CC	301
Monday Nov. 8	3:30 PM	157	MAC 30th Anniversary Session	Hynes CC	209
Monday Nov. 8	5:30 PM	219	MAC Eminent Engineers Awards Poster Session	Hynes CC	203
Monday Nov. 8	6:00 PM	221	MAC Eminent Engineers Awards Ceremony	Hynes CC	203
Tuesday Nov. 9	11:00 AM	281	MFF/MAC Real Talk: Navigating the Academic Career Path for Influence, Impact and Success	Hynes CC	202
Thursday Nov. 18	8:00 AM	214	The Hard Skills of Emotional Intelligence for Effective Engineering Leaders*	Virtual	Management Division (05)

TCB - Women in Chemical Engineering Committee (WIC)

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	10:00 AM	97	Networking Breakfast and Poster Session - Sponsored by Women in Chemical Engineering (Ticketed Event)	Sheraton	Grand Ballroom
Monday Nov. 8	12:30 PM	126	Environmental Division Awards and Honors (Invited Talks)*	Hynes CC	309
Monday Nov. 15	2:30 PM	678	WIC Virtual Keynote	Virtual	Engineering for Inclusion (TC)

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2021 TECHNICAL PROGRAM GRID

Monday Nov. 15	10:00 AM	1	Undergraduate Workshop for Women & Minorities - hosted by Women in Chemical Engineering (Ticketed Event)	Virtual	Engineering for Inclusion (TC)
Monday Nov. 15	10:00 AM	2	Elevating Your Career for Graduate Students and Young Professionals - hosted by Women in Chemical Engineering (Ticketed Event)	Virtual	Engineering for Inclusion (TC)
Tuesday Nov. 16	3:30 PM	37	Retaining Women in Chemical Engineering Careers	Virtual	Engineering for Inclusion (TC)
Thursday Nov. 18	8:00 AM	214	The Hard Skills of Emotional Intelligence for Effective Engineering Leaders*	Virtual	Management Division (05)

TCC - LGBTQ+ and Allies Community

Day	Time	Session #	Session Title	Property	Room
Tuesday Nov. 9	12:30 PM	320	LGBTQ+ & Allies Safe Zone Workshop	Hynes CC	204
Tuesday Nov. 9	3:30 PM	382	LGBTQ+ Inclusion in Engineering: Advocating for Minorities	Hynes CC	204

TCD - Disabilities OutReach & Inclusion Community (DORIC)

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	12:30 PM	136	Leaders driving EDI through culture change with stakeholders*	Hynes CC	301
Monday Nov. 15	8:00 AM	405	Academic Ableism and Education	Virtual	Engineering for Inclusion (TC)
Thursday Nov. 18	8:00 AM	214	The Hard Skills of Emotional Intelligence for Effective Engineering Leaders*	Virtual	Management Division (05)

TCE - Topical Conference: The Role of Intersectionality in Chemical Engineering

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:30 PM	44	Workshop: Social Justice and Chemical Engineering*	Sheraton	Liberty B/C
Tuesday Nov. 9	8:00 AM	230	Allies and Advocates Training	Hynes CC	204
Monday Nov. 15	11:30 AM	669	The Science of Intersectionality	Virtual	Engineering for Inclusion (TC)
Monday Nov. 15	4:30 PM	687	Step up! From bystander to action	Virtual	Engineering for Inclusion (TC)
Thursday Nov. 18	8:00 AM	214	The Hard Skills of Emotional Intelligence for Effective Engineering Leaders*	Virtual	Management Division (05)

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2021 TECHNICAL PROGRAM GRID

TDA - Green Process and Product Engineering

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Monday Nov. 8	8:00 AM	65	Efficient Processing of Lignin to Bioproducts and Biofuels	Hynes CC	303
Monday Nov. 15	8:00 AM	653	Ionic Liquids: Properties, Thermodynamics, and Novel Separation and Reaction Processes	Virtual	Green Process and Product Engineering
Monday Nov. 15	12:30 PM	674	Materials and Processes for Thermo-, Electro- and Photo-Chemical Energy Storage	Virtual	Green Process and Product Engineering
Tuesday Nov. 16	8:00 AM	696	Topical Plenary: Frontiers in Green Process and Product Engineering (Invited Talks)	Virtual	Green Process and Product Engineering
Tuesday Nov. 16	12:30 PM	699	Breakthroughs in C1 to Chemicals and Processing Engineering	Virtual	Green Process and Product Engineering
Tuesday Nov. 16	3:30 PM	709	Integrated Process Engineering and Economic Analysis	Virtual	Green Process and Product Engineering
Wednesday Nov. 17	12:30 PM	727	Conversion of Solid Wastes to Energy and/or Products	Virtual	Green Process and Product Engineering
Wednesday Nov. 17	3:30 PM	736	Chemical Looping Processes	Virtual	Green Process and Product Engineering

TDB - Process Intensification & Modular Chemical Processing

Day	Time	Session #	Session Title	Property	Room
Tuesday Nov. 9	10:45 AM	761	National Strategic Plan for Advanced Manufacturing Request for Public Input Roundtable (In-Person)	Hynes CC	208
Tuesday Nov. 9	3:30 PM	394	Process Intensification and Modular Manufacturing: Chemical Commodity Processes	Hynes CC	209
Wednesday Nov. 10	8:00 AM	443	Process Intensification and Modular Manufacturing: Modeling and Simulation	Hynes CC	209
Wednesday Nov. 10	3:30 PM	545	Process Intensification and Modular Manufacturing: Modular/Advanced Manufacturing	Hynes CC	208
Tuesday Nov. 16	11:00 AM	762	National Strategic Plan for Advanced Manufacturing Request for Public Input Roundtable (Virtual)	Virtual	Innovations in Process Engineering (TD)

TF - COVID-19 and Beyond: Managing the Unexpected

Day	Time	Session #	Session Title	Property	Room
Monday Nov. 8	8:00 AM	88	Lessons Learned from Teaching Chemical Engineering Online I (How We Changed Our Courses)*	Sheraton	Republic Ballroom B
Monday Nov. 8	12:30 PM	137	Lessons Learned from Teaching Chemical Engineering Online II (How We Changed as Instructors)*	Sheraton	Republic Ballroom B
Monday Nov. 8	3:30 PM	807	How to Maintain Productivity in a Crisis*	Hynes CC	303

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2021 TECHNICAL PROGRAM GRID

Tuesday Nov. 9	8:00 AM	250	Engineering Strategies to Combat COVID-19*	Hynes CC	108
Tuesday Nov. 9	8:00 AM	273	Sensors in Startup Companies: Bridging Academia and Industry*	Hynes CC	200
Tuesday Nov. 16	8:00 AM	502	Resilient and Sustainable Supply Chains and Product Systems*	Virtual	Sustainable Engineering Forum (23)
Tuesday Nov. 16	3:30 PM	710	Lessons learnt from Effectively Managing Projects and Teams during a Global Pandemic*	Virtual	Management Division (05)

TH - Synthetic & Renewable Fuels

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Wednesday Nov. 10	12:30 PM	473	Conversion of Waste Plastic into Liquid Fuels*	Hynes CC	200
Tuesday Nov. 16	3:30 PM	709	Integrated Process Engineering and Economic Analysis*	Virtual	Green Process and Product Engineering
Thursday Nov. 18	8:00 AM	286	Advances in Low-Cost Renewable Hydrogen Production at Large Scale	Virtual	Synthetic & Renewable Fuels (TH)
Thursday Nov. 18	12:30 PM	397	Renewable Fuels Production from Hydrogen and Captured CO ₂ or N ₂	Virtual	Synthetic & Renewable Fuels (TH)

TJ - Waste Plastics

Day	Time	Session #	Session Title	Property	Room
Sunday Nov. 7	3:00 PM	5	Public Affairs and AIChE: A PAIC Town Hall*	Hynes CC	303
Monday Nov. 8	8:00 AM	57	Chemical Recycling of Waste Plastics I*	Hynes CC	205
Monday Nov. 8	12:30 PM	116	Chemical Recycling of Waste Plastics II*	Hynes CC	205
Monday Nov. 8	12:30 PM	149	Renewable Polymers and Intermediates Technology*	Hynes CC	300
Monday Nov. 8	3:30 PM	183	Chemical Recycling of Waste Plastics III*	Hynes CC	205
Monday Nov. 8	3:30 PM	217	Waste Plastic - Recycle, Reuse and Remediation Strategies*	Hynes CC	309
Tuesday Nov. 9	3:30 PM	391	Plenary Session: Waste Plastics (Invited Talks)	Hynes CC	200
Wednesday Nov. 10	8:00 AM	447	Recycling and Upcycling of Plastic Waste	Hynes CC	200
Wednesday Nov. 10	12:30 PM	465	Biodegradable Polymers from Forest Resources - Sustainable Biomaterials*	Marriott	Exeter
Wednesday Nov. 10	12:30 PM	473	Conversion of Waste Plastic into Liquid Fuels	Hynes CC	200

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2021 TECHNICAL PROGRAM GRID

Wednesday Nov. 10	3:30 PM	515	Analysis and Assessment for Solving the Plastic Waste Crisis	Hynes CC	200
Wednesday Nov. 17	12:30 PM	765	Waste Plastics Virtual Session	Virtual	Waste Plastics (TJ)
Thursday Nov. 18	12:30 PM	751	General Composites and Applications*	Virtual	Materials Engineering and Sciences Division (08)
Friday Nov. 19	8:00 AM	306	Division Plenary: Valorization of Waste plastics including Ocean Plastics along with Agro-residues/Forestry waste for Sustainable Biocomposites (Invited Talks)*	Virtual	Forest and Plant Bioproducts Division (17)

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SEE YOU NEXT YEAR!

2022 / AIChE ANNUAL MEETING

November 13-18, 2022

Phoenix Convention Center & Hyatt Regency

