

# 2021 / AIChE ANNUAL MEETING

NOVEMBER 7-11 • BOSTON, MA  
NOVEMBER 15-19 • VIRTUAL



**BIOLOGICAL ENGINEERING**  
**USERS GUIDE**



Connect, collaborate on breakthroughs, showcase your work and expand your horizons at SBE conferences. Join your bioengineering community at one of the following events.



**PLANT SYNTHETIC  
BIOLOGY, BIOENGINEERING,  
& BIOTECHNOLOGY**

**November 15-17, 2021 • [aiche.org/plantsynbio](https://aiche.org/plantsynbio)**

Engage with scientists and engineers from universities, industry and government working in all aspects of plant synthetic biology, plant bioengineering and plant biotech.



**8<sup>th</sup> International Conference  
on Stem Cell Engineering**

**December 3, 2021 • [aiche.org/stemcell](https://aiche.org/stemcell)**

This event will deepen stem cell technologies knowledge and spur innovative bioengineering applications. Meet leaders and trainees from cutting edge fields of stem cell engineering to develop the next generation of stem cell technologies.



**December 5-7, 2021 • [aiche.org/opto](https://aiche.org/opto)**

This conference provides a broad view of recent international advances in developing and applying interdisciplinary perspectives on optogenetics. The program will explore topics including applications in neurobiology, biochemical, and biomedical research.



**May 9-10, 2022 • [aiche.org/cib](https://aiche.org/cib)**

CIB spotlights best practices, lessons learned, and technology innovations for accelerating commercial production of bio-based products. This is the only conference focused on scale-up and commercialization of new products in the synthetic biology, fermentation-based products, and industrial biotechnology space.

SBE's meeting formats encourage close interactions and discussions between researchers of all expertise levels and disciplines, including faculty, industry program leads, students, post-docs, and industry scientists and engineers.

**Visit [aiche.org/sbe/conferences-events](https://aiche.org/sbe/conferences-events) for the complete list of conferences.**

SBE members get the lowest registration rates for SBE's many conferences, bringing you the latest from traditional and emerging fields of bioengineering. **[Learn more at aiche.org/sbe](https://aiche.org/sbe)**

*Event details including dates and locations are subject to change, please check website for most current information.*

Established by AIChE, the **Society for Biological Engineering** is a community for engineers and applied scientists integrating biology with engineering.

Be a part of a vibrant community who share your passions.

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



- Gain an international professional network
- Receive discounts on leading biological engineering conferences
- Access first-hand information from academic and industrial experts
- Enjoy SBE's monthly e-newsletter Connections
- Read through a semi-annual BioSupplement to *Chemical Engineering Progress* (CEP)
- Realize a voice in education, employment and technology advancement topics
- Watch webinars featuring cutting edge topics covered by the current experts

**Join today!**

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

## Managing Board

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

**Georges Belfort**, *Rensselaer Polytechnic Institute* **CHAIR**

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# ADD TO YOUR MEMBERSHIP



The **FP&BE** division ("Division 15") provides engineers and scientists interested in the field of food, pharmaceuticals, and bioengineering with places to join and to discuss. It also supplies technical publications and information in these fields, including papers at national Institute meetings.

In addition, the division coordinates the Institute's activities in the fields of food, pharmaceuticals, and bioengineering with the activities of other related societies. Further, the FP&BE encourages the focus of biological sciences in chemical engineering curricula and promotes the application of sanitary design principles for process equipment and installations.

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



The **Pharmaceutical Discovery, Development and Manufacturing Forum (PD2M)** promotes the interchange of ideas, concepts, know-how, and experiences in Pharmaceutical Discovery, Development and Manufacturing with other groups within and outside of the Institute.

More information at: [www.aiche.org/pd2m](http://www.aiche.org/pd2m)

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

### MONDAY, NOVEMBER 8, 2021

#### 2021 Hoover Medal Lecture

12:15 PM – 1:15 PM,

Ballroom B, Hynes Convention Center

***Black Lives Matter in Science, Engineering and Medicine and Success is What You Leave Behind***

Cato T. Laurencin, The University of Connecticut

#### The Langer Prize for Innovation and Entrepreneurial Excellence Award Presentation and Lecture

1:45 PM – 3:15 PM,

Ballroom B, Hynes Convention Center

Featuring remarks from Robert S. Langer, María Eugenia Inda, 2020 Langer Prize Fellow, Aditya Kunjapur, 2021 Langer Prize Fellow, Terry McGuire and Amy Schulman. Join us at the end of the event for networking and light refreshments.

#### 2020 Hoover Medal Lecture

6:15 PM – 7:15 PM,

Ballroom B, Hynes Convention Center

***Reclaiming the Engineering in the Minds of the Public: The Unheralded, Underappreciated, and Misunderstood Method that Built Our Modern World***

Bill Hammack,

University of Illinois — Urbana-Champaign

### TUESDAY, NOVEMBER 9, 2021

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

11:15 AM – 12:15 PM,

Ballroom B, Hynes Convention Center

***Directed Evolution of New Adeno-Associated Viral Vectors for Clinical Gene Therapy***

David V. Schaffer, University of California at Berkeley

#### Division Plenary: Food, Pharmaceutical, and Bioengineering Division

3:30 PM – 6:00 PM,

Room 109, Hynes Convention Center

#### D.I.C. Wang Award Lecture

6:15 PM – 6:55 PM,

Room 302, Hynes Convention Center

#### Exploiting Redox for Connecting Biology to Electronics – Controlling Behavior via Electro genetics

William E. Bentley, University of Maryland

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

7:00 PM – 7:45 PM

Room 302, Hynes Convention Center

***Synthetic Biology: Life Redesigned***

James J. Collins,

Massachusetts Institute of Technology

Includes the presentation of the *Biotechnology Progress Award* for Excellence in Biological Engineering Publication.

This year's recipient is Matthew P. DeLisa, *Cornell University*.

#### SBE Hospitality Suite,

Sponsored by Pfizer

9:00 PM – 11:00 PM,

Room 301, Hynes Convention Center,

Free to SBE members – or join at the door.



### WEDNESDAY, NOVEMBER 10, 2021

#### Pharmaceutical Discovery, Development, and Manufacturing Forum Awards Ceremony

8:00 AM – 10:30 AM,

Room 102, Hynes Convention Center

#### John M. Prausnitz AIChE Institute Lecture

11:15 AM – 12:15 PM,

Ballroom B, Hynes Convention Center

***Viruses, Immunity, and Vaccines***

Arup K. Chakraborty, Massachusetts Institute of Technology

### VIRTUAL

Don't forget to log in for the virtual portion of the Annual Meeting, where the highlights continue.

### TUESDAY, NOVEMBER 16, 2021

#### Pharmaceutical Discovery, Development and Manufacturing Forum Plenary Session

12:30 PM – 3:00 PM, Virtual Platform

# BIOLOGICAL ENGINEERING PROGRAM GRID

## Property Key

Hynes CC = John B. Hynes Veterans Memorial Convention Center

Sheraton = Sheraton Back Bay • Marriott = Marriott Copley Place

TIME	SESSION	PROPERTY	ROOM
<b>SUNDAY, NOVEMBER 7</b>			
03:30 PM - 06:00 PM	Biomaterials: Faculty Candidates I	Hynes CC	103
03:30 PM - 06:00 PM	Systems Developmental Biology and Differentiation	Hynes CC	107
03:30 PM - 06:00 PM	Mechanical Cues and Cell Behavior	Hynes CC	108
03:30 PM - 06:00 PM	Systems Biology Approaches to Cancer	Hynes CC	109
03:30 PM - 06:00 PM	Biocatalysis and Biobased Products	Hynes CC	110
03:30 PM - 06:00 PM	Advances in Biosensors, Protein Production, and Protein Engineering	Hynes CC	111
03:30 PM - 06:00 PM	Nanobiotechnology for Sensors and Imaging	Marriott	Simmons
<b>MONDAY, NOVEMBER 8</b>			
08:00 AM - 10:30 AM	Predictive Scale-Up/Scale-Down for Production of Pharmaceuticals and Biopharmaceuticals	Hynes CC	101
08:00 AM - 10:30 AM	Biomaterials: Faculty Candidates II	Hynes CC	103
08:00 AM - 10:30 AM	Systems Biology Methods and Technologies	Hynes CC	107
08:00 AM - 10:30 AM	Biomolecular Engineering and Analyses to Understand Cell Migration, Membrane Components, and Genomic Structure	Hynes CC	108
08:00 AM - 10:30 AM	Stem Cells and Tissue Engineering	Hynes CC	110
08:00 AM - 10:30 AM	Diagnostic Technologies for Clinical Applications	Hynes CC	111
08:00 AM - 10:30 AM	Environmental Sensors and Monitoring	Hynes CC	200
08:00 AM - 10:30 AM	Biomaterials for Drug Delivery: Cancer Therapies	Hynes CC	209
08:00 AM - 10:30 AM	Topical Plenary: Fundamentals of Microbial Interactions with Interfaces (Invited Talks)	Hynes CC	310
12:15 PM - 01:15 PM	2021 Hoover Medal Lecture	Hynes CC	Ballroom B
12:30 PM - 03:00 PM	Continuous Drug Substance – Integrated Processes - Session 2	Hynes CC	102
12:30 PM - 03:00 PM	Area Plenary: Leaders in Biomaterials (Invited Talks)	Hynes CC	103
12:30 PM - 03:00 PM	Biotechnological Production of Food and Feed Ingredients	Hynes CC	107
12:30 PM - 03:00 PM	Flexible Platforms for Investigating Cellular Processes	Hynes CC	108
12:30 PM - 03:00 PM	Cellular and Biochemical Sensing Technologies	Hynes CC	110
12:30 PM - 03:00 PM	Metabolic Platform Development- Non-Conventional Species and Systems	Hynes CC	111
12:30 PM - 03:00 PM	Student Competition in Sensors (Sponsored)	Hynes CC	200
12:30 PM - 03:00 PM	Technologies for Understanding Microbial Interactions	Hynes CC	310

This program is as of October 6, 2021. An up-to-date program is available at [aiche.org/annual](https://www.aiche.org/annual) and in the AIChEvents app.

# BIOLOGICAL ENGINEERING PROGRAM GRID

TIME	SESSION	PROPERTY	ROOM
12:30 PM - 03:00 PM	Biomolecules at Interfaces	Sheraton	Back Bay Ballroom A
12:30 PM - 03:00 PM	Nanostructured Materials for Pharmaceutical Applications	Sheraton	Hampton
01:45 PM - 03:15 PM	The Langer Prize for Innovation and Entrepreneurial Excellence Award Presentation and Lecture	Hynes CC	Ballroom B
03:30 PM - 05:00 PM	Poster Session: Food and Bioprocess Engineering	Hynes CC	Exhibit Hall C
03:30 PM - 05:00 PM	Poster Session: Bioengineering	Hynes CC	Exhibit Hall C
03:30 PM - 05:00 PM	Poster Session: Engineering Fundamentals in Life Science	Hynes CC	Exhibit Hall C
03:30 PM - 05:00 PM	Poster Session: Materials Engineering & Sciences (08B - Biomaterials)	Hynes CC	Exhibit Hall C
03:30 PM - 05:00 PM	Poster Session: Pharmaceutical Discovery Development and Manufacturing (PD2M)	Hynes CC	Exhibit Hall C
03:30 PM - 06:00 PM	Advances in Drug Discovery Processes (including HTE)	Hynes CC	101
03:30 PM - 06:00 PM	Continuous Drug Product	Hynes CC	102
03:30 PM - 06:00 PM	Point-of-Need Sensor Applications	Hynes CC	200
03:30 PM - 06:00 PM	Biological Catalysis and Enzymatic Catalysis	Hynes CC	208
03:30 PM - 06:00 PM	Graduate Student Competition in Microbiointerface Research	Hynes CC	310
06:15 PM - 07:15 PM	2020 Hoover Medal Lecture	Hynes CC	Ballroom B
<b>TUESDAY, NOVEMBER 9</b>			
08:00 AM - 10:30 AM	Control Strategies in Pharmaceutical Development and Manufacturing I	Hynes CC	101
08:00 AM - 10:30 AM	Hydrogel Biomaterials: Cell Instructive Platforms	Hynes CC	105
08:00 AM - 10:30 AM	Engineering Strategies to Combat COVID-19	Hynes CC	108
08:00 AM - 10:30 AM	Clinical Impacts of Micro- and Nano-Scale Technologies	Hynes CC	109
08:00 AM - 10:30 AM	Biomanufacturing with Advanced Mammalian Cell Culture Technologies	Hynes CC	110
08:00 AM - 10:30 AM	Advances in Metabolic Engineering- Eukaryotic Organisms	Hynes CC	111
08:00 AM - 10:30 AM	Sensors in Startup Companies: Bridging Academia and Industry	Hynes CC	200
08:00 AM - 10:30 AM	Biomimetic Materials I	Hynes CC	209
08:00 AM - 10:30 AM	Amorphous and Crystalline Particle Engineering in Pharmaceuticals and Other Novel Materials	Hynes CC	302
08:00 AM - 10:30 AM	Advances in Antimicrobial and Antifouling Materials	Hynes CC	310

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# BIOLOGICAL ENGINEERING PROGRAM GRID

TIME	SESSION	PROPERTY	ROOM
08:00 AM - 10:30 AM	Area Plenary: Bionanotechnology (Invited Talks)	Marriott	Simmons
08:00 AM - 10:30 AM	Carbon Nanomaterials: Dispersion, Surface Structure, and Biointeractions	Marriott	Wellesley
08:00 AM - 10:30 AM	Pharmaceutical Powder and Particulate Systems: In-person	Sheraton	Gardner
08:00 AM - 10:30 AM	Novel Nanoparticles and Nanostructured Materials for Pharmaceuticals and Medical Applications	Sheraton	Hampton
11:15 AM - 12:15 PM	Andreas Acrivos Award for Professional Progress in Chemical Engineering Lecture	Hynes CC	Ballroom B
12:30 PM - 03:00 PM	Control Strategies in Pharmaceutical Development and Manufacturing II	Hynes CC	101
12:30 PM - 03:00 PM	Enabling Technologies Relevant to Drug Substance and Drug Product II	Hynes CC	102
12:30 PM - 03:00 PM	Hydrogel Biomaterials: Design and Characterization	Hynes CC	105
12:30 PM - 03:00 PM	Design, Engineering, and Structural Prediction of Peptides and Proteins	Hynes CC	108
12:30 PM - 03:00 PM	Understanding the Rules of Life at the Micro- and Nano-Scale	Hynes CC	109
12:30 PM - 03:00 PM	Biomanufacturing with Advanced Bioreactor and Bioprocess Engineering	Hynes CC	110
12:30 PM - 03:00 PM	Advances in Metabolic Engineering- Prokaryotic Organisms	Hynes CC	111
12:30 PM - 03:00 PM	Topical Plenary: Process Analytical Technology: Sensor Applications in Process Development (Invited Talks)	Hynes CC	200
12:30 PM - 03:00 PM	Biomimetic Materials II	Hynes CC	209
12:30 PM - 03:00 PM	Crystallization of Pharmaceutical and Biological Molecules	Hynes CC	302
12:30 PM - 03:00 PM	Advances in bioseparations	Hynes CC	303
12:30 PM - 03:00 PM	Fundamental Interactions of Microbes and Microbial Communities with Materials	Hynes CC	310
12:30 PM - 03:00 PM	Special Session In Honor of Arup Chakraborty's 60th Birthday: Biology and Immunology	Marriott	Salon C/D
12:30 PM - 03:00 PM	Biomimetic Structures and Biomolecular Self-Assembly	Marriott	Simmons
12:30 PM - 03:00 PM	Interfacial Phenomena in Pharmaceutics	Sheraton	Back Bay Ballroom B
01:00 PM - 03:00 PM	Meet the Industry Candidates Poster Session: Pharmaceutical Discovery, Development and Manufacturing Forum	Hynes CC	Exhibit Hall C
03:30 PM - 05:00 PM	General Poster Session in Sensors	Hynes CC	Exhibit Hall C

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# BIOLOGICAL ENGINEERING PROGRAM GRID

TIME	SESSION	PROPERTY	ROOM
03:30 PM - 06:00 PM	Advances in New Modalities (Large Molecule, Oligos, Peptides, ADCs, Gene therapy, etc.) Product and Process Development (Invited Talks)	Hynes CC	101
03:30 PM - 06:00 PM	Enabling Technologies Relevant to Drug Substance and Drug Product III	Hynes CC	102
03:30 PM - 06:00 PM	Hydrogel Biomaterials: Emerging Applications	Hynes CC	105
03:30 PM - 06:00 PM	Biomaterials for Drug Delivery: Nanotechnology Approaches	Hynes CC	108
03:30 PM - 06:00 PM	Division Plenary: Food, Pharmaceutical, and Bioengineering Division (Invited Talks)	Hynes CC	109
03:30 PM - 06:00 PM	Topical Plenary: Antimicrobial Platforms and Materials Addressing Current Health Challenges (Invited Talks)	Hynes CC	310
03:30 PM - 06:00 PM	Interfacial Processes at Biomembranes	Sheraton	Back Bay Ballroom B
03:30 PM - 06:00 PM	Characterization of Biomaterials and Biological Systems	Sheraton	Constitution B
06:15 PM - 06:55 PM	D.I.C. Wang Award Lecture	Hynes CC	302
07:00 PM - 07:45 PM	SBE's James E. Bailey Award Lecture	Hynes CC	302
<b>WEDNESDAY, NOVEMBER 10</b>			
08:00 AM - 10:30 AM	Pharmaceutical Discovery, Development, and Manufacturing Forum Awards Ceremony	Hynes CC	102
08:00 AM - 10:30 AM	Fermentation and Process Engineering in Food and Bioprocess Industries	Hynes CC	107
08:00 AM - 10:30 AM	Engineering in Aging and Aging-Associated Diseases	Hynes CC	108
08:00 AM - 10:30 AM	Large-Scale Models in Systems Biology	Hynes CC	109
08:00 AM - 10:30 AM	High-Throughput Techniques in Protein Engineering	Hynes CC	110
08:00 AM - 10:30 AM	Computational and Experimental Studies on Protein Structure, Function, and Developability	Hynes CC	111
08:00 AM - 10:30 AM	Reaction Engineering in Pharmaceuticals and Fine Chemicals	Hynes CC	207
08:00 AM - 10:30 AM	Frontiers in New Materials and Membranes for Bioseparations	Hynes CC	303
08:00 AM - 10:30 AM	Bionanotechnology for Drug Delivery	Marriott	Simmons
11:15 AM - 12:15 PM	John M. Prausnitz AIChE Institute Lecture	Hynes CC	Ballroom B
12:30 PM - 03:00 PM	Integrated Design of Drug Product Formulation, Manufacture and Delivery	Hynes CC	101
12:30 PM - 03:00 PM	Applied Formulation Design	Hynes CC	102
12:30 PM - 03:00 PM	Biomaterials in Industry and the Clinic	Hynes CC	103

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# BIOLOGICAL ENGINEERING PROGRAM GRID

TIME	SESSION	PROPERTY	ROOM
12:30 PM - 03:00 PM	Metabolic Engineering for Food, Feed, and Bioproducts	Hynes CC	107
12:30 PM - 03:00 PM	Engineering Drug Delivery Strategies and Biomolecular Sensors	Hynes CC	108
12:30 PM - 03:00 PM	Immunoengineering	Hynes CC	109
12:30 PM - 03:00 PM	Applications of Therapeutic and Enzymatic Protein Engineering	Hynes CC	110
12:30 PM - 03:00 PM	Systems and Quantitative Biology: Disease Mechanisms, Biomarkers, and Therapies	Hynes CC	111
12:30 PM - 03:00 PM	Next-Gen Manufacturing in Pharma, Food, and Bioprocessing I	Hynes CC	202
12:30 PM - 03:00 PM	Next Generation Biomolecules and Bioprocesses	Hynes CC	303
12:30 PM - 03:00 PM	Advanced Separations Processes in Bioprocessing and Biomaterials	Marriott	Provincetown
12:30 PM - 03:00 PM	Thermodynamics of Biomolecular Folding and Assembly	Marriott	Salon C/D
12:30 PM - 03:00 PM	Bionanotechnology Graduate Student Award Session I	Marriott	Simmons
03:30 PM - 06:00 PM	Integrated Design of Drug Substance and Drug Product Manufacture	Hynes CC	101
03:30 PM - 06:00 PM	Computational Solid State Pharmaceutics	Hynes CC	102
03:30 PM - 06:00 PM	Biomaterials I	Hynes CC	104
03:30 PM - 06:00 PM	Microbiome and Natural Products in Food, Health, and Bioprocessing	Hynes CC	107
03:30 PM - 06:00 PM	Drug Delivery for Regenerative Medicine	Hynes CC	108
03:30 PM - 06:00 PM	Immunoengineering for Cancer, Vaccines, and Autoimmunity	Hynes CC	109
03:30 PM - 06:00 PM	Proteins in Biomedical and Biomaterials Engineering	Hynes CC	110
03:30 PM - 06:00 PM	Systems Biology in Human Health and Disease	Hynes CC	111
03:30 PM - 06:00 PM	Next-Gen Manufacturing in Pharma, Food, and Bioprocessing II	Hynes CC	202
03:30 PM - 06:00 PM	Stories from Biotech Start-ups (Invited Talks)	Hynes CC	303
03:30 PM - 06:00 PM	Bionanotechnology Graduate Student Award Session II	Marriott	Simmons
03:30 PM - 06:00 PM	Applied Math for Biological and Biomedical Systems	Sheraton	Independence Ballroom East

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# BIOLOGICAL ENGINEERING PROGRAM GRID

TIME	SESSION	PROPERTY	ROOM
<b>THURSDAY, NOVEMBER 11</b>			
08:00 AM - 10:30 AM	Formulation for Drug Delivery	Hynes CC	101
08:00 AM - 10:30 AM	Pharma 4.0 (Advanced Controls, Process Automation, Data Analytics, etc.) in Drug Substance and Drug Product	Hynes CC	102
08:00 AM - 10:30 AM	Biomaterials: Graduate Student Award Session	Hynes CC	103
08:00 AM - 10:30 AM	Biopolymers	Hynes CC	104
08:00 AM - 10:30 AM	Drug Delivery for Infectious Diseases	Hynes CC	108
08:00 AM - 10:30 AM	Immunotherapy	Hynes CC	109
08:00 AM - 10:30 AM	Synthetic Biology: Microbiome Engineering	Hynes CC	110
08:00 AM - 10:30 AM	Systems and Quantitative Biology: Metabolic Modeling	Hynes CC	111
08:00 AM - 10:30 PM	Systems and Quantitative Biology: Modeling Biological Processes	Hynes CC	107
12:30 PM - 03:00 PM	Biomaterials II	Hynes CC	105
12:30 PM - 03:00 PM	Novel Drug Carrier Formulations	Hynes CC	108
12:30 PM - 03:00 PM	In Vitro and In Vivo Cancer Models	Hynes CC	109
12:30 PM - 03:00 PM	Synthetic Biology: Cell Free Systems, Biosensors, and Genetic Circuits	Hynes CC	110
12:30 PM - 03:00 PM	Systems and Quantitative Biology: Microbial Traits, Regulation, and Interactions	Hynes CC	111
12:30 PM - 03:00 PM	Biomaterial Scaffolds for Tissue Engineering I	Hynes CC	209
03:30 PM - 06:00 PM	Delivery of Cancer Therapeutics	Hynes CC	108
03:30 PM - 06:00 PM	Synthetic Biology: Tool and Method Development	Hynes CC	110
03:30 PM - 06:00 PM	Biomaterial Scaffolds for Tissue Engineering II	Hynes CC	209
03:30 PM - 06:00 PM	Chemical Modifications and Processing of Biomaterials	Marriott	Provincetown
<b>MONDAY, NOVEMBER 15</b>			
08:00 AM - 10:30 AM	Continuous Drug Substance – Single Unit Operations - Session 1	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
10:30 AM - 12:00 PM	General Poster Session in Sensors	Virtual	Posters
10:30 AM - 12:00 PM	Poster Session: Pharmaceutical Discovery Development and Manufacturing (PD2M)	Virtual	Posters

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TIME	SESSION	PROPERTY	ROOM
10:30 AM - 12:00 PM	Poster Session: Food, Pharmaceuticals, and Bioengineering Division	Virtual	Posters
12:30 PM - 03:00 PM	Biomaterials: Emerging Applications	Virtual	Materials Engineering and Sciences Division (08)
12:30 PM - 03:00 PM	Nanomaterial interactions with cells and biological barriers	Virtual	Nanoscale Science and Engineering Forum (22)
12:30 PM - 03:00 PM	Undergraduate Research Presentations - Chemicals, Biotechnology, and Environment	Virtual	Young Professionals Committee (YPC)
<b>TUESDAY, NOVEMBER 16</b>			
08:00 AM - 10:30 AM	Development and Delivery of Bioactive Factors	Virtual	Food, Pharmaceutical & Bioengineering Division (15)
08:00 AM - 10:30 AM	PD2M Panel Discussion (Invited Talks)	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
12:30 PM - 03:00 PM	Cancer Microenvironment	Virtual	Food, Pharmaceutical & Bioengineering Division (15)
12:30 PM - 03:00 PM	Analyses of Mixing Processes in Bioreactors	Virtual	North American Mixing Forum (06)
12:30 PM - 03:00 PM	PD2M Plenary Session (Invited Talks)	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
01:00 PM - 03:00 PM	Meet the Industry Candidates Poster Session: Pharmaceutical Discovery, Development and Manufacturing Forum	Virtual	Posters
03:30 PM - 06:00 PM	Cellular Engineering	Virtual	Food, Pharmaceutical & Bioengineering Division (15)
03:30 PM - 06:00 PM	Predictive Scale-Up/Scale-Down for Production of Pharmaceuticals and Biopharmaceuticals)	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
<b>WEDNESDAY, NOVEMBER 17</b>			
08:00 AM - 10:30 AM	Biodiagnostics and Biosensors	Virtual	Food, Pharmaceutical & Bioengineering Division (15)
08:00 AM - 10:30 AM	Mixing Scale-Up and Scale-Down Issues in Pharmaceutical Processes	Virtual	North American Mixing Forum (06)
08:00 AM - 10:30 AM	Enabling Technologies Relevant to Drug Substance and Drug Product IV	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
12:30 PM - 03:00 PM	Bioengineering Modeling	Virtual	Food, Pharmaceutical & Bioengineering Division (15)

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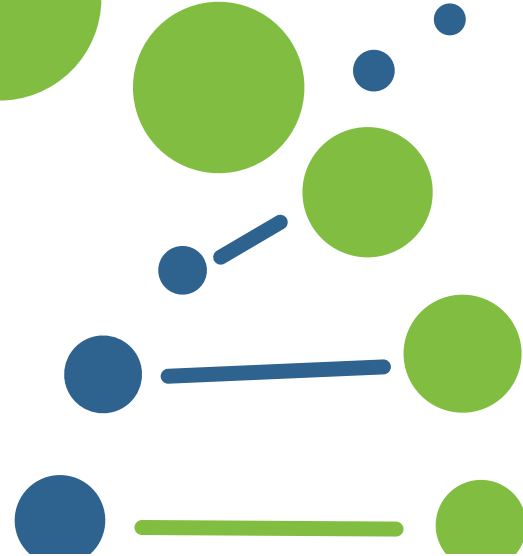
# BIOLOGICAL ENGINEERING PROGRAM GRID

TIME	SESSION	PROPERTY	ROOM
12:30 PM - 03:00 PM	Enabling Technologies Relevant to Drug Substance and Drug Product I	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
12:30 PM - 03:00 PM	Advancements in Particle Engineering and Material Sciences in Pharmaceutical Process Development I	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
03:30 PM - 06:00 PM	Biomolecular Engineering	Virtual	Food, Pharmaceutical & Bioengineering Division (15)
03:30 PM - 06:00 PM	Advancements in Particle Engineering and Material Sciences in Pharmaceutical Process Development II	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
08:00 AM - 10:30 AM	Biotherapeutic Development and Delivery	Virtual	Food, Pharmaceutical & Bioengineering Division (15)
08:00 AM - 10:30 AM	Pharmaceutical Powder and Particulate Systems	Virtual	Particle Technology Forum (03)
08:00 AM - 10:30 AM	Advances in Drug Discovery and Drug Delivery	Virtual	Pharmaceutical Discovery, Development and Manufacturing Forum (26)
12:30 PM - 03:00 PM	Bioprocessing	Virtual	Food, Pharmaceutical & Bioengineering Division (15)
12:30 PM - 03:00 PM	Recent Progress in Biomaterials Innovation and Translation I (Invited Talks)	Virtual	Regenerative Engineering Society (T7)
03:30 PM - 06:00 PM	Understanding and Engineering Cellular Responses	Virtual	Food, Pharmaceutical & Bioengineering Division (15)
03:30 PM - 06:00 PM	Recent Progress in Biomaterials Innovation and Translation II (Invited Talks)	Virtual	Regenerative Engineering Society (T7)

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# COLLABORATION. AFFILIATION. OPPORTUNITIES.

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bioengineering community



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- ✓ **RECEIVE** discounts on leading biological engineering conferences
- ✓ **ACCESS** first-hand information from academic and industrial experts
- ✓ **DISCOVER** AIChE® Academy education and training opportunities and take advantage of exclusive member pricing
- ✓ **ENJOY** SBE's monthly e-newsletter, *Connections*, with industry and community news
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