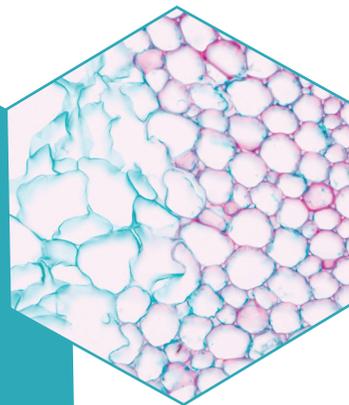


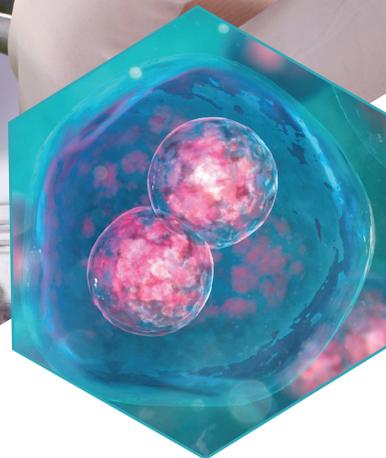
October 28 -
November 2, 2018

David L. Lawrence
Convention Center
Pittsburgh, PA

2018



SBE
USER
GUIDE



SPACE TRAVEL STARTECH

ADAPTIVE RESEARCH AND TECHNOLOGIES FROM CHEMICAL AND BIOLOGICAL ENGINEERING

NOVEMBER 12–14, 2018 • HYATT REGENCY HOUSTON, TX

PRESENT YOUR RESEARCH & NETWORK AMONG THE STARS

Can your technology apply to space exploration?

STAR Tech is focused on bringing in non-traditional technologies from chemical and biological engineering including materials science and engineering that may apply to space travel technology and capability needs. We're not looking for astronauts or space specialists, but professionals from industry, government, academia and students. It's an opportunity to present current work on a terrestrial application that can be applied to space exploration such as food, clean water and medicines, among other topics.

Topical Sessions:



Material Technologies



Chemical Technologies



Biological Technologies

Topics include but not limited to:

- Artificial Intelligence
- Artificial Photosynthesis
- Biomanufacturing for Waste
- Biopolymers
- Energy Storage
- Food Production
- Sensors

Keynote Speaker

- ★ Jason Crusan
NASA

Invited Speakers

- ★ Adam Arkin
University of California, Berkeley
- ★ Mark Blenner
Clemson University
- ★ Frances Houle
Joint Center for Artificial Photosynthesis
- ★ Matthew Kanan
Stanford University
- ★ Michael Koepke
LanzaTech
- ★ Jodie Lutkenhaus
Texas A&M University
- ★ Amor Menezes
University of Florida
- ★ Bryce Meredig
Citrine Informatics
- ★ Shannon Nangle
Harvard Medical School
- ★ Brian Pflieger
University of Wisconsin, Madison
- ★ Bradley Ringeisen
DARPA

Conference Co-Chairs

- ★ Robyn Gatens
NASA
- ★ Al Sacco
Texas Tech University

LEARN MORE ABOUT PROGRAMMING, SPEAKERS
AND REGISTRATION AT www.aiche.org/space

SPECIAL BIO-PROGRAMS AT THE 2018 AIChE ANNUAL MEETING

BE SURE TO ATTEND THESE CONFERENCE HIGHLIGHTS:

D.I.C. Wang Award Lecture: “Lessons from a Life in Biopharma”

John G. Auniņš (Seres Therapeutics Inc.)

Monday, October 29th, 2018, 6:00pm-7:00pm

Weston Convention Center, Allegheny Grand Ballroom I

James E. Bailey Award Lecture: “Turning Immunity On and Off”

Jeffrey A. Hubbell (University of Chicago)

Tuesday, October 30th, 2018, 6:00pm-7:00pm

Weston Convention Center, Allegheny Grand Ballroom I

Biotechnology Progress Award for Excellence in Biological Engineering Publication

Junghae Suh (Rice University)

Tuesday, October 30th, 2018, 6:00pm-7:00pm

Weston Convention Center, Allegheny Grand Ballroom I

SBE HOSPITALITY SUITE SPONSORED BY PFIZER

FREE to SBE members. You can become a member at the door.

Tuesday, October 30, 2018: 9:00 PM - 11:00 PM

Westin Convention Center, Butler



SBE LEADERS MANAGING BOARD

- Chair: Georges Belfort, RPI
- Bill Bentley, University of Maryland
- Brian Davison, Oak Ridge National Lab
- Gregory Frank, Amgen Inc.
- Todd Przybycien, Carnegie Mellon
- Eugene Schaefer, Johnson & Johnson
- Dana Anderson, Denali Therapeutics
- Michael Shuler, Cornell
- Anne Skaja Robinson, Tulane University
- Gregory Stephanopoulos, MIT
- Michael Jewett, Northwestern
- Timothy Charlebois, Pfizer
- June Wispelwey, AIChE

ESTABLISHED BY AIChE, THE SOCIETY FOR BIOLOGICAL ENGINEERING IS A TECHNOLOGICAL COMMUNITY FOR ENGINEERS AND APPLIED SCIENTISTS INTEGRATING BIOLOGY WITH ENGINEERING.

MEMBERSHIP

Our members come from a broad spectrum of industries and disciplines and work on bioprocessing, biomedical, and biomolecular applications.

SBE OFFERS ITS MEMBERS:

- An international professional network. Share ideas and experiences with your colleagues from around the world.
- Discounts on leading biological engineering conferences such as our series on biomolecular engineering, stem cell engineering, bioengineering, nanotechnology, and accelerating biopharmaceutical development, sustainability in (bio)pharmaceuticals, and electrofuels.
- News that is relevant and what you need to know. Members receive SBE's e-newsletter and the semiannual BioSupplement to Chemical Engineering Progress.
- Access to first-hand information from academic and industry experts on the leading edge of biological engineering discovery and application.
- Webinars, available live and on-demand, featuring cutting edge topics covered by the current experts in the field of bioengineering.
- A voice in education, employment and technology advancement topics.

SBE PROVIDES ITS MEMBERS WITH A PROFESSIONAL NETWORK OF BROAD PERSPECTIVES, RELEVANT INFORMATION, AND HORIZON EXPANDING OPPORTUNITIES. WE INVITE YOU TO JOIN TODAY.

JOIN TODAY!

ANNUAL DUES ARE JUST \$75 FOR PROFESSIONALS OR \$25 FOR GRADUATE STUDENTS.

MEMBERS OF ORGANIZATIONS AFFILIATED WITH SBE INCLUDING AIChE PAY JUST \$15.

FREE MEMBERSHIP FOR UNDERGRADUATE STUDENTS.

JOIN AT <http://www.aiche.org/sbe/community/membership>

PROGRAMMING from Food, Pharmaceutical, and Bioengineering Division (FP&BE) and Pharmaceutical Discovery, Development and Manufacturing (PD2M)

Forum Plenary: Pharmaceutical Discovery, Development, and Manufacturing Forum

Monday, October 29th, 2018: 8:00-10:30 AM

Room: Allegheny Grand Ballroom II (Westin Convention Center)

Pharmaceutical Discovery, Development, and Manufacturing Forum Awards Ceremony

Monday, October 29th, 2018: 6:30-9:30 PM

Room: Allegheny Grand Ballroom II (Westin Convention Center)

Division Plenary: Food, Pharmaceutical, and Bioengineering Division

Tuesday, October 30th, 2018: 3:30-6:00 PM

Room: Allegheny Grand Ballroom II (Westin Convention Center)

The Food, Pharmaceutical & Bioengineering Division (FP&BE or “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.

This session is co-sponsored by the Pharmaceutical Discovery, Development and Manufacturing Forum (PD2M or “Division 26”), which 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.

FP&BE Leadership:

- | | |
|--|--|
| <ul style="list-style-type: none"> • Michael Jewett, Chair • Joshua Leonard, Vice Chair • Hal Alper, Past Chair • David E Block, Past Chair/Program Chair • Yiannis Kaznessis, Past Chair • Rajanikanth Vadigepalli, Program Chair • Benjamin Hackel, Secretary • Cynthia Collins, Treasurer | <ul style="list-style-type: none"> • Lola Eniola-Adefeso, Area Chair • Mattheos Koffas, Area Chair • William E Bentley, Officer • John Morgan, Officer • Eleftherios Papoutsakis, Officer • Evan Wujcik, Officer • Darlene S. Schuster, Staff Liaison |
|--|--|

PD2M Leadership:

- | | |
|---|---|
| <ul style="list-style-type: none"> • Mary am Ende, Chair Elect • John Lepore, Chair • Paul C. Collins, Past Chair • Gregory Frank, Past Chair • Christine Seymour, Past Chair • True Rogers, Secretary • Jacob Albrecht, Treasurer • Eric Ahuja, Director • Daniel M. Hallow, Director | <ul style="list-style-type: none"> • Joe P. Hannon, Director • Gintaras Reklaitis, Director • Huiquan Wu, Director • Patrick Donald Sinko, Officer • John C. Wincek, Member • Robert Wolcik, Member • Jean Tom, CTOC Liaison • Darlene S. Schuster, Staff Liaison |
|---|---|

AWARD WINNERS:

**Award: Food, Pharmaceutical and Bioengineering
Division Award in Chemical Engineering**



Wilfred Chen
Professor
University of Delaware

**Award: Food, Pharmaceutical and Bioengineering Division
Distinguished Service Award in Chemical Engineering**



Gregory Stephanopoulos
Professor
Massachusetts Institute of Technology

PROGRAM

Saturday, October 27th, 2018

Time	Title	Property	Room
2:45 PM - 3:30 PM	Chemical Engineering in Pharmaceuticals	David L. Lawrence Convention Center	306/307

Sunday, October 28th, 2018

Time	Title	Property	Room
3:30 PM - 6:00 PM	Biobased Intermediates and Biomaterials	David L. Lawrence Convention Center	335
3:30 PM - 6:00 PM	Biobased Materials: Design and Application	Westin Convention Center	Westmoreland West-Central
3:30 PM - 6:00 PM	Bioinspired Membranes and Membrane Processes	David L. Lawrence Convention Center	302
3:30 PM - 6:00 PM	Biomaterials for <i>in vitro</i> Tissue Models and Improved Therapeutic Strategies	David L. Lawrence Convention Center	331
3:30 PM - 6:00 PM	Bioplastics, Biocomposites and Value-Added Uses of Biofuel Coproducts for Sustainable Manufacturing	David L. Lawrence Convention Center	325
3:30 PM - 6:00 PM	Feedstock Logistics for Biorefineries	David L. Lawrence Convention Center	316
3:30 PM - 6:00 PM	Hydrogel Biomaterials	David L. Lawrence Convention Center	328
3:30 PM - 6:00 PM	Microbiomes and Metabolomes in Food, Health, and Bioprocessing	Westin Convention Center	Westmoreland East
3:30 PM - 6:00 PM	Nanostructured Biomimetic and Biohybrid Materials and Devices	David L. Lawrence Convention Center	311
3:30 PM - 6:00 PM	Reactor Engineering for Biomass Feedstocks	David L. Lawrence Convention Center	317
3:30 PM - 6:00 PM	Automation and High-Throughput Technologies for Pharmaceutical Discovery and Development	Westin Convention Center	Fayette
3:30 PM - 6:00 PM	Innovations in Pharmaceutical Discovery, Development, and Manufacturing	Westin Convention Center	Washington
3:30 PM - 6:00 PM	3D Printing I	David L. Lawrence Convention Center	333
8:00 PM - 10:30 PM	University of Pennsylvania Chemical and Biomolecular Engineering Department Dessert Reception	Heinz History Center	Heinz History Center

Monday, October 29th, 2018

Time	Title	Property	Room
8:00 AM - 10:30 AM	Biobased Fuels and Chemicals: Biosynthetic Pathway Engineering & Enzymatic Conversion	Westin Convention Center	Westmoreland West-Central
8:00 AM - 10:30 AM	Biomaterials	David L. Lawrence Convention Center	311
8:00 AM - 10:30 AM	Biomaterials and Life Science Engineering: Faculty Candidates	David L. Lawrence Convention Center	328
8:00 AM - 10:30 AM	Biotechnology & Materials U.G. Research Session (Invited Talks)	David L. Lawrence Convention Center	302
8:00 AM - 10:30 AM	Integrating Municipal and Industrial Waste into Biorefineries	David L. Lawrence Convention Center	316
8:00 AM - 10:30 AM	Nanomaterials for Biological Application I	David L. Lawrence Convention Center	412
8:00 AM - 10:30 AM	Topical Plenary: Microbial Interaction with Biointerfaces (Invited Talks)	Westin Convention Center	Pennsylvania East
8:00 AM - 10:30 AM	Forum Plenary: Pharmaceutical Discovery, Development, and Manufacturing Forum (Invited Talks)	Westin Convention Center	Allegheny Grand Ballroom II
8:00 AM - 10:30 AM	Reaction Engineering in Pharmaceuticals and Fine Chemicals	David L. Lawrence Convention Center	404
8:00 AM - 10:30 AM	Stem Cell and Tissue Engineering I: Engineering Cells	Westin Convention Center	Butler
8:00 AM - 10:30 AM	Cell Culture Engineering & Process Design	Westin Convention Center	Fayette
8:00 AM - 10:30 AM	Cells, Organs, and Labs on a Chip I: Modeling Cell Interactions	Westin Convention Center	Cambria
8:00 AM - 10:30 AM	Cellulose-Based Materials I	David L. Lawrence Convention Center	325
8:00 AM - 10:30 AM	3D Printing II	David L. Lawrence Convention Center	333
10:00 AM - 12:30 PM	Microbes at Biomedical Interfaces Undergraduate Poster Competition	David L. Lawrence Convention Center	Exhibit Hall B
10:00 AM - 12:30 PM	Undergraduate Student Poster Session: Food, Pharmaceutical, and Biotechnology	David L. Lawrence Convention Center	Exhibit Hall B
10:00 AM - 12:30 PM	Undergraduate Student Poster Session: Food, Pharmaceutical, and Biotechnology	David L. Lawrence Convention Center	Exhibit Hall B

12:30 PM - 3:00 PM	Advances in Algal Biorefineries I	David L. Lawrence Convention Center	315
12:30 PM - 3:00 PM	Advances in Protein Expression, Post-Translational Modification and Biomanufacturing	Westin Convention Center	Westmoreland East
12:30 PM - 3:00 PM	Area Plenary: Leaders in Biomaterials (Invited Talks)	David L. Lawrence Convention Center	328
12:30 PM - 3:00 PM	Area Plenary: Sustainable Biorefineries (Invited Talks)	David L. Lawrence Convention Center	316
12:30 PM - 3:00 PM	Biosensors, Bidiagnosis and Bioprocess Monitoring: Materials and Devices	Westin Convention Center	Westmoreland West-Central
12:30 PM - 3:00 PM	Developments in Petroleum and Biofuels Refining Technologies	David L. Lawrence Convention Center	323
12:30 PM - 3:00 PM	Efficient Processing of Lignin to Bioproducts and Biofuels I	David L. Lawrence Convention Center	318
12:30 PM - 3:00 PM	Nanomaterials for Biological Application II	David L. Lawrence Convention Center	412
12:30 PM - 3:00 PM	Topical Plenary: Advances in Biosensing (Invited Talks)	Westin Convention Center	Pennsylvania West
12:30 PM - 3:00 PM	Advancements in Materials Science for Powder Handling in Pharmaceutical Process Development	Westin Convention Center	Cambria
12:30 PM - 3:00 PM	Computational Solid State Pharmaceutics	Westin Convention Center	Washington
12:30 PM - 3:00 PM	Pharmaceutical Process Development and Pilot Plants	David L. Lawrence Convention Center	336
12:30 PM - 3:00 PM	Stem Cell and Tissue Engineering II: Engineering Tissue	Westin Convention Center	Butler
12:30 PM - 3:00 PM	Cellulose Based Materials II	David L. Lawrence Convention Center	325
12:30 PM - 3:00 PM	3D Printing Keynote (Invited Talks)	David L. Lawrence Convention Center	333
3:30 PM - 6:00 PM	Advances in Algal Biorefineries II	David L. Lawrence Convention Center	315
3:30 PM - 6:00 PM	Efficient Processing of Lignin to Bioproducts and Biofuels II	David L. Lawrence Convention Center	318
3:30 PM - 6:00 PM	Graduate Student Competition in Microbiointerface Research	Westin Convention Center	Pennsylvania East
3:30 PM - 5:00 PM	Poster Session: Bioengineering	David L. Lawrence Convention Center	Exhibit Hall B
3:30 PM - 5:00 PM	Poster Session: Food and Bioprocess Engineering	David L. Lawrence Convention Center	Exhibit Hall B

3:30 PM - 5:00 PM	Poster Session: Materials Engineering & Sciences (08B - Biomaterials)	David L. Lawrence Convention Center	Exhibit Hall B
3:30 PM - 5:00 PM	Poster Session: Novel Products from Forest and Plant Biomass	David L. Lawrence Convention Center	Exhibit Hall B
3:30 PM - 5:00 PM	Poster Session: Pharmaceutical	David L. Lawrence Convention Center	Exhibit Hall B
3:30 PM - 6:00 PM	3D Printing of Composites	David L. Lawrence Convention Center	333
6:00 PM - 7:00 PM	D.I.C. Wang Award Lecture	Westin Convention Center	Allegheny Grand Ballroom I
6:30 PM - 9:30 PM	Pharmaceutical Discovery, Development, and Manufacturing Forum Awards Ceremony	Westin Convention Center	Allegheny Grand Ballroom II
6:30 PM - 9:30 PM	Pharmaceutical Discovery, Development, and Manufacturing Forum Awards Ceremony F&B	Westin Convention Center	Allegheny Grand Ballroom II

Tuesday, October 30th, 2018

Time	Title	Property	Room
8:00 AM - 10:30 AM	Advances in Membrane Technologies for Food and Bioprocessing	Westin Convention Center	Westmoreland East
8:00 AM - 10:30 AM	Advances in Metabolic Engineering: Biosynthetic Pathway Engineering and Enzymatic Conversion	Westin Convention Center	Westmoreland West-Central
8:00 AM - 10:30 AM	Alternative Fuels including Biofuels, Hydrogen, Renewable Hydrogen, and Syngas	David L. Lawrence Convention Center	324
8:00 AM - 10:30 AM	Area Plenary: Bionanotechnology (Invited Talks)	David L. Lawrence Convention Center	311
8:00 AM - 10:30 AM	Biofuels Production: Design, Simulation, and Economic Analysis	David L. Lawrence Convention Center	316
8:00 AM - 10:30 AM	Biomaterials for Drug Delivery	David L. Lawrence Convention Center	328
8:00 AM - 10:30 AM	Biosensors, Bidiagnosis and Bioprocess Monitoring: Cell and Protein Detection	Westin Convention Center	Cambria
8:00 AM - 10:30 AM	Chemical Modifications and Processing of Biomaterials	David L. Lawrence Convention Center	325
8:00 AM - 10:30 AM	Electroactive Biomaterials to Sense and Control Microbial Infections	Westin Convention Center	Pennsylvania East
8:00 AM - 10:30 AM	In Honor of Professor D. Ramkrishna's Contributions to Biopharmaceutical Industry (Invited Talks)	Westin Convention Center	Somerset

8:00 AM - 10:30 AM	Materials Chemistry for Biosensors	Westin Convention Center	Pennsylvania West
8:00 AM - 10:30 AM	Numerical Analyses of Mixing Processes in Bioreactors	David L. Lawrence Convention Center	334
8:00 AM - 10:30 AM	Advancements in Polymers and Amorphous Solids for Pharmaceutical Process Development	Westin Convention Center	Fayette
8:00 AM - 10:30 AM	Emerging Technologies in Pharmaceutical Research and Manufacturing	Westin Convention Center	Washington
8:00 AM - 10:30 AM	Photochemical Reaction Engineering in Fine Chemical and Pharmaceutical Industries	David L. Lawrence Convention Center	404
8:00 AM - 10:30 AM	Engineering the Tissue and Cell Microenvironment I: Development and Disease	Westin Convention Center	Butler
12:30 PM - 3:00 PM	Biocolloids, Biomolecules, and Nanomaterials of Medical Relevance	Westin Convention Center	Pennsylvania East
12:30 PM - 3:00 PM	Biomolecular Engineering	Westin Convention Center	Cambria
12:30 PM - 3:00 PM	Biosensor Devices: Applications I	Westin Convention Center	Pennsylvania West
12:30 PM - 3:00 PM	Crystallization of Pharmaceutical and Biological Molecules	David L. Lawrence Convention Center	302
12:30 PM - 3:00 PM	Environmental Implications of Nanomaterials: Biological Interactions	David L. Lawrence Convention Center	309
12:30 PM - 3:00 PM	Life Cycle Analysis of Bio-Based Fuels, Energy, and Chemicals	David L. Lawrence Convention Center	316
12:30 PM - 3:00 PM	Engineering the Tissue and Cell Microenvironment II: Directing Cell Behavior with Extracellular Cues	Westin Convention Center	Butler
3:00 PM - 5:00 PM	Meet SSPC @ the SFI Pharmaceutical Research Centre	David L. Lawrence Convention Center	338
3:30 PM - 6:00 PM	Biomaterials: Graduate Student Award Session	David L. Lawrence Convention Center	328
3:30 PM - 6:00 PM	Bionanotechnology Graduate Student Award Session	David L. Lawrence Convention Center	310
3:30 PM - 6:00 PM	Biosensor Devices: Applications II	Westin Convention Center	Pennsylvania West
3:30 PM - 6:00 PM	Developments in Biorefineries	David L. Lawrence Convention Center	316
3:30 PM - 6:00 PM	Division Plenary: Food, Pharmaceutical, and Bioengineering Division (Invited Talks)	Westin Convention Center	Allegheny Grand Ballroom II
3:30 PM - 6:00 PM	Electrocatalysis and Photoelectrocatalysis VI: Biomass Processing and Ammonia Synthesis	David L. Lawrence Convention Center	401

3:30 PM - 6:00 PM	Plenary Session: Multifunctional Biomaterials Addressing Current Healthcare Challenges (Invited Talks)	Westin Convention Center	Pennsylvania East
3:30 PM - 6:00 PM	Separation Processes in Biorefineries	David L. Lawrence Convention Center	324
3:30 PM - 6:00 PM	Thermodynamics of Biomolecular Folding and Assembly	David L. Lawrence Convention Center	307
3:30 PM - 6:00 PM	Advancements in Particle Engineering for Crystallization in Pharmaceutical Process Development	Westin Convention Center	Fayette
6:00 PM - 7:00 PM	8B Biomaterials Business Meeting	David L. Lawrence Convention Center	328
6:00 PM - 7:00 PM	SBE's James E. Bailey Award Lecture	Westin Convention Center	Allegheny Grand Ballroom I

Wednesday, October 31st, 2018

Time	Title	Property	Room
8:00 AM - 10:30 AM	Advances in Biocatalysis and Biosynthesis	Westin Convention Center	Westmoreland West-Central
8:00 AM - 10:30 AM	Advances in Bioseparations	David L. Lawrence Convention Center	301
8:00 AM - 10:30 AM	Biomolecules at Interfaces I	Omni William Penn Hotel	Conference Center B
8:00 AM - 10:30 AM	Cell Biomechanics, Adhesion and Migration I: Implications in Cancer	Westin Convention Center	Butler
8:00 AM - 10:30 AM	Computational Catalysis IV: Biomass Chemistry and Chemicals Production	David L. Lawrence Convention Center	402
8:00 AM - 10:30 AM	Drug Delivery I: Biologics	Westin Convention Center	Cambria
8:00 AM - 10:30 AM	Hydrodynamics of Biological Systems	Omni William Penn Hotel	Frick
8:00 AM - 10:30 AM	Mixing Scale-up/Scale-down Issues in Pharmaceutical and Biopharmaceuticals Processes	David L. Lawrence Convention Center	334
8:00 AM - 10:30 AM	Reaction Engineering for Biomass Conversion I	David L. Lawrence Convention Center	401
8:00 AM - 10:30 AM	USA-China Progress in Biomass Conversion Technologies I	David L. Lawrence Convention Center	325
8:00 AM - 10:30 AM	Multivariate Experimentation and Modeling for Pharmaceutical Products and Processes	Westin Convention Center	Fayette

8:00 AM - 10:30 AM	Panel: Pharmaceutical Engineering Challenges As Approached By Chemical Engineers Outside of Pharma (Invited Talks)	Westin Convention Center	Somerset
8:00 AM - 10:30 AM	Enabling Technologies for Immunotherapy Development	Westin Convention Center	Pennsylvania East
11:30 AM - 12:15 PM	Planning Meeting for Area 2G, Bioseparations	David L. Lawrence Convention Center	301
12:30 PM - 3:00 PM	Biomass Thermal Deconstruction via Fast Pyrolysis Biorefineries	David L. Lawrence Convention Center	316
12:30 PM - 3:00 PM	Biomaterial Scaffolds for Tissue Engineering I: Musculoskeletal Applications	David L. Lawrence Convention Center	328
12:30 PM - 3:00 PM	Biomolecules at Interfaces II	Omni William Penn Hotel	Conference Center B
12:30 PM - 3:00 PM	Bionanotechnology for Gene and Drug Delivery I	David L. Lawrence Convention Center	309
12:30 PM - 3:00 PM	Bioseparations and Downstream Processing	Westin Convention Center	Somerset
12:30 PM - 3:00 PM	Emerging Tools and Enabling Technologies in Synthetic Biology: Sensors and Actuators	Westin Convention Center	Westmoreland West-Central
12:30 PM - 3:00 PM	Membranes for Bioseparations	David L. Lawrence Convention Center	301
12:30 PM - 3:00 PM	Nanotechnology for Biotechnology and Pharmaceuticals I	David L. Lawrence Convention Center	311
12:30 PM - 3:00 PM	Reaction Engineering for Biomass Conversion II	David L. Lawrence Convention Center	401
12:30 PM - 3:00 PM	USA-China Progress in Biomass Conversion Technology II	David L. Lawrence Convention Center	325
12:30 PM - 3:00 PM	Immunotherapy Applications	Westin Convention Center	Pennsylvania East
3:30 PM - 6:00 PM	Biomanufacturing	Westin Convention Center	Pennsylvania East
3:30 PM - 6:00 PM	Biomaterial Scaffolds for Tissue Engineering II: Bioactive and Drug-Eluting Materials	David L. Lawrence Convention Center	328
3:30 PM - 6:00 PM	Bionanotechnology for Gene and Drug Delivery II	David L. Lawrence Convention Center	309
3:30 PM - 6:00 PM	Emerging Tools and Enabling Technologies in Synthetic Biology: Design of Complex Circuits	Westin Convention Center	Westmoreland West-Central
3:30 PM - 6:00 PM	Integrative Systems Biology	Westin Convention Center	Butler
3:30 PM - 6:00 PM	Nanotechnology for Biotechnology and Pharmaceuticals II	David L. Lawrence Convention Center	311

3:30 PM - 5:00 PM	Poster Session: Sustainability and Sustainable Biorefineries	David L. Lawrence Convention Center	Exhibit Hall B
3:30 PM - 6:00 PM	USA-China Progress in Biomass Conversion Technology III	David L. Lawrence Convention Center	325
3:30 PM - 6:00 PM	Cells, Organs, and Labs on a Chip II: Tissues and Diseases	Westin Convention Center	Somerset

Thursday, November 1st, 2018

Time	Title	Property	Room
8:00 AM - 10:30 AM	Biological Conversions and Processes for Renewable Feedstocks	David L. Lawrence Convention Center	316
8:00 AM - 10:30 AM	Biomaterials for Immunological Applications	David L. Lawrence Convention Center	331
8:00 AM - 10:30 AM	Biomimetic Materials	David L. Lawrence Convention Center	328
8:00 AM - 10:30 AM	Cell Biomechanics, Adhesion and Migration II: Cell Movement	Westin Convention Center	Cambria
8:00 AM - 10:30 AM	Recalcitrance of Woody Biomass	David L. Lawrence Convention Center	324
8:00 AM - 10:30 AM	Self-Assembled Biomaterials	David L. Lawrence Convention Center	311
8:00 AM - 10:30 AM	Thermochemical Conversion of Biomass	David L. Lawrence Convention Center	325
8:00 AM - 10:30 AM	Big Data in Chemical and Pharmaceutical Processes	David L. Lawrence Convention Center	410
8:00 AM - 10:30 AM	Mechanistic Models for Integrated Pharmaceutical Product and Process Design	Westin Convention Center	Fayette
8:00 AM - 10:30 AM	Applications in Immunology and Immunotherapy	Westin Convention Center	Washington
12:30 PM - 3:00 PM	Biochemical Conversion Processes in Forest/Plant Biomass Biorefineries I	David L. Lawrence Convention Center	325
12:30 PM - 3:00 PM	Biomacromolecular Gels	David L. Lawrence Convention Center	326
12:30 PM - 3:00 PM	Biomass Characterization, Pretreatment, and Fractionation I	David L. Lawrence Convention Center	324
12:30 PM - 3:00 PM	Biomaterials in Industry and the Clinic	David L. Lawrence Convention Center	328
12:30 PM - 3:00 PM	Catalytic Processing of Fossil and Biorenewable Feedstocks I: Acids, Alcohols, and Polyols	David L. Lawrence Convention Center	405

12:30 PM - 3:00 PM	Complex and Networked Chemical and Biochemical Systems	David L. Lawrence Convention Center	409
12:30 PM - 3:00 PM	Engineering in Cancer Biology and Therapy I: Signaling	Westin Convention Center	Cambria
12:30 PM - 3:00 PM	Gene Regulation Engineering: Medical and Biotechnological Tools and Applications	Westin Convention Center	Westmoreland West-Central
12:30 PM - 3:00 PM	Multiscale Systems Biology	Westin Convention Center	Butler
12:30 PM - 3:00 PM	Nanobiotechnology for Sensors and Imaging I	David L. Lawrence Convention Center	311
12:30 PM - 3:00 PM	Application of Process Modelling to Pharmaceutical Process Design and Scale-up	Westin Convention Center	Fayette
12:30 PM - 3:00 PM	Novel Nanoparticles and Nanostructured Materials for Pharmaceuticals and Medical Applications I	David L. Lawrence Convention Center	413
3:30 PM - 6:00 PM	Biochemical Conversion Processes in Forest/Plant Biomass Biorefineries II	David L. Lawrence Convention Center	325
3:30 PM - 6:00 PM	Biomass Characterization, Pretreatment, and Fractionation II	David L. Lawrence Convention Center	324
3:30 PM - 6:00 PM	Bioprinting of Scaffolds, Tissues, and Organs	David L. Lawrence Convention Center	328
3:30 PM - 6:00 PM	Catalytic Biomass Conversion to Chemicals	David L. Lawrence Convention Center	323
3:30 PM - 6:00 PM	Catalytic Processing of Fossil and Biorenewable Feedstocks II: Upgrading Bio-Oils & Lignin	David L. Lawrence Convention Center	405
3:30 PM - 6:00 PM	Computational Methods in Biological and Biomedical Systems	David L. Lawrence Convention Center	408
3:30 PM - 6:00 PM	Engineering in Cancer Biology and Therapy II: Tumor Microenvironment and Mechanics	Westin Convention Center	Cambria
3:30 PM - 6:00 PM	Nanobiotechnology for Sensors and Imaging II	David L. Lawrence Convention Center	311
3:30 PM - 6:00 PM	Predictive Scale-up/Scale-down for Production of Pharmaceuticals and Biopharmaceuticals	Westin Convention Center	Fayette
3:30 PM - 6:00 PM	Synthetic Biology Applications	Westin Convention Center	Westmoreland West-Central
3:30 PM - 6:00 PM	Value-Added Co-Products from Biorefineries	David L. Lawrence Convention Center	316
3:30 PM - 6:00 PM	Novel Nanoparticles and Nanostructured Materials for Pharmaceuticals and Medical Applications II	David L. Lawrence Convention Center	413
3:30 PM - 6:00 PM	Modeling and Engineering Cellular Communities	Westin Convention Center	Westmoreland East

Friday, November 2nd, 2018

Time	Title	Property	Room
8:00 AM - 10:30 AM	Bio-Based Polymers	David L. Lawrence Convention Center	319
8:00 AM - 10:30 AM	Catalytic Processing of Fossil and Biorenewable Feedstocks III: Furan Chemistry	David L. Lawrence Convention Center	315
8:00 AM - 10:30 AM	Modeling of Biomaterials	David L. Lawrence Convention Center	321
8:00 AM - 10:30 AM	Pyrolysis of Biomass	David L. Lawrence Convention Center	317
8:00 AM - 10:30 AM	Thermophysical Properties of Biological Systems	David L. Lawrence Convention Center	307



SYMPOSIUM ON COMPLEX BIODYNAMICS & NETWORKS

December 10-12, 2018
Matrix @ Biopolis, Singapore

Systems Biology is an emerging field that combines multidisciplinary approaches to tackle the complexity of living systems responses and disease processes. The 3rd cBio Symposium will discuss and report recent innovative and cutting edge results in the field. The exciting event welcomes contributions from all fields of biology that emphasize cross disciplinary research.

The 3rd cBio Symposium brings together scientists with multidisciplinary interests in biology, from budding young scientists to well established leaders. It was founded at the Institute for Advanced Biosciences, Keio University in 2013. The participants of the event are encouraged to form deep scientific collaborations and friendships, not only across their diverse research fields, but also surpassing global borders.

CALL FOR PAPERS

Call for papers for Oral and Poster presentations is now open

The topics include:

- Biological networks
- High-dimensional complexity
- Synthetic biology & artificial life
- Stem & cancer cell dynamics
- Systems immunology
- Metabolic engineering
- Biofilm
- or ANY other aspects of Complex Systems Biology from computational/theoretical to experimental works

Authors of selected papers will be invited to submit to a special issue of *Engineering Biology*, published by The Institution of Engineering and Technology www.ietdl.org/enb.



**Register to Attend by November 1, 2018
for the Best Rates!**

FEATURED SPEAKERS:

- Alexander Hoffman
University of California, Los Angeles
- Hiroki Ueda
*RIKEN Center for Biosystems
Dynamics Research*
- Subhra K. Biswas
*Singapore Immunology Network, Agency for
Science, Technology and Research (A*STAR)*
- Richard Ian Kitney
Imperial College London
- Karl Kuchler
Medical University Vienna
- Nic D. Lindley
*Biotransformation Innovation Platform,
Agency for Science, Technology and
Research (A*STAR)*
- Nicholas Plachta
*Institute of Molecular and Cell Biology,
Agency for Science, Technology and Research
(A*STAR)*
- Giulia Rancati
*Institute of Medical Biology, Agency for
Science, Technology and Research (A*STAR)*
- Michael White
University of Manchester
- Yosef Yarden
Weizmann Institute of Science

PROGRAMME COMMITTEE:

- Kumar Selvarajoo
*Biotransformation Innovation Platform,
Agency for Science, Technology and Research
(A*STAR), Chair*
- Mariko Okada
Osaka University, Co-Chair
- Réka Albert
Pennsylvania State University
- Mariano Bizzarri
Sapienza University of Rome
- Matthew Chang
National University of Singapore
- Sui Huang
Institute for Systems Biology
- Alessandro Giuliani
Istituto Superiore di Sanità
- Mads Kaern
University of Ottawa
- Ben MacArthur
University of Southampton
- Chuel Loo Poh
National University of Singapore
- Jeffrey Varner
Cornell University
- Limsoon Wong
National University of Singapore



CRISPR TECHNOLOGIES CONFERENCE

December 10-12, 2018
Bahia Resort Hotel | San Diego, CA

**CALL FOR ABSTRACTS AND
REGISTRATION NOW OPEN**

This conference will bring together leaders and trainees from the cutting edge of CRISPR technologies and their application to genome editing and beyond. Academic, clinical, and industrial researchers are invited to share their recent discoveries to progress the field in CRISPR science and engineering.

Visit www.aiche.org/crispr for additional information, including session topics and program.

© 2018 AICHE 3081_18 • 09.18

KEYNOTE SPEAKER

- Fyodor Urnov, *Altius Institute for Biomedical Sciences*

INVITED SPEAKERS

- Omar Akbari, *University of California, San Diego*
- Chase Beisel, *Helmholtz Institute*
- Albert Cheng, *Jackson Laboratory*
- Wei Leong Chew, *Genome Institute of Singapore*
- Mo Ebrahimkhani, *Arizona State University/Mayo Clinic*
- Charles Gersbach, *Duke University*
- Patrick Hsu, *Salk Institute for Biological Studies*
- Yinan Kan, *eGenesis*
- Alexis Komor, *University of California, San Diego*
- Prashant Mali, *University of California, San Diego*
- Megan Palmer, *Stanford University*
- Shengdar Tsai, *St. Jude Children's Research Hospital*
- Harris Wang, *Columbia University*
- Yan Zhang, *University of Michigan*
- John Zuris, *Editas Medicine*

Organized by the Society for Biological Engineering



International Conference MICROBIOME ENGINEERING

Joseph B. Martin Conference Center
Boston, MA • November 4-6, 2018

Attend the International Conference on Microbiome Engineering (ICME 2018). ICME 2018 explores important applications of microbiome engineering, bringing together experts from industry and academia worldwide to discuss the challenges in microbiome engineering and the future of the field.

Visit www.aiche.org/microbiome for additional information, including session topics and program.

KEYNOTE SPEAKERS

- Elhanan Borenstein, *University of Washington*
- Pamela Silver, *Harvard Medical School*

INVITED SPEAKERS

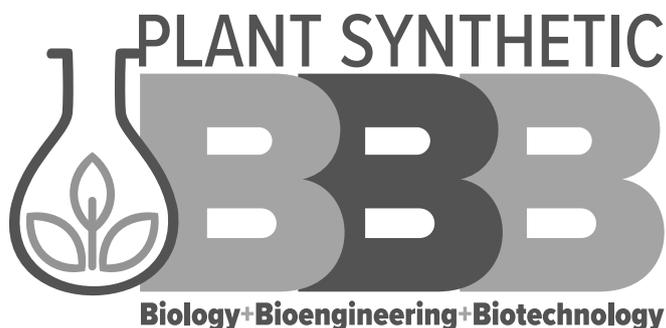
- Cynthia Collins, *Rensselaer Polytechnic Institute*
- Arolyn Conwill, *Massachusetts Institute of Technology*
- Claire Duvall, *Massachusetts Institute of Technology*
- Almut Heinken, *University of Luxembourg*
- Tami Lieberman, *Massachusetts Institute of Technology*
- Michelle O'Malley, *University of California Santa Barbara*
- Paul Miller, *Synlogic*
- Harris Wang, *Columbia University*

PANELISTS

- Vanni Bucci, *University of Massachusetts Dartmouth*
- Timothy Lu, *Massachusetts Institute of Technology*
- Costas Maranas, *Pennsylvania State University*
- Bernat Olle, *Vedanta Biosciences*
- Ophelia Venturelli, *University of Wisconsin-Madison*

Organized by Society for Biological Engineering

© 2018 AICHE 3082_18 • 08.18



November 29 - December 1, 2018

Hyatt Regency Clearwater Beach Resort & Spa • Clearwater, FL

The Society for Biological Engineering invites you to participate in the **2nd International Conference on Plant Synthetic Biology, Bioengineering, and Biotechnology, November 29 - December 1, 2018 in Clearwater, FL.**

Plant synthetic biology uses enabling approaches from engineering and plants as platforms to produce self-sustaining and photosynthetic driven traits and bio-production. The emerging field relies on computational modeling and mathematical analysis to design predictable biological functions and sustainable traits. As such the field integrates and encompasses broad applications including biofuels, agriculture, bio-materials, biopharmaceuticals, sustainability and more. All aspects of plant synthetic biology will be discussed in this conference from tools to design predictable functions and precision genome editing, to designed photosynthesis, plant bioengineering techniques, and rational design of novel plant traits.

SUBMIT AN ABSTRACT FOR THE FOLLOWING SESSION TOPICS:

- Tissue Culture and Transformation of Recalcitrant Species
- Transgenic Approaches for Improving Traits and Performance of Crops
- Engineering of the Chloroplast Genome
- Gene-Editing Tools
- Plant Foundry: Biopolymers, Biopharmaceuticals and Medically Effective Secondary Metabolites (Vaccines, Antibodies, and Metabolites)
- Synthetic Biology Tools and Quantitative Aspects of Gene Circuit Design



Submit Your Abstract Today!
www.aiche.org/plantsynbio

Organized by



KEYNOTE SPEAKERS:

- Poul Erik Jensen
University of Copenhagen
- Johnathan Napier
Rothamsted Research

INVITED SPEAKERS:

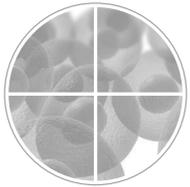
- Scott Betts
DuPont Pioneer
- Kim Boutilier
Wageningen University & Research
- Henry Daniell
University of Pennsylvania
- Maureen Hanson
Cornell University
- Bill Gordon-Kamm
DuPont Pioneer
- June Medford
Colorado State University
- Donald Ort
University of Illinois
- Christian Rogers
Sainsbury Laboratory University of Cambridge
- John Shanklin
Brookhaven National Laboratory
- Patrick Shih
Joint BioEnergy Institute
- Christopher Voigt
Massachusetts Institute of Technology

CONFERENCE CO-CHAIRS:

- Fredy Altpeter
University of Florida
- Henrik Scheller
Joint Bioenergy Institute

ORGANIZING COMMITTEE:

- Joyce Van Eck
Boyce Thompson Institute
- Wayne Parrott
University of Georgia
- June Medford
Colorado State University
- Birger Lindberg Møller
University of Copenhagen
- Nicola Patron
Earlham Institute
- Neal Stewart
University of Tennessee
- Yinong Yang
Penn State University



6th International Conference on Stem Cell Engineering

December 5 - 7, 2018

Hotel Indigo Los Angeles Downtown • Los Angeles, CA

Presented by the Society for Biological Engineering (SBE), this conference will bring together leaders and trainees from cutting edge fields of stem cell engineering including basic and applied studies to discuss progress and needs to develop the next generation of stem cell technologies.

Stem cell engineering is a distinct field at the intersection of stem cell biology, engineering and regenerative medicine. The understanding of how biophysical and biochemical cues in the cells' surrounding regulate cell fate and differentiation can be harnessed for the development of novel approaches to modulate stem cell behaviors and leading eventually to their clinical utilization. As stem cell knowledge matures, its appropriate translation to the clinical setting is crucial for success. Thus, in addition to fundamental studies, approaches to monitor stem cell responses, enhance regeneration through material properties, uncover the immunological response during regeneration and the accurate design of clinical trials are all required to unlock the therapeutic potential of stem cells.

SUBMIT AN ABSTRACT FOR THE FOLLOWING SESSION TOPICS:

- Disease modeling
- Organoid engineering
- Endogenous repair and immune engineering
- 3D printing
- Computational stem cell biology
- Clinical applications and challenges
- Differentiation and morphogenesis
- Towards regenerative therapies



Registration Now Open
www.aiche.org/stemcell

Organized by



KEYNOTE SPEAKERS:

- Kevin D'Amour
Viacyte, Inc.
- Juergen Knoblich
Institute of Molecular Biotechnology (IMBA)
- Brenda Ogle,
University of Minnesota-Twin Cities

INVITED SPEAKERS:

- Randolph S. Ashton
University of Wisconsin-Madison
- Adam J. Engler
University of California, San Diego
- Adam W. Feinberg
Carnegie Mellon University
- Kevin Healy
University of California, Berkeley
- Beth Pruitt
University of California, Santa Barbara
- Shyni Varghese
Duke University
- Peter Zandstra
University of British Columbia

CONFERENCE CHAIRS:

- Nicola Elvassore
University of Padova
- Stephanie Willerth
University of Victoria

ORGANIZING COMMITTEE:

- Karen Christman
University of California, San Diego
- Mo Ebrahimkhani
Arizona State University/ Mayo Clinic
- Adam J. Engler
University of California, San Diego
- Sharon Gerecht
Johns Hopkins University
- Sanjay Kumar
University of California, Berkeley
- Song Li
University of California, Los Angeles
- Matthias Lutolf
Ecole Polytechnique Federale de Lausanne (EPFL)
- Todd McDevitt
University of California, San Francisco
- Milica Radisic
University of Toronto
- Peter Zandstra
The University of British Columbia



FOODIE

FOOD INNOVATION AND
ENGINEERING CONFERENCE

December 2-4, 2018 • Napa, CA

LEARN MORE ABOUT
PROGRAMMING, SPEAKERS
AND REGISTRATION AT
www.aisce.org/foodie

Don't miss this exciting inaugural event focusing on emerging technologies for food production, analyzing strategies to connect industry and cuisine, and navigating methods to fit the consumer market.

Hosted by AIChE's Food, Pharmaceutical & Bioengineering Division, FOODIE will bring together leaders in the field of food technology, science and industry to meet the evolving needs of consumers as they relate to ethical, sustainability, quality and safety food issues.

Keynote Speakers

- ▶ Laura Kliman, *Impossible Foods*
- ▶ Harold Schmitz, *Mars, Incorporated*

Invited Speakers

- ▶ Mark Burns, *University of Michigan*
- ▶ Richard Hartel, *University of Wisconsin-Madison*
- ▶ Kathiravan Krishnamurthy, *Illinois Institute of Technology*
- ▶ Nicole Rawling, *The Good Food Institute*
- ▶ Leslie Shor, *University of Connecticut*
- ▶ Bryan Tracy, *White Dog Labs*
- ▶ Greg Ziegler, *Pennsylvania State University*

Novel Food Processing Technologies Panel Discussion

- ▶ Bala Balasubramaniam, *Ohio State University*
- ▶ Kathiravan Krishnamurthy, *Illinois Institute of Technology*
- ▶ Nitin Nitin, *University of California Davis*
- ▶ Zhongli Pan, *University of California Davis*
- ▶ Suresh D. Pillai, *Texas A&M University*

Chairs

- ▶ David Block, *University of California Davis*
- ▶ Kate Gawel, *Campbell Soup Company*
- ▶ John Kaiser, *Iowa State University*
- ▶ Nitin Nitin, *University of California Davis*

Who Should Attend:

- ▶ Food Engineers
- ▶ Food Manufacturers
- ▶ Agricultural Engineers
- ▶ Nutritionists
- ▶ Food Media
- ▶ Food Scientists
- ▶ Chefs
- ▶ Restaurateurs
- ▶ Biological Engineers
- ▶ Chemical Engineers
- ▶ Wine Makers
- ▶ Foodies alike!

Explore the three major tracks this
conference will highlight:



Sustainability



Health and Safety



"Taste"

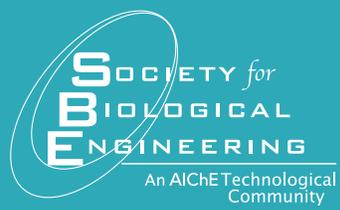
BRONZE SPONSOR



WHITE DOG LABS

ORGANIZED BY

AIChE 
The Global Home of Chemical Engineers



www.aiche.org/sbe