



# **2017 SBE User Guide:**

## **Technical Sessions in Biological Engineering**

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**October 28- November 1st, 2017**

**Minneapolis Convention Center, Minneapolis, MN**  
**Hilton Minneapolis, Minneapolis, MN**



## **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 experience with your peers and colleagues from around the world.
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- News that is relevant and what you need to know – members receive SBE's e-newsletter and semi-annual biosupplement to Chemical Engineering Progress.
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- Free webinars from industry and academic experts on topics such as biofuels, systems biology, metabolic engineering, bioprocessing and many more!

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## PROGRAMMING from DIVISIONS 15 and 26

### Session 421: Plenary Session: Food, Pharmaceutical, and Bioengineering Division

*Tuesday, October 31<sup>st</sup>, 2017: 3:15 PM - 5:45 PM*

*Room: 208C/D (Minneapolis 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.

### LEADERSHIP:

- Dr. Michael C Jewett, Chair
- Joshua N Leonard, Vice Chair
- Dr. Hal S Alper, Past Chair
- Dr. David E Block, Past Chair
- Mr. Yiannis N Kaznessis, Past Chair
- Stelios C Tsinontides, Past Chair
- Rajanikanth Vadigepalli, Program Chair
- Prof. Benjamin J Hackel, Secretary
- Cynthia Hollie Collins, Treasurer
- Dr. Mariajose Castellanos, Director
- Dr. Hesham Ali El-Enshasy, Director
- Kaitlin Keller, Director
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- Dr. Omolola Eniola-Adefeso, Area Chair
- Dr. Mattheos Koffas, Area Chair
- Dr. William E Bentley, Officer
- Prof. John A Morgan, Officer
- Prof. Eleftherios T Papoutsakis, Officer
- Prof. Evan K Wujcik, Officer
- Darlene S Schuster Ph.D., Staff Liaison

### AWARD WINNERS:

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



**David Schaffer**

**Professor**

**University of California, Berkeley**

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



**Georges Belfort**

**Institute Professor**

**Rensselaer Polytechnic Institute**

# PROGRAM

## 01A - Thermodynamics and Transport Properties

Day	Time	Session #	Session Title	Property	Room
Wednesday	12:30 PM	575	Thermophysical Properties of Biological Systems	Minneapolis Convention Center	L100I
Wednesday	3:15 PM	613	Modeling of Lipid Membranes and Membrane Proteins	Minneapolis Convention Center	L100I

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

## 01C - Interfacial Phenomena

Day	Time	Session #	Session Title	Property	Room
Wednesday	8:00 AM	464	Biomolecules at Interfaces I	Minneapolis Convention Center	M100B
Wednesday	8:00 AM	488	Interfacial Transport Phenomena	Minneapolis Convention Center	M100A
Wednesday	12:30 PM	527	Biomolecules at Interfaces II	Minneapolis Convention Center	M100B

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

## 02D - Membrane-Based Separations

Day	Time	Session #	Session Title	Property	Room
Monday	12:30 PM	158	Membranes for Bioseparations*	Minneapolis Convention Center	M100D
Thursday	12:30 PM	694	Bioinspired Membranes and Membrane Processes	Minneapolis Convention Center	M100H

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

## 02G - Bio Separations

Day	Time	Session #	Session Title	Property	Room
Monday	12:30 PM	158	Membranes for Bioseparations	Minneapolis Convention Center	M100D
Monday	3:15 PM	235	Rapid Development and Implementation of Bioseparations	Minneapolis Convention Center	M100D
Thursday	8:00 AM	665	Innovations in Biopharmaceutical Discovery, Development, and Manufacturing*	Minneapolis Convention Center	204A/B

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

### 04B - Graduate Education

Day	Time	Session #	Session Title	Property	Room
Wednesday	12:30 PM	563	NSF Workshop I: Highlights from CBET	Minneapolis Convention Center	101H

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

### 08A - Polymers

Day	Time	Session #	Session Title	Property	Room
Friday	8:00 AM	769	Bio-Based Polymers	Minneapolis Convention Center	102A

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

### 08B - Biomaterials

Day	Time	Session #	Session Title	Property	Room
Sunday	3:30 PM	16	Biomaterials for Nucleic Acid Delivery	Minneapolis Convention Center	211C
Sunday	3:30 PM	17	Bionanotechnology for Gene and Drug Delivery I*	Minneapolis Convention Center	212A/B
Sunday	3:30 PM	31	Modeling of Biomaterials	Minneapolis Convention Center	211D
Monday	8:00 AM	55	Biomaterials: Faculty Candidates	Minneapolis Convention Center	211C
Monday	8:00 AM	85	Nanomaterials for Biological Applications I*	Minneapolis Convention Center	200G
Monday	8:00 AM	98	Topical Plenary: Advanced Biomaterials, Biofuels, and Biorefinery (Invited Talks)*	Minneapolis Convention Center	200E
Monday	12:30 PM	126	Area Plenary: Leaders in Biomaterials (Invited Talks)	Minneapolis Convention Center	211C
Monday	3:15 PM	197	Poster Session: Materials Engineering & Sciences (08B - Biomaterials)*	Minneapolis Convention Center	Exhibit Hall B
Tuesday	8:00 AM	267	Biomaterial Scaffolds for Tissue Engineering I: Anisotropic Materials	Minneapolis Convention Center	209A/B
Tuesday	12:30 PM	334	Biomaterial Scaffolds for Tissue Engineering II: Bioactive and Drug-Eluting Materials	Minneapolis Convention Center	209A/B
Tuesday	3:15 PM	411	Biomaterials: Graduate Student Award Session	Minneapolis Convention	211D



				Center	Community
Tuesday	3:15 PM	426	Hydrogel Biomaterials	Minneapolis Convention Center	209A/B
Wednesday	8:00 AM	496	Nanotechnology for Biotechnology and Pharmaceuticals*	Minneapolis Convention Center	212A/B
Wednesday	12:30 PM	525	Biomaterials for Drug Delivery I: Particle Based Drug Delivery	Minneapolis Convention Center	209A/B
Wednesday	12:30 PM	526	Biomaterials for Immunological Applications I: Immune Activation and Vaccination	Minneapolis Convention Center	211A
Wednesday	12:30 PM	545	Emerging Applications of Cellulose Nanofibrils (CNFs) and Its Composites*	Minneapolis Convention Center	200B
Wednesday	3:15 PM	591	Biomaterials for Drug Delivery II: Micellar, Polymer and Protein Based Drug Carriers	Minneapolis Convention Center	211B
Wednesday	3:15 PM	592	Biomaterials for Immunological Applications II: Cancer Immunotherapy and Autoimmune Disease Treatments	Minneapolis Convention Center	211A
Wednesday	3:15 PM	593	Bioplastics, Biocomposites and Value-Added Uses of Biofuel Coproducts for Sustainable Manufacturing*	Minneapolis Convention Center	200B
Thursday	8:00 AM	647	Biomaterials for Drug Delivery III: Scaffolds Based Drug Delivery	Minneapolis Convention Center	210A/B
Thursday	8:00 AM	648	Biomaterials I: Instructive and Responsive Biomaterials	Minneapolis Convention Center	211A
Thursday	8:00 AM	686	Self-Assembled Biomaterials*	Minneapolis Convention Center	213A/B
Thursday	12:30 PM	696	Biomaterials II: Platforms for Cell Encapsulation, Isolation or Diagnostics	Minneapolis Convention Center	211A
Thursday	12:30 PM	729	Nanostructured Biomimetic and Biohybrid Materials and Devices*	Minneapolis Convention Center	213A/B
Thursday	3:15 PM	741	Biobased Materials: Design and Application*	Minneapolis Convention Center	103C
Thursday	3:15 PM	742	Biomimetic Materials I: Design and Synthesis	Minneapolis Convention Center	102F
Friday	8:00 AM	770	Biomaterials for <i>in vitro</i> Tissue Models and Improved Therapeutic Strategies	Minneapolis Convention Center	102E
Friday	8:00	771	Biomimetic Materials II: Applications	Minneapolis	102F

	AM			Convention Center	Community
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\* This session is co-sponsored by one or more programming groups

### 10D - Applied Mathematics and Numerical Analysis

Day	Time	Session #	Session Title	Property	Room
Tuesday	12:30 PM	343	Complex and Networked Chemical and Biochemical Systems	Minneapolis Convention Center	103F

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

### 12 - Process Development Division

Day	Time	Session #	Session Title	Property	Room
Wednesday	8:00 AM	502	Pharmaceutical Process Development and Pilot Plants *	Minneapolis Convention Center	102C

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

### 12A - Process Research and Innovation

Day	Time	Session #	Session Title	Property	Room
Sunday	3:30 PM	18	Bioseparations and Downstream Processing*	Minneapolis Convention Center	206A/B

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

### 15 - Food, Pharmaceutical & Bioengineering Division

Day	Time	Session #	Session Title	Property	Room
Monday	8:00 AM	76	In Honor of Martin Yarmush I (Invited Talks)	Minneapolis Convention Center	208C/D
Monday	8:00 AM	95	Sustainable Microbial Process for Food, Feeds, Energy, and Environment*	Minneapolis Convention Center	103B
Monday	12:30 PM	151	In Honor of Martin Yarmush II (Invited Talks)	Minneapolis Convention Center	208C/D
Monday	12:30 PM	152	In Honor of Stuart W. Churchill I (Invited Talks)*	Minneapolis Convention Center	101E
Monday	12:30 PM	152	In Honor of Stuart W. Churchill I (Invited Talks)*	Minneapolis Convention Center	101E
Monday	12:30 PM	176	Solve this! Fundamental Approach to Problem Solving in Industrial Processes I (Invited Talks)*	Minneapolis Convention Center	101I
Monday	3:15	228	In Honor of Stuart W. Churchill II (Invited	Minneapolis	101E

	PM		Talks)*	Convention Center	
Monday	3:15 PM	240	Solve this! Fundamental Approach to Problem Solving in Industrial Processes II (Invited Talks)*	Minneapolis Convention Center	101I
Tuesday	8:00 AM	294	In Honor of Wei-Shou Hu I - 30 Years of Mammalian Cell Culture Engineering for Biologics Manufacturing (Invited Talks)	Minneapolis Convention Center	208C/D
Tuesday	12:30 PM	367	In Honor of Wei-Shou Hu II - 30 Years of Mammalian Cell Culture Engineering for Biologics Manufacturing (Invited Talks)	Minneapolis Convention Center	208C/D
Tuesday	3:15 PM	421	Division Plenary: Food, Pharmaceutical, and Bioengineering Division (Invited Talks)	Minneapolis Convention Center	208C/D

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

### 15A - Food

Day	Time	Session #	Session Title	Property	Room
Monday	8:00 AM	50	Advances in Membrane Technologies for Food and Bioprocessing	Minneapolis Convention Center	206A/B
Monday	3:15 PM	194	Poster Session: Food and Bioprocess Engineering	Minneapolis Convention Center	Exhibit Hall B
Monday	3:15 PM	224	Fundamentals of Food, Energy, and Water Systems*	Minneapolis Convention Center	102A
Tuesday	8:00 AM	256	Advances in Functional Foods Production	Minneapolis Convention Center	206A/B
Wednesday	8:00 AM	491	Metabolic and Process Engineering for Value-Added Products from Food Processing	Minneapolis Convention Center	206A/B
Thursday	8:00 AM	642	Advances in Food and Bioprocess Engineering	Minneapolis Convention Center	206A/B

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

### 15B - Pharmaceuticals

Day	Time	Session #	Session Title	Property	Room
Sunday	3:30 PM	14	Amorphous Solid Dispersions for Drug Product *	Minneapolis Convention Center	205A/B
Sunday	3:30 PM	24	Green Chemical Reaction Engineering for Sustainability*	Minneapolis Convention Center	103A
Sunday	3:30 PM	26	Green Pharmaceutical Process Development and Biocatalysis*	Minneapolis Convention Center	204A/B



Monday	8:00 AM	71	Forum Plenary: Pharmaceutical Discovery, Development, and Manufacturing Forum (Invited Talks)*	Minneapolis Convention Center	205A/B
Monday	12:30 PM	162	Model Based Integrated Design of Pharmaceutical Drug Product Processes*	Minneapolis Convention Center	205A/B
Monday	3:15 PM	203	Poster Session: Pharmaceutical*	Minneapolis Convention Center	Exhibit Hall B
Monday	6:30 PM	251	Pharmaceutical Discovery, Development, and Manufacturing Forum Awards Ceremony*	Minneapolis Convention Center	205A/B
Tuesday	8:00 AM	274	Continuous Processing Technologies Applied in Drug Product Development*	Minneapolis Convention Center	204A/B
Tuesday	8:00 AM	299	Model Based Integrated Design of Pharmaceutical Drug Substance Processes I*	Minneapolis Convention Center	205A/B
Tuesday	8:00 AM	310	Solid Form Selection: Cocrystals, Salts, Solvates, Polymorphs, and Beyond*	Minneapolis Convention Center	M100J
Tuesday	12:30 PM	344	Continuous Processing Technologies Applied in Drug Product Manufacturing*	Minneapolis Convention Center	204A/B
Tuesday	12:30 PM	373	Model Based Integrated Design of Pharmaceutical Drug Substance Processes II*	Minneapolis Convention Center	205A/B
Tuesday	3:15 PM	418	Continuous Processing Technologies Applied in Drug Substance Development Chemistry*	Minneapolis Convention Center	204A/B
Tuesday	3:15 PM	438	Multivariate Modeling and Quality-by-Control Approaches for Pharmaceutical Processes*	Minneapolis Convention Center	205A/B
Wednesday	8:00 AM	472	Crystallization of Pharmaceutical and Biological Molecules*	Minneapolis Convention Center	M100J
Wednesday	8:00 AM	500	Panel: Precompetitive Collaboration*	Minneapolis Convention Center	204A/B
Wednesday	8:00 AM	507	Reaction Engineering in Pharmaceuticals and Fine Chemicals*	Minneapolis Convention Center	L100B
Wednesday	12:30 PM	529	Catalysis for Pharmaceuticals and Fine Chemicals*	Minneapolis Convention Center	L100B
Wednesday	12:30 PM	539	Continuous Processing Technologies Applied in Drug Substance Development Crystallization and Drying*	Minneapolis Convention Center	204A/B
Wednesday	12:30 PM	565	PAT for Process Understanding, Reduced Testing, and Elucidation of Fundamental Phenomena in Drug	Minneapolis Convention Center	201A/B

			Product/Substance Development*		
Wednesday	3:15 PM	594	Continuous Processing Technologies Applied in Drug Substance Manufacturing*	Minneapolis Convention Center	204A/B
Wednesday	3:15 PM	596	Development of Processes and Products for Pharmaceuticals and Hybrid Therapeutics*	Minneapolis Convention Center	201A/B
Wednesday	3:15 PM	623	Process Intensification and Advanced Control of Pharmaceutical Processes*	Minneapolis Convention Center	101C
Thursday	8:00 AM	657	Critical Quality Attribute Monitoring and Control in Pharmaceutical Manufacturing I*	Minneapolis Convention Center	205C
Thursday	8:00 AM	665	Innovations in Biopharmaceutical Discovery, Development, and Manufacturing*	Minneapolis Convention Center	204A/B
Thursday	8:00 AM	671	Materials Science in Pharmaceutical Process Development I*	Minneapolis Convention Center	205D
Thursday	12:30 PM	705	Critical Quality Attribute Monitoring and Control in Pharmaceutical Manufacturing II*	Minneapolis Convention Center	205C
Thursday	12:30 PM	717	Innovative Technologies in Pharmaceutical Discovery, Manufacturing and Delivery*	Minneapolis Convention Center	204A/B
Thursday	12:30 PM	720	Materials Science in Pharmaceutical Process Development II*	Minneapolis Convention Center	205D
Thursday	3:15 PM	746	Critical Quality Attribute Monitoring and Control in Pharmaceutical Manufacturing III*	Minneapolis Convention Center	101D
Thursday	3:15 PM	762	Quality by Design in Drug Substance Process Development *	Minneapolis Convention Center	101E
Friday	8:00 AM	776	Particle Engineering As Applied to Pharmaceutical Formulations*	Minneapolis Convention Center	101D
Friday	8:00 AM	778	Quality by Design in Drug Product Formulation, Design, and Process Development*	Minneapolis Convention Center	101E

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

## 15C - Bioengineering

Day	Time	Session #	Session Title	Property	Room
Sunday	3:30 PM	15	Biobased Fuels and Chemicals: Biosynthetic Pathway Engineering & Enzymatic Conversion	Minneapolis Convention Center	208C/D
Sunday	3:30 PM	18	Bioseparations and Downstream Processing	Minneapolis Convention Center	206A/B

Monday	8:00 AM	67	Emerging Tools and Enabling Technologies in Synthetic Biology and Metabolic Engineering	Minneapolis Convention Center	207A/B
Monday	8:00 AM	75	Gene Regulation Engineering	Minneapolis Convention Center	208A
Monday	12:30 PM	119	Advances in Metabolic Engineering of Photosynthetic/Non-Model Organisms	Minneapolis Convention Center	206A/B
Monday	12:30 PM	142	Emerging Tools and Enabling Technologies in Synthetic Biology	Minneapolis Convention Center	207A/B
Monday	3:15 PM	191	Poster Session: Bioengineering	Minneapolis Convention Center	Exhibit Hall B
Tuesday	8:00 AM	291	<i>In silico</i> Systems Biology I: Biotechnology Applications	Minneapolis Convention Center	207A/B
Tuesday	8:00 AM	316	Synthetic Biology Applications I: Human Health and Disease	Minneapolis Convention Center	208A
Tuesday	12:30 PM	335	Biosensors, Biodiagnosis and Bioprocess Monitoring I: Synthetic Biology Approach	Minneapolis Convention Center	206A/B
Tuesday	12:30 PM	362	<i>In silico</i> Systems Biology II: Health Applications	Minneapolis Convention Center	207A/B
Tuesday	12:30 PM	390	Synthetic Biology Applications II: Microbial Biosynthesis	Minneapolis Convention Center	208A
Wednesday	8:00 AM	466	Cell Culture Engineering & Process Design I: Cell Systems Engineering	Minneapolis Convention Center	208C/D
Wednesday	8:00 AM	504	Protein Engineering I: Therapeutics	Minneapolis Convention Center	207A/B
Wednesday	8:00 AM	505	Protein Structure, Function, and Stability I: Engineering Technology	Minneapolis Convention Center	208A
Wednesday	12:30 PM	523	Advances in Protein Expression, Post-Translational Modification and Biomanufacturing	Minneapolis Convention Center	206A/B
Wednesday	12:30 PM	531	Cell Culture Engineering & Process Design II: Reactor Engineering	Minneapolis Convention Center	208C/D
Wednesday	12:30 PM	569	Protein Engineering II: Combinatorial Techniques	Minneapolis Convention Center	207A/B
Wednesday	12:30 PM	570	Protein Structure, Function, and Stability II: Aggregation & Disease	Minneapolis Convention Center	208A
Wednesday	3:15	626	Protein Engineering III: Rational and	Minneapolis	207A/B

	PM		Computational Techniques	Convention Center	
Wednesday	3:15 PM	627	Protein Structure, Function, and Stability III: Mechanisms	Minneapolis Convention Center	208A
Thursday	8:00 AM	641	Advances in Biocatalysis and Biosynthesis I: Cellular Engineering Applications	Minneapolis Convention Center	208C/D
Thursday	8:00 AM	643	Advances in Metabolic Engineering I: Emerging Tools and Techniques	Minneapolis Convention Center	207A/B
Thursday	8:00 AM	649	Biomolecular Engineering*	Minneapolis Convention Center	208B
Thursday	8:00 AM	674	Modeling and Engineering Cellular Communities	Minneapolis Convention Center	208A
Thursday	12:30 PM	692	Advances in Biocatalysis and Biosynthesis II: Enzyme Engineering Applications	Minneapolis Convention Center	208C/D
Thursday	12:30 PM	693	Advances in Metabolic Engineering II: Value-Added Products from Renewable Feedstocks	Minneapolis Convention Center	207A/B
Thursday	12:30 PM	697	Bionanotechnology and Micro-Scale Technologies*	Minneapolis Convention Center	208A
Thursday	12:30 PM	698	Biosensors, Biodiagnosis and Bioprocess Monitoring II: Technology and Device Development	Minneapolis Convention Center	206A/B
Thursday	3:15 PM	741	Biobased Materials: Design and Application	Minneapolis Convention Center	103C
Thursday	3:15 PM	752	Industrial Applications of Metabolic Engineering	Minneapolis Convention Center	103B

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

## 15D - Engineering Fundamentals in Life Science

Day	Time	Session #	Session Title	Property	Room
Sunday	3:30 PM	16	Biomaterials for Nucleic Acid Delivery*	Minneapolis Convention Center	211C
Sunday	3:30 PM	20	Cells, Organs, and Labs on a Chip	Minneapolis Convention Center	208B
Sunday	3:30 PM	23	Engineering the Tissue and Cell Microenvironment	Minneapolis Convention Center	208A
Sunday	3:30 PM	37	Quantitative Approaches to Disease Mechanisms and Therapies I	Minneapolis Convention	207A/B

				Center	Community
Monday	8:00 AM	69	Engineering in Cancer Biology and Therapy I	Minneapolis Convention Center	208B
Monday	12:30 PM	143	Engineering in Cancer Biology and Therapy II	Minneapolis Convention Center	208B
Monday	12:30 PM	172	Quantitative Approaches to Disease Mechanisms and Therapies II	Minneapolis Convention Center	208A
Monday	3:15 PM	193	Poster Session: Engineering Fundamentals in Life Science	Minneapolis Convention Center	Exhibit Hall B
Tuesday	8:00 AM	271	Cell Adhesion and Migration I	Minneapolis Convention Center	208B
Tuesday	8:00 AM	291	<i>In silico</i> Systems Biology I: Biotechnology Applications*	Minneapolis Convention Center	207A/B
Tuesday	12:30 PM	339	Cell Adhesion and Migration II	Minneapolis Convention Center	208B
Tuesday	12:30 PM	362	<i>In silico</i> Systems Biology II: Health Applications*	Minneapolis Convention Center	207A/B
Tuesday	3:15 PM	416	Computational Methods in Biological and Biomedical Systems I*	Minneapolis Convention Center	103F
Wednesday	8:00 AM	476	Drug Delivery I	Minneapolis Convention Center	208B
Wednesday	8:00 AM	492	Microbial Engineering for Human Health (Invited Talks)*	Minneapolis Convention Center	205A/B
Wednesday	12:30 PM	525	Biomaterials for Drug Delivery I: Particle Based Drug Delivery*	Minneapolis Convention Center	209A/B
Wednesday	12:30 PM	526	Biomaterials for Immunological Applications I: Immune Activation and Vaccination*	Minneapolis Convention Center	211A
Wednesday	12:30 PM	542	Drug Delivery II	Minneapolis Convention Center	208B
Wednesday	12:30 PM	566	Probing and Understanding Microbiomes and Microbial Communities (Invited Talks)*	Minneapolis Convention Center	205A/B
Wednesday	3:15 PM	590	Applications in Immunology and Immunotherapy	Minneapolis Convention Center	206A/B
Wednesday	3:15 PM	591	Biomaterials for Drug Delivery II: Micellar, Polymer and Protein Based Drug Carriers*	Minneapolis Convention Center	211B



Wednesday	3:15 PM	592	Biomaterials for Immunological Applications II: Cancer Immunotherapy and Autoimmune Disease Treatments*	Minneapolis Convention Center	211A
Wednesday	3:15 PM	598	Drug Delivery III	Minneapolis Convention Center	208B
Wednesday	3:15 PM	609	Microbial Communities and Microbiomes for Agriculture and Bioenergy (Invited Talks)*	Minneapolis Convention Center	205A/B
Wednesday	3:15 PM	630	Stem Cells in Tissue Engineering	Minneapolis Convention Center	208C/D
Thursday	8:00 AM	647	Biomaterials for Drug Delivery III: Scaffolds Based Drug Delivery*	Minneapolis Convention Center	210A/B
Thursday	8:00 AM	649	Biomolecular Engineering	Minneapolis Convention Center	208B
Thursday	8:00 AM	674	Modeling and Engineering Cellular Communities*	Minneapolis Convention Center	208A
Thursday	12:30 PM	697	Bionanotechnology and Micro-Scale Technologies	Minneapolis Convention Center	208A
Thursday	12:30 PM	732	Omics and High-Throughput Technologies	Minneapolis Convention Center	208B
Friday	8:00 AM	770	Biomaterials for <i>in vitro</i> Tissue Models and Improved Therapeutic Strategies*	Minneapolis Convention Center	102E

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

### 16D - Alternate Fuels and New Technology

Day	Time	Session #	Session Title	Property	Room
Thursday	12:30 PM	700	Catalytic Biomass Conversion to Chemicals	Minneapolis Convention Center	200A

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

### 17 - Forest and Plant Bioproducts Division

Day	Time	Session #	Session Title	Property	Room
Sunday	3:30 PM	10	Advances in Algae Based Biorefineries: Algae Biomass Cultivation, Harvesting, and Characterization*	Minneapolis Convention Center	200D
Monday	8:00 AM	98	Topical Plenary: Advanced Biomaterials, Biofuels, and Biorefinery (Invited Talks)*	Minneapolis Convention Center	200E

Monday	12:30 PM	129	Biochemical Conversion Processes in Forest/Plant Biomass Biorefineries*	Minneapolis Convention Center	200E
Tuesday	12:30 PM	386	Separation Processes in Biorefineries*	Minneapolis Convention Center	200E
Tuesday	3:15 PM	434	Lignin for Sustainable Industrial Uses	Minneapolis Convention Center	200B
Tuesday	3:15 PM	447	Recalcitrance of Woody Biomass*	Minneapolis Convention Center	200E
Wednesday	8:00 AM	467	Cellulose-Based Materials	Minneapolis Convention Center	200E
Wednesday	8:00 AM	490	Lignocellulosic Materials	Minneapolis Convention Center	200B
Wednesday	12:30 PM	545	Emerging Applications of Cellulose Nanofibrils (CNFs) and Its Composites	Minneapolis Convention Center	200B
Wednesday	12:30 PM	579	USA-China Progress in Biomass Conversion Technologies I*	Minneapolis Convention Center	200E
Wednesday	3:15 PM	593	Bioplastics, Biocomposites and Value-Added Uses of Biofuel Coproducts for Sustainable Manufacturing	Minneapolis Convention Center	200B
Wednesday	3:15 PM	634	USA-China Progress in Biomass Conversion Technologies II*	Minneapolis Convention Center	200E
Thursday	8:00 AM	652	Chemical Modifications and Processing of Biomaterials	Minneapolis Convention Center	200D

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

### 18C - Young Professionals Committee (YPC)

Day	Time	Session #	Session Title	Property	Room
Monday	12:30 PM	128	Biochemical & Biotechnology U.G. Research Session (Invited Talks)	Minneapolis Convention Center	101H

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

### 18E - Awards Committee

Day	Time	Session #	Session Title	Property	Room
Tuesday	6:00 PM	457	SBE's James E. Bailey Award Lecture	Minneapolis Convention Center	Ballroom B

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

## 22B - Bionanotechnology

Day	Time	Session #	Session Title	Property	Room
Sunday	3:30 PM	16	Biomaterials for Nucleic Acid Delivery*	Minneapolis Convention Center	211C
Sunday	3:30 PM	17	Bionanotechnology for Gene and Drug Delivery I	Minneapolis Convention Center	212A/B
Monday	8:00 AM	56	Bionanotechnology for Gene and Drug Delivery II	Minneapolis Convention Center	212A/B
Monday	12:30 PM	128	Biochemical & Biotechnology U.G. Research Session (Invited Talks)*	Minneapolis Convention Center	101H
Tuesday	8:00 AM	267	Biomaterial Scaffolds for Tissue Engineering I: Anisotropic Materials*	Minneapolis Convention Center	209A/B
Tuesday	8:00 AM	268	Bionanotechnology Graduate Student Award Session	Minneapolis Convention Center	212A/B
Tuesday	12:30 PM	331	Area Plenary: Bionanotechnology I (Invited Talks)	Minneapolis Convention Center	212A/B
Tuesday	12:30 PM	334	Biomaterial Scaffolds for Tissue Engineering II: Bioactive and Drug-Eluting Materials*	Minneapolis Convention Center	209A/B
Tuesday	12:30 PM	353	Environmental Implications of Nanomaterials: Biological Interactions*	Minneapolis Convention Center	210A/B
Tuesday	3:15 PM	410	Area Plenary: Bionanotechnology II (Invited Talks)	Minneapolis Convention Center	212A/B
Wednesday	8:00 AM	496	Nanotechnology for Biotechnology and Pharmaceuticals	Minneapolis Convention Center	212A/B
Wednesday	12:30 PM	559	Nanobiotechnology for Sensors and Imaging I	Minneapolis Convention Center	212A/B
Wednesday	3:15 PM	615	Nanobiotechnology for Sensors and Imaging II	Minneapolis Convention Center	212A/B
Thursday	8:00 AM	676	Nanoscale Science and Engineering in Biomolecular Catalysis I	Minneapolis Convention Center	212A/B
Thursday	8:00 AM	686	Self-Assembled Biomaterials	Minneapolis Convention Center	213A/B
Thursday	12:30 PM	727	Nanoscale Science and Engineering in Biomolecular Catalysis II	Minneapolis Convention Center	212A/B

Thursday	12:30 PM	729	Nanostructured Biomimetic and Biohybrid Materials and Devices	Minneapolis Convention Center	213A/B
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\* This session is co-sponsored by one or more programming groups

## 23 - Sustainable Engineering Forum

Day	Time	Session #	Session Title	Property	Room
Tuesday	8:00 AM	314	Sustainable Management of Post Consumption/Use Biomaterials*	Minneapolis Convention Center	101C
Wednesday	3:15 PM	587	Poster Session: Sustainability and Sustainable Biorefineries*	Minneapolis Convention Center	Exhibit Hall B

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

## 23B - Sustainable Biorefineries

Day	Time	Session #	Session Title	Property	Room
Sunday	3:30 PM	10	Advances in Algae Based Biorefineries: Algae Biomass Cultivation, Harvesting, and Characterization*	Minneapolis Convention Center	200D
Sunday	3:30 PM	28	Life Cycle Analysis of Bio-Based Fuels, Energy, and Chemicals	Minneapolis Convention Center	101B
Monday	8:00 AM	54	Biofuels Production: Design, Simulation, and Economic Analysis	Minneapolis Convention Center	101B
Monday	8:00 AM	94	Sustainable Energy from Renewable Resources*	Minneapolis Convention Center	101C
Monday	8:00 AM	98	Topical Plenary: Advanced Biomaterials, Biofuels, and Biorefinery (Invited Talks)*	Minneapolis Convention Center	200E
Monday	12:30 PM	129	Biochemical Conversion Processes in Forest/Plant Biomass Biorefineries*	Minneapolis Convention Center	200E
Monday	12:30 PM	133	Chemical Conversion Processes in Forest/Plant Biorefineries*	Minneapolis Convention Center	200D
Monday	3:15 PM	236	Reaction Kinetics and Transport Fundamentals for Biomass Conversion: Chemical and Catalytic	Minneapolis Convention Center	101B
Tuesday	8:00 AM	264	Biological Conversions and Processes for Renewable Feedstocks	Minneapolis Convention Center	101B
Tuesday	8:00 AM	266	Biomass Characterization, Pretreatment, and Fractionation*	Minneapolis Convention Center	200E

Tuesday	8:00 AM	307	Process Intensification and Integration of Water and Energy Usage	Minneapolis Convention Center	101D
Tuesday	12:30 PM	332	Area Plenary: Sustainable Biorefineries (Invited Talks)	Minneapolis Convention Center	101B
Tuesday	12:30 PM	386	Separation Processes in Biorefineries*	Minneapolis Convention Center	200E
Tuesday	3:15 PM	420	Distributed Bioprocessing for Integrated Biorefineries	Minneapolis Convention Center	101D
Tuesday	3:15 PM	447	Recalcitrance of Woody Biomass*	Minneapolis Convention Center	200E
Tuesday	3:15 PM	455	Value-Added Co-Products from Biorefineries	Minneapolis Convention Center	101B
Wednesday	8:00 AM	481	Forum Plenary: Sustainable Engineering Forum (Invited Talks)*	Minneapolis Convention Center	101B
Wednesday	12:30 PM	533	Chemical and Catalytic Conversions and Processes for Renewable Feedstocks	Minneapolis Convention Center	101B
Wednesday	12:30 PM	544	Efficient Processing of Lignin to Bioproducts and Biofuels I*	Minneapolis Convention Center	103B
Wednesday	12:30 PM	545	Emerging Applications of Cellulose Nanofibrils (CNFs) and Its Composites*	Minneapolis Convention Center	200B
Wednesday	12:30 PM	579	USA-China Progress in Biomass Conversion Technologies I*	Minneapolis Convention Center	200E
Wednesday	3:15 PM	587	Poster Session: Sustainability and Sustainable Biorefineries*	Minneapolis Convention Center	Exhibit Hall B
Wednesday	3:15 PM	593	Bioplastics, Biocomposites and Value-Added Uses of Biofuel Coproducts for Sustainable Manufacturing*	Minneapolis Convention Center	200B
Wednesday	3:15 PM	634	USA-China Progress in Biomass Conversion Technologies II*	Minneapolis Convention Center	200E
Thursday	8:00 AM	659	Developments in Biorefineries	Minneapolis Convention Center	101B
Thursday	8:00 AM	663	Hydrothermal Carbonization*	Minneapolis Convention Center	200E
Thursday	8:00 AM	668	Integrated Thermochemical and Biochemical Processing for Renewable Fuels and Chemicals	Minneapolis Convention Center	101D



Thursday	12:30 PM	695	Biomass Thermal Deconstruction Via Fast Pyrolysis Biorefineries	Minneapolis Convention Center	101D
Thursday	12:30 PM	714	Feedstock Logistics for Biorefineries	Minneapolis Convention Center	101B
Thursday	12:30 PM	738	Thermochemical Conversion of Biomass*	Minneapolis Convention Center	200E
Thursday	3:15 PM	745	Conversion of Biomass Based Renewable Resources to Synthesis Gases and Pyrolysis Oils	Minneapolis Convention Center	101C
Thursday	3:15 PM	748	Developments in the Pretreatment of Lignocellulosics for Bioconversion	Minneapolis Convention Center	101A
Thursday	3:15 PM	753	Integrating Municipal and Industrial Waste into Biorefineries	Minneapolis Convention Center	101B
Friday	8:00 AM	768	Advances in Algal Biorefineries	Minneapolis Convention Center	101B
Friday	8:00 AM	779	Reactor Engineering for Biomass Feedstocks	Minneapolis Convention Center	101C

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

## 23C - Sustainable Energy

Day	Time	Session #	Session Title	Property	Room
Wednesday	3:15 PM	587	Poster Session: Sustainability and Sustainable Biorefineries*	Minneapolis Convention Center	Exhibit Hall B

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

## 26 - Pharmaceutical Discovery, Development and Manufacturing Forum

Day	Time	Session #	Session Title	Property	Room
Sunday	3:30 PM	14	Amorphous Solid Dispersions for Drug Product	Minneapolis Convention Center	205A/B
Sunday	3:30 PM	26	Green Pharmaceutical Process Development and Biocatalysis	Minneapolis Convention Center	204A/B
Monday	8:00 AM	71	Forum Plenary: Pharmaceutical Discovery, Development, and Manufacturing Forum (Invited Talks)	Minneapolis Convention Center	205A/B
Monday	12:30 PM	136	Computational Solid State Pharmaceuticals	Minneapolis Convention Center	204A/B
Monday	12:30	152	In Honor of Stuart W. Churchill I	Minneapolis	101E

	PM		(Invited Talks)*	Convention Center	
Monday	12:30 PM	152	In Honor of Stuart W. Churchill I (Invited Talks)*	Minneapolis Convention Center	101E
Monday	12:30 PM	162	Model Based Integrated Design of Pharmaceutical Drug Product Processes	Minneapolis Convention Center	205A/B
Monday	12:30 PM	176	Solve this! Fundamental Approach to Problem Solving in Industrial Processes I (Invited Talks)*	Minneapolis Convention Center	101I
Monday	3:15 PM	203	Poster Session: Pharmaceutical	Minneapolis Convention Center	Exhibit Hall B
Monday	3:15 PM	228	In Honor of Stuart W. Churchill II (Invited Talks)*	Minneapolis Convention Center	101E
Monday	3:15 PM	240	Solve this! Fundamental Approach to Problem Solving in Industrial Processes II (Invited Talks)*	Minneapolis Convention Center	101I
Monday	6:30 PM	251	Pharmaceutical Discovery, Development, and Manufacturing Forum Awards Ceremony	Minneapolis Convention Center	205A/B
Tuesday	8:00 AM	274	Continuous Processing Technologies Applied in Drug Product Development	Minneapolis Convention Center	204A/B
Tuesday	8:00 AM	299	Model Based Integrated Design of Pharmaceutical Drug Substance Processes I	Minneapolis Convention Center	205A/B
Tuesday	8:00 AM	310	Solid Form Selection: Cocrystals, Salts, Solvates, Polymorphs, and Beyond*	Minneapolis Convention Center	M100J
Tuesday	12:30 PM	344	Continuous Processing Technologies Applied in Drug Product Manufacturing	Minneapolis Convention Center	204A/B
Tuesday	12:30 PM	373	Model Based Integrated Design of Pharmaceutical Drug Substance Processes II	Minneapolis Convention Center	205A/B
Tuesday	3:15 PM	418	Continuous Processing Technologies Applied in Drug Substance Development Chemistry	Minneapolis Convention Center	204A/B
Tuesday	3:15 PM	438	Multivariate Modeling and Quality-by-Control Approaches for Pharmaceutical Processes	Minneapolis Convention Center	205A/B
Wednesday	8:00 AM	472	Crystallization of Pharmaceutical and Biological Molecules*	Minneapolis Convention Center	M100J
Wednesday	8:00 AM	500	Panel: Precompetitive Collaboration	Minneapolis Convention Center	204A/B
Wednesday	8:00 AM	502	Pharmaceutical Process Development and Pilot Plants *	Minneapolis Convention	102C

				Center	Community
Wednesday	12:30 PM	539	Continuous Processing Technologies Applied in Drug Substance Development Crystallization and Drying	Minneapolis Convention Center	204A/B
Wednesday	12:30 PM	541	Diagnostics, Treatments and Theranostics*	Minneapolis Convention Center	202A/B
Wednesday	12:30 PM	565	PAT for Process Understanding, Reduced Testing, and Elucidation of Fundamental Phenomena in Drug Product/Substance Development	Minneapolis Convention Center	201A/B
Wednesday	3:15 PM	594	Continuous Processing Technologies Applied in Drug Substance Manufacturing	Minneapolis Convention Center	204A/B
Wednesday	3:15 PM	596	Development of Processes and Products for Pharmaceuticals and Hybrid Therapeutics	Minneapolis Convention Center	201A/B
Wednesday	3:15 PM	623	Process Intensification and Advanced Control of Pharmaceutical Processes	Minneapolis Convention Center	101C
Thursday	8:00 AM	657	Critical Quality Attribute Monitoring and Control in Pharmaceutical Manufacturing I	Minneapolis Convention Center	205C
Thursday	8:00 AM	665	Innovations in Biopharmaceutical Discovery, Development, and Manufacturing	Minneapolis Convention Center	204A/B
Thursday	8:00 AM	671	Materials Science in Pharmaceutical Process Development I	Minneapolis Convention Center	205D
Thursday	12:30 PM	705	Critical Quality Attribute Monitoring and Control in Pharmaceutical Manufacturing II	Minneapolis Convention Center	205C
Thursday	12:30 PM	717	Innovative Technologies in Pharmaceutical Discovery, Manufacturing and Delivery	Minneapolis Convention Center	204A/B
Thursday	12:30 PM	720	Materials Science in Pharmaceutical Process Development II	Minneapolis Convention Center	205D
Thursday	3:15 PM	746	Critical Quality Attribute Monitoring and Control in Pharmaceutical Manufacturing III	Minneapolis Convention Center	101D
Thursday	3:15 PM	762	Quality by Design in Drug Substance Process Development	Minneapolis Convention Center	101E
Friday	8:00 AM	776	Particle Engineering As Applied to Pharmaceutical Formulations	Minneapolis Convention Center	101D
Friday	8:00 AM	778	Quality by Design in Drug Product Formulation, Design, and Process Development	Minneapolis Convention Center	101E

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

### T1 - Meet the Faculty Candidate Poster Session – Sponsored by the Education Division

Day	Time	Session #	Session Title	Property	Room
Monday	8:00 AM	55	Biomaterials: Faculty Candidates*	Minneapolis Convention Center	211C

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

### T4A - Biorefinery Technologies for Forest Based Lignocellulosic Biomass

Day	Time	Session #	Session Title	Property	Room
Sunday	3:30 PM	10	Advances in Algae Based Biorefineries: Algae Biomass Cultivation, Harvesting, and Characterization	Minneapolis Convention Center	200D
Sunday	3:30 PM	15	Biobased Fuels and Chemicals: Biosynthetic Pathway Engineering & Enzymatic Conversion*	Minneapolis Convention Center	208C/D
Sunday	3:30 PM	28	Life Cycle Analysis of Bio-Based Fuels, Energy, and Chemicals*	Minneapolis Convention Center	101B
Sunday	3:30 PM	38	Reaction Engineering of Biomass and Hydrocarbons in Supercritical Water*	Minneapolis Convention Center	102F
Monday	8:00 AM	54	Biofuels Production: Design, Simulation, and Economic Analysis*	Minneapolis Convention Center	101B
Monday	8:00 AM	98	Topical Plenary: Advanced Biomaterials, Biofuels, and Biorefinery (Invited Talks)	Minneapolis Convention Center	200E
Monday	12:30 PM	129	Biochemical Conversion Processes in Forest/Plant Biomass Biorefineries	Minneapolis Convention Center	200E
Monday	12:30 PM	133	Chemical Conversion Processes in Forest/Plant Biorefineries	Minneapolis Convention Center	200D
Monday	3:15 PM	202	Poster Session: Novel Products from Forest and Plant Biomass*	Minneapolis Convention Center	Exhibit Hall B
Monday	3:15 PM	236	Reaction Kinetics and Transport Fundamentals for Biomass Conversion: Chemical and Catalytic*	Minneapolis Convention Center	101B
Tuesday	8:00 AM	264	Biological Conversions and Processes for Renewable Feedstocks*	Minneapolis Convention Center	101B
Tuesday	8:00	266	Biomass Characterization,	Minneapolis	200E

	AM		Pretreatment, and Fractionation	Convention Center	
Tuesday	8:00 AM	269	Catalysis with Microporous and Mesoporous Materials I*	Minneapolis Convention Center	L100A
Tuesday	8:00 AM	307	Process Intensification and Integration of Water and Energy Usage*	Minneapolis Convention Center	101D
Tuesday	12:30 PM	332	Area Plenary: Sustainable Biorefineries (Invited Talks)*	Minneapolis Convention Center	101B
Tuesday	12:30 PM	337	Catalysis with Microporous and Mesoporous Materials II*	Minneapolis Convention Center	L100A
Tuesday	12:30 PM	386	Separation Processes in Biorefineries	Minneapolis Convention Center	200E
Tuesday	3:15 PM	420	Distributed Bioprocessing for Integrated Biorefineries*	Minneapolis Convention Center	101D
Tuesday	3:15 PM	434	Lignin for Sustainable Industrial Uses*	Minneapolis Convention Center	200B
Tuesday	3:15 PM	446	Pyrolysis of Biomass*	Minneapolis Convention Center	L100C
Tuesday	3:15 PM	447	Recalcitrance of Woody Biomass	Minneapolis Convention Center	200E
Tuesday	3:15 PM	455	Value-Added Co-Products from Biorefineries*	Minneapolis Convention Center	101B
Wednesday	8:00 AM	465	Catalysis with Microporous and Mesoporous Materials III*	Minneapolis Convention Center	L100A
Wednesday	8:00 AM	467	Cellulose-Based Materials*	Minneapolis Convention Center	200E
Wednesday	8:00 AM	481	Forum Plenary: Sustainable Engineering Forum (Invited Talks)*	Minneapolis Convention Center	101B
Wednesday	8:00 AM	490	Lignocellulosic Materials*	Minneapolis Convention Center	200B
Wednesday	8:00 AM	506	Reaction Engineering for Biomass Conversion *	Minneapolis Convention Center	L100C
Wednesday	12:30 PM	530	Catalysis with Microporous and Mesoporous Materials IV*	Minneapolis Convention Center	L100A
Wednesday	12:30 PM	533	Chemical and Catalytic Conversions and Processes for Renewable	Minneapolis Convention	101B



			Feedstocks*	Center	Community
Wednesday	12:30 PM	544	Efficient Processing of Lignin to Bioproducts and Biofuels I*	Minneapolis Convention Center	103B
Wednesday	12:30 PM	545	Emerging Applications of Cellulose Nanofibrils (CNFs) and Its Composites*	Minneapolis Convention Center	200B
Wednesday	12:30 PM	579	USA-China Progress in Biomass Conversion Technologies I	Minneapolis Convention Center	200E
Wednesday	3:15 PM	587	Poster Session: Sustainability and Sustainable Biorefineries*	Minneapolis Convention Center	Exhibit Hall B
Wednesday	3:15 PM	593	Bioplastics, Biocomposites and Value-Added Uses of Biofuel Coproducts for Sustainable Manufacturing*	Minneapolis Convention Center	200B
Wednesday	3:15 PM	634	USA-China Progress in Biomass Conversion Technologies II	Minneapolis Convention Center	200E
Thursday	8:00 AM	652	Chemical Modifications and Processing of Biomaterials*	Minneapolis Convention Center	200D
Thursday	8:00 AM	659	Developments in Biorefineries*	Minneapolis Convention Center	101B
Thursday	8:00 AM	663	Hydrothermal Carbonization	Minneapolis Convention Center	200E
Thursday	8:00 AM	668	Integrated Thermochemical and Biochemical Processing for Renewable Fuels and Chemicals*	Minneapolis Convention Center	101D
Thursday	12:30 PM	695	Biomass Thermal Deconstruction Via Fast Pyrolysis Biorefineries*	Minneapolis Convention Center	101D
Thursday	12:30 PM	714	Feedstock Logistics for Biorefineries*	Minneapolis Convention Center	101B
Thursday	12:30 PM	738	Thermochemical Conversion of Biomass	Minneapolis Convention Center	200E
Thursday	3:15 PM	745	Conversion of Biomass Based Renewable Resources to Synthesis Gases and Pyrolysis Oils*	Minneapolis Convention Center	101C
Thursday	3:15 PM	748	Developments in the Pretreatment of Lignocellulosics for Bioconversion*	Minneapolis Convention Center	101A
Thursday	3:15 PM	753	Integrating Municipal and Industrial Waste into Biorefineries*	Minneapolis Convention Center	101B
Friday	8:00 AM	768	Advances in Algal Biorefineries*	Minneapolis Convention	101B

				Center	Community
Friday	8:00 AM	769	Bio-Based Polymers*	Minneapolis Convention Center	102A
Friday	8:00 AM	779	Reactor Engineering for Biomass Feedstocks*	Minneapolis Convention Center	101C

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

## T4E - Alternative Energy & Enabling Technologies

Day	Time	Session #	Session Title	Property	Room
Sunday	3:30 PM	15	Biobased Fuels and Chemicals: Biosynthetic Pathway Engineering & Enzymatic Conversion*	Minneapolis Convention Center	208C/D

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

## T4F - BioFuels

Day	Time	Session #	Session Title	Property	Room
Sunday	3:30 PM	10	Advances in Algae Based Biorefineries: Algae Biomass Cultivation, Harvesting, and Characterization*	Minneapolis Convention Center	200D
Sunday	3:30 PM	15	Biobased Fuels and Chemicals: Biosynthetic Pathway Engineering & Enzymatic Conversion*	Minneapolis Convention Center	208C/D
Monday	8:00 AM	58	Catalytic Processing of Fossil and Biorenewable Feedstocks I: Lignin and Bio-Oil Chemistry*	Minneapolis Convention Center	L100C
Monday	8:00 AM	95	Sustainable Microbial Process for Food, Feeds, Energy, and Environment*	Minneapolis Convention Center	103B
Monday	8:00 AM	98	Topical Plenary: Advanced Biomaterials, Biofuels, and Biorefinery (Invited Talks)*	Minneapolis Convention Center	200E
Monday	12:30 PM	129	Biochemical Conversion Processes in Forest/Plant Biomass Biorefineries*	Minneapolis Convention Center	200E
Monday	12:30 PM	132	Catalytic Processing of Fossil and Biorenewable Feedstocks II: Carboxylic Acids and Ketones*	Minneapolis Convention Center	L100C
Monday	12:30 PM	133	Chemical Conversion Processes in Forest/Plant Biorefineries*	Minneapolis Convention Center	200D
Monday	3:15 PM	211	Catalytic Processing of Fossil and Biorenewable Feedstocks III: Alcohols and Polyols*	Minneapolis Convention Center	L100C
Tuesday	8:00	258	Alternative Fuels including Biofuels.	Minneapolis	200F

	AM		Hydrogen, Renewable Hydrogen, and Syngas*	Convention Center	
Tuesday	8:00 AM	266	Biomass Characterization, Pretreatment, and Fractionation*	Minneapolis Convention Center	200E
Tuesday	8:00 AM	270	Catalytic Processing of Fossil and Biorenewable Feedstocks IV: Chemistry of Furanics*	Minneapolis Convention Center	L100C
Tuesday	8:00 AM	275	Conversion of Solid Wastes to Energy and/or Product*	Minneapolis Convention Center	103B
Tuesday	8:00 AM	279	Developments in Petroleum and Biofuels Refining Technologies I*	Minneapolis Convention Center	200A
Tuesday	12:30 PM	338	Catalytic Processing of Fossil and Biorenewable Feedstocks V: Biomass Deconstruction and Oxygenate Processing*	Minneapolis Convention Center	L100C
Tuesday	12:30 PM	347	Developments in Petroleum and Biofuels Refining Technologies II*	Minneapolis Convention Center	200A
Wednesday	12:30 PM	544	Efficient Processing of Lignin to Bioproducts and Biofuels I*	Minneapolis Convention Center	103B
Wednesday	12:30 PM	579	USA-China Progress in Biomass Conversion Technologies I*	Minneapolis Convention Center	200E
Wednesday	3:15 PM	600	Efficient Processing of Lignin to Bioproducts and Biofuels II*	Minneapolis Convention Center	103B
Wednesday	3:15 PM	634	USA-China Progress in Biomass Conversion Technologies II*	Minneapolis Convention Center	200E
Thursday	8:00 AM	656	Computational Catalysis IV: Biomass Chemistry and Chemicals Production*	Minneapolis Convention Center	L100E
Thursday	8:00 AM	676	Nanoscale Science and Engineering in Biomolecular Catalysis I*	Minneapolis Convention Center	212A/B
Thursday	8:00 AM	690	Unconventionals: Hydrogen and Fuel Cells *	Minneapolis Convention Center	200A
Thursday	12:30 PM	722	Membrane Formation *	Minneapolis Convention Center	M100I
Thursday	12:30 PM	738	Thermochemical Conversion of Biomass*	Minneapolis Convention Center	200E

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

## T5 - Nanomaterials for Applications in Energy and Biology

Day	Time	Session #	Session Title	Property	Room
Monday	8:00 AM	85	Nanomaterials for Biological Applications I	Minneapolis Convention Center	200G
Monday	12:30 PM	165	Nanomaterials for Biological Applications II	Minneapolis Convention Center	200G

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

## T6A - Next-Gen Manufacturing

Day	Time	Session #	Session Title	Property	Room
Wednesday	3:15 PM	623	Process Intensification and Advanced Control of Pharmaceutical Processes*	Minneapolis Convention Center	101C
Thursday	8:00 AM	648	Biomaterials I: Instructive and Responsive Biomaterials*	Minneapolis Convention Center	211A

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

## T9 - Sensors

Day	Time	Session #	Session Title	Property	Room
Monday	12:30 PM	130	Biosensor Devices: Applications	Minneapolis Convention Center	M100A

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

## TA - Microbiomes and Microbial Communities

Day	Time	Session #	Session Title	Property	Room
Wednesday	8:00 AM	492	Microbial Engineering for Human Health (Invited Talks)	Minneapolis Convention Center	205A/B
Wednesday	12:30 PM	566	Probing and Understanding Microbiomes and Microbial Communities (Invited Talks)	Minneapolis Convention Center	205A/B
Wednesday	3:15 PM	609	Microbial Communities and Microbiomes for Agriculture and Bioenergy (Invited Talks)	Minneapolis Convention Center	205A/B

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## SPECIAL BIO-PROGRAMS AT THE 2017 AIChE ANNUAL MEETING

### BE SURE TO ATTEND THESE CONFERENCE HIGHLIGHTS:

#### **James E. Bailey Award Lecture: "Biotechnology in the Era of the Fourth Industrial Revolution"**

Antonios G. Mikos, Rice University

Tuesday, October 31, 2017, 6:00pm-7:00pm CDT

Minneapolis Convention Center, Ballroom B

#### **Biotechnology Progress Award for Excellence in Biological Engineering Publication**

Huimin Zhao (University of Illinois)

Tuesday, October 31, 2017, 6:00pm-7:00pm CDT

Minneapolis Convention Center, Ballroom B

#### **SBE HOSPITALITY SUITE SPONSORED BY PFIZER**

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

Tuesday, October 31, 2017: 9:00 PM - 11:00 PM

Hilton, Conrad B - 2nd floor



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