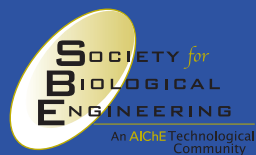




TECHNICAL SESSIONS IN BIOLOGICAL ENGINEERING

OCTOBER 28 - NOVEMBER 2, 2012

DAVID L. LAWRENCE CONVENTION CENTER,
PITTSBURGH, PA





Sustainability in (Bio)Pharmaceuticals

November 11 – 14, 2012

San Juan, Puerto Rico

The Sheraton Old San Juan Hotel

This event brings together scientists and engineers representing industry, academia and government to gain insightful information about developing sustainable processes and practices in the pharmaceutical and biopharmaceutical industries. Attendees will discover innovative strategies and sustainable approaches to process design and safety.

The conference will:

- Bring together thought leaders in the pharmaceutical and biopharmaceutical industries
- Assess engineering processes aimed at improving sustainability
- Define and justify sustainability process improvement ROI criteria
- Identify improvement areas to optimize performance

Conference Session Topics:

- Material Selection and Material Efficiency
- Making Multi-Use vs Single-Use Process Decisions
- Greening Manufacturing Processes
- Sustainable Approaches to Product Delivery from Lab to Patient

An additional three value add workshops are available featuring the following topics:

- Lifecycle and Sustainability ROI
- Industrial Enterprise, Process and Product Sustainability: Choosing and Using Metrics Indicators in Decision Making Workshop
- Inherently Safer Design

Conference Chairs

- Conchita Jimenez-Gonzalez (GlaxoSmithKline)
- Gene Schaefer (Johnson & Johnson)

Keynote Speakers:

- Paul Anastas, (EPA)
- Joseph Fiksel, (Ohio State University)
- Paul McKenzie, (Janssen Pharmaceutical Companies of Johnson & Johnson)

For additional conference information and to register go to :

<http://www.aiche.org/sbe/conferences/sustainability-bio-pharmaceuticals/2012>

Organized by:



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.
- Discounts on the leading biological engineering conferences— SBE members are eligible for substantial discounts on society sponsored meetings and conferences.
- News that is relevant and what you need to know—members receive SBE's monthly e-newsletter and semi-annual biosupplement to *Chemical Engineering Progress*.
- A voice in education, employment and technology advancement topics. Visit our posting of job opportunities on our website www.aiche.org/sbe.
- Free monthly webinars from industry and academic experts on topics such as biofuels, systems biology, metabolic engineering, bioprocessing and many more!

SBE PROVIDES ITS MEMBERS WITH A PROFESSIONAL NETWORK WITH 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 OR ACS BIOT PAY JUST \$15. FREE MEMBERSHIP FOR UNDERGRADUATE STUDENTS.

JOIN @ [HTTP://WWW.AICHE.ORG/SBE/COMMUNITY/MEMBERSHIP](http://www.aiche.org/sbe/community/membership)

Learn more about SBE at <http://www.aiche.org/sbe>

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Register Today

SBE'S 4TH INTERNATIONAL CONFERENCE ON BIOMOLECULAR ENGINEERING

Jan. 13-16, 2013 • Pier Sixty Six • Fort Lauderdale, FL

ICBE brings together researchers who are using quantitative approaches to advance the understanding and application of molecular biology. These scientists, engineers, and professionals are contributing to the development of analytical, diagnostic, and therapeutic strategies that are directly relevant to public health.

The conference, co-chaired by Ali Khademhosseini (*Harvard University*) and Kristala Prather (*MIT*) will stimulate efforts to integrate these approaches across the scales of biological complexity in a single-track Gordon-style conference format that includes hotel accommodations and nearly all meals.

Conference Highlights Include Sessions On:

- Biomolecular Engineering for Cell and Tissue Engineering
- Biophysical and Microscale Analyses of Molecular and Cellular Function
- Experimental & Computational Tools for Engineering Biomolecules
- Interface of Bionanotechnology and Biomolecules
- Metabolic Pathway Engineering
- Protein Engineering
- Synthetic Biology

Keynote Speakers:

- **George Church**, *Professor of Genetics at Harvard Medical School and Director of NIH-CEGS and DOE-GTL Genomics Centers*
- **James Collins**, *Professor of Biomedical Engineering at Boston University and a Howard Hughes Medical Institute Investigator*
- **Virginia Cornish**, *Professor of Chemistry at Columbia University*
- **Nicholas A. Peppas**, *Fletcher Pratt Chaired Professor of Chemical Engineering, Biomedical Engineering and Pharmacy at the University of Texas at Austin*

Plus, you'll have plenty of opportunities to network with your colleagues all gathered in one location.

Join us for the conference that will positively shape you and your company for the future.

For more information or to register for SBE's 4th International Conference on Biomolecular Engineering go to: <http://www.aiche.org/sbe/conferences/international-conference-biomolecular-engineering-icbe/2013/register-now>

SBE ACKNOWLEDGEMENTS

AIChE's Annual Meeting could not happen without the support of its volunteers. Leaders of and within the divisions and forums have all worked tirelessly to provide the bio programming available at this meeting. SBE would like to recognize not only these divisions but also their program chairs as follows. Please excuse any omissions as they were unintentional.

- **Milorad Dudukovic** of the Catalysis and Reaction Engineering Division
- **Richard Braatz** of the Computing and Systems Technology Division
- **Donald Visco** of the Education Division
- **Christian Lastoskie** of the Environmental Division
- **Stylianos Andreadis** of the Food, Pharmaceutical and Bio-Engineering Division
- **Bandaru Ramarao** of the Forest Bioproducts Division
- **Timothy Olsen** of the Fuel and Petrochemicals Division
- **Diana Matonis** of the Management Division
- **Stevin Gehrke** of the Materials Engineering and Sciences Division
- **Candido Pereira** of the Nuclear Engineering Division
- **Michael Hill** of the Process Development Division
- **David Herrmann** of the Safety and Health Division
- **Mark Pilling** of the Separations Division
- **Daniela Mainardi** of the Transport and Energy Processes Division
- **Mary Ellen Ternes** of the Chemical Engineering & the Law Forum
- **Kristen Fichthorn** of the Computational Molecular Science and Engineering Forum
- **Kurt Rindfusz** of the Nanoscale Science and Engineering Forum
- **Raymond Cocco** of the Particle Technology Forum
- **Minye Liu** of the North American Mixing Forum
- **David Thompson** of the Sustainability Engineering Forum
- **Norman Carnahan** of the Upstream Engineering and Flow Assurance Forum

Learn more about SBE at <http://www.aiche.org/sbe>  

Call for Posters

Deadline December 12, 2012



3rd International Conference on Accelerating Biopharmaceutical Development

February 24-26, 2013 • Coronado Island, CA

Meeting Current Challenges in Therapeutic Protein Technical Development

The Accelerating Biopharmaceutical Development Conference, co-chaired by Reed Harris (Genentech) and Jim Thomas (Amgen), will evaluate the challenges and opportunities in biopharmaceuticals production. Novel approaches and new technologies will be reviewed to increase the speed and efficiency for making antibodies, therapeutic proteins and vaccines.

Poster Criteria

If you are engaged in scientific endeavors or engineering advancements with an emphasis in the integrated technical development process, from bench to commercial manufacturing including technological advances in expression systems, process development, analytical, formulation and production important for accelerated commercialization, you must consider submitting a poster.

Presentations should include the sound science and technical groundwork essential for successful outcomes. Posters of the highest quality will be selected for publication in the AccBio or QbD proceedings.

Poster Topics to Include: • Accelerating Biopharmaceutical Development • Expression Systems • Integrating Process Development: Upstream & Downstream Technologies • Formulation Approaches • Using prior Knowledge and Platform Manufacturing • Approaches to QbD for Externally Sourced Deliverables



Quality by Design in Biologics

February 26-27, 2013 • Coronado Island, CA

Poster Criteria

A mutual goal of industry, society, and regulators is for biomanufacturers to reliably produce high quality therapeutics. This can be accomplished via scientific risk-based approaches starting with design efforts: from product conception through commercialization. If you are engaged in this controlled undertaking you must consider submitting a poster.

Presentations should include the sound science and technical groundwork essential for successful outcomes. Posters of the highest quality will be selected for presentation and/or publication in the QbD or AccBio proceedings.

Posters Topics to Include: • Using Prior Knowledge and Platform Manufacturing • Approaches to QbD for Externally Sourced Deliverable • Approaches to Risk Management • Translation to Operational Practice

To submit a poster and for more information about these meetings go to: <http://www.aiche.org/sbe>

SPECIAL BIO-PROGRAMS AT THE 2012 AIChE ANNUAL MEETING

BE SURE TO ATTEND THESE CONFERENCE HIGHLIGHTS:

CHEM-E-CAR COMPETITION

SBE strives to encourage and recognize undergraduate and graduate students in biological engineering and related fields. SBE is currently sponsoring a \$1000 award for the **BEST USE OF A BIOLOGICAL REACTION TO POWER A CAR** during this year's Chem-E-Car Competition held on Sunday, October 28, 2012 at 2:00 pm in the Convention Center, Exhibit Hall C.

SBE SHORT COURSE:

SPECIAL EDITION: ADVANCED COURSE IN CELLULAR BIOPROCESS TECHNOLOGY

Instructors: Wei-Shou Hu, Ph.D. (University of Minnesota), Bhanu Chandra Mulukutla, Ph.D. (Pfizer), Anne Kantardjieff, Ph.D. (Alexion Pharmaceuticals)
Sunday, October 28th, 12:30 pm-5:30 pm
Convention Center, Room 306 (Third Floor)

TOPICAL 7: BIOMEDICAL APPLICATIONS OF CHEMICAL ENGINEERING

Topical Plenary: "Nanotechnology and Bioengineering in an Evolving Chemical Engineering World: The Next Generation of Recognitive, Intelligent Medical Microdevices"
Dr. Nicholas A. Peppas (University of Texas at Austin)
Monday, October 29th, 8:30 am-9:15 am
The Westin, Pennsylvania West

PLENARY SESSION: THE NEXT FRONTIER IN THE APPLICATION OF QUALITY BY DESIGN

Invited speakers will address potential new opportunities and challenges in the application of QbD.
Monday, October 29th, 8:30 am-11:00 am
The Westin, Allegheny II

DANIEL I.C. WANG AWARD LECTURE AND RECEPTION: "FROM CANCER TO HYDROGEN: CELL-FREE BIOMOLECULAR AND BIOPROCESS ENGINEERING"

Professor James R. Swartz (Stanford University)
Monday, October 29th, 3:15 pm-5:45 pm, reception to follow
The Westin, Allegheny I

BIOTECHNOLOGY PROGRESS AWARD FOR EXCELLENCE IN BIOLOGICAL ENGINEERING PUBLICATION

Professor Wilfred Chen (University of Delaware)
Tuesday, October 30th, 6:00 pm-7:00 pm
The Westin, Allegheny I

JAMES E. BAILEY AWARD LECTURE: "GENERATING COMPLEX BIOLOGICAL TRAITS THROUGH COMBINATORIAL AND MULTIGENOME EXPANSION OF THE SAMPLING SPACE"

Eleftherios T. Papoutsakis (University of Delaware)
Tuesday, October 30th, 6:00 pm-7:00 pm
The Westin, Allegheny I

PFIZER HOSPITALITY SUITE

Free to SBE members. You can become a member at the door.
Tuesday, October 30th, 9:00 pm-11:00 pm
The Westin, Butler West/East

POSTER PRESENTATION

Cosponsored with Food, Pharmaceutical and Biotechnology Division (15)
Wednesday, October 31st, 6:00-8:00 pm
Conference Center, Exhibit Hall B

Connect with a global technological community

Join SBE now at <http://www.aiche.org/sbe>

The Society for Biological Engineering (SBE) and



SBE BioCatalyst FUND

This fundraising initiative will provide fundamental resources, such as networking, professional development, and training opportunities, to student members of the Society for Biological Engineering.

The SBE BioCatalyst Fund will:

- Expand **SBE student chapters** at home and abroad
- Engage the next generation through an **Annual SBE Student Conference**
- Enhance **SBE Student Awards and Scholarships**
- Enrich undergraduate curriculum through **monthly student webinars**
- Encourage future leaders through a new **SBE mentorship program**

Every gift to the BioCatalyst Fund contributes to the advancement of biological engineering and to building a stronger SBE, today and in the future.

To make a gift to be used exclusively in support of SBE BioCatalyst Fund programs, please visit the AIChE Foundation website at <http://www.aiche.org/community/giving/programs-initiatives/biocatalyst-fund>

For more information about the program and/or the many different and convenient ways to give, please contact Cathy Diana, Director, AIChE Foundation, at cathd@aiche.org or call 646-495-1340.

SUNDAY, OCTOBER 28, 2012

TIME	SESSION #	SESSION TITLE	LOCATION	ROOM
12:30pm-5:30pm		Special Edition: Advanced Course in Cellular Bioprocess Technology	Convention Center	306

MONDAY, OCTOBER 29, 2012

TIME	SESSION #	SESSION TITLE	LOCATION	ROOM
8:30am-9:15am	6	Biomedical Applications of Chemical Engineering Plenary	Westin	Pennsylvania West
8:30am-11:00am	11	Biobased Fuels and Chemicals	Westin	Cambria East
	12	Biocatalysis and Biosynthesis I	Westin	Westmoreland Central
	13	Biomass Pyrolysis I - Processes and Models	Convention Center	322
	14	Biomaterials I	Westin	Cambria West
	15	Bioseparations and Downstream Processing	Westin	Westmoreland East
	18	Cell Biomechanics	Westin	Somerset East
	23	Crystallization of Pharmaceutical and Biological Molecules I	Westin	Allegheny III
	42	Paradigms in Systems Biology - Invited Session	Westin	Crawford East
	47	Protein Engineering I - Therapeutics	Westin	Fayette
	48	Protein Expression and Post-Translational Modifications	Westin	Westmoreland West
	50	Reaction Engineering for Biomass Conversion	Convention Center	316
	56	Systems and Synthetic Biology of Interacting Microorganisms	Westin	Washington
	57	Thermophysical Properties of Biological Systems	Convention Center	411
9:15am-11:00am	60	Clinically Realized Drug Delivery Technologies	Westin	Pennsylvania West
12:30pm-3:00pm	65	Advances in Electrokinetics and Electrophoresis: Bioanalytical, Biosensing, and Biomedical Applications	Convention Center	406
	69	Biocatalysis and Biosynthesis II	Westin	Westmoreland Central
	70	Biomass Pyrolysis II - Fundamentals and Analysis	Convention Center	322
	71	Biomaterials II	Westin	Cambria West
	72	Biomolecular Engineering	Westin	Somerset West
	74	Cell Adhesion and Migration	Westin	Somerset East
	75	Cell Culture I: Experimental	Westin	Washington
	83	Crystallization of Pharmaceutical and Biological Molecules II	Westin	Allegheny III
	87	Environmental Implications of Nanomaterials: Biological Interactions	Convention Center	326
	96	Metabolic Engineering and Bioinformatics	Westin	Westmoreland West
	99	Model Based QbD in Drug Substance or Drug Product Development	Westin	Allegheny II
	100	Modeling Approaches for Biological Phenomena	Westin	Westmoreland East
	104	Nanoscale Engineering: Pathways to Advanced Biotechnology I	Westin	Pennsylvania East
	107	Pharmaceutical Process Development & Pilot Plants	Omni	Shadyside
	110	Protein Engineering II - Techniques	Westin	Fayette
	111	Reaction Engineering for Biomass Conversion II	Convention Center	316
	116	Synthetic Systems Biology I	Westin	Crawford East
	117	Thermodynamics of Biomolecular Folding and Assembly	Convention Center	411
3:15pm-5:45pm	129	Catalytic Biomass Conversion to Chemicals	Convention Center	322
	130	Catalytic Hydrogen Generation for Fuel Cell Applications I	Convention Center	321
	146	Integrated Model Based Design of Pharmaceutical Product and Process	Westin	Allegheny II

MONDAY CONTINUED

TIME	SESSION #	SESSION TITLE	LOCATION	ROOM
3:15pm-5:45pm	151	Model Development for Biomolecular Systems	Convention Center	411
	156	Nanotechnology in Medicine and Drug Delivery I	Westin	Allegheny III
	159	Pioneers in Biomaterials	Westin	Westmoreland Central
	165	Pyrolysis of Biomass	Convention Center	315
	167	Reactor Engineering for Biomass Feedstocks	Convention Center	335
	169	Daniel I.C. Wang Award Lecture	Westin	Allegheny I
	175	Synthetic Systems Biology II	Westin	Crawford East

TUESDAY, OCTOBER 30, 2012

TIME	SESSION #	SESSION TITLE	LOCATION	ROOM
8:30am-11:00am	185	Advances in Electrophoresis for Protein Separation and Analysis	Westin	Fayette
	190	Biobased Materials	Westin	Westmoreland Central
	191	Biological Conversions and Processes for Renewable Feedstocks I	Convention Center	334
	192	Biomaterial Scaffolds for Tissue Engineering	Westin	Cambria West
	193	Bionanotechnology	Westin	Somerset West
	194	Bionanotechnology: Plenary Session I	Convention Center	407
	195	Catalytic Biomass Conversion to Chemicals II	Convention Center	322
	198	Catalytic Processing of Fossil and Biorenewable Feedstocks: Chemicals I	Convention Center	315
	199	Cell Culture II: Metabolic Flux Analysis and Modeling	Westin	Washington
	210	Experimental Approaches In Systems Biology	Westin	Somerset East
	211	Fermentation and Biological Conversion	Westin	Westmoreland East
	214	Fundamentals of Protein Folding in Diseases	Westin	Westmoreland West
	215	Handling of Contaminated Fluids Associated with Gas Production From Marcellus Shale	Convention Center	331
	216	Industrial Forum: Recent Advances in Biotechnology	Westin	Allegheny I
	221	Magnetic Nanoparticles in Biotechnology and Medicine I	Convention Center	310
	230	Nanoscale Engineering: Pathways to Advanced Biotechnology II	Westin	Pennsylvania East
	232	Nanotechnology in Medicine and Drug Delivery II	Westin	Allegheny III
	239	Proteomics & Metabolomic Approaches to Systems Biology	Westin	Crawford East
	242	Specialty Extractions: Bioprocessing and Reactive Applications	Convention Center	404
	250	Thermochemical Conversion of Forest/Plant Biomass	Convention Center	303
12:30pm-3:00pm	254	Advances in Algal Biorefineries I	Convention Center	335
	255	Advances In Bioseparations	Convention Center	404
	257	Advances in Metabolic Engineering and Bioinformatics for Biofuels	Westin	Westmoreland Central
	260	Biological Conversions and Processes for Renewable Feedstocks II	Convention Center	334
	261	Bionanotechnology: Plenary Session II	Convention Center	407
	262	Biophysical Behavior of Pharmaceutical Proteins in Processing, Storage and Delivery Environments I	Westin	Pennsylvania West
	264	Catalytic Biofuels Refining	Convention Center	322
	266	Catalytic Processing of Fossil and Biorenewable Feedstocks: Chemicals II	Convention Center	315
	283	Innovations In Drug Delivery Technology I	Westin	Allegheny III
	284	International Forum: Biotechnology in Taiwan and Southeastern Asia	Westin	Allegheny I
	286	Magnetic Nanoparticles in Biotechnology and Medicine II	Convention Center	310

TUESDAY CONTINUED

TIME	SESSION #	SESSION TITLE	LOCATION	ROOM
12:30pm-3:00pm	294	Molecular Modeling of Biophysical Processes I - Molecular Binding and Protein Structure and Dynamics	Westin	Westmoreland East
	295	Multiscale Systems Biology	Westin	Crawford East
	306	Process Robustness in Pharmaceutical Manufacturing	Omni	Shadyside
	307	Protein Engineering III - Applications	Westin	Westmoreland West
	308	Protein Structure, Function, and Stability	Westin	Washington
	310	Scale-up of Pharmaceutical Manufacturing Processes - A QbD Approach	Westin	Allegheny II
	312	Simulation-Based Engineering and Science for Biomedical Advances I	Westin	Pennsylvania East
	314	Surface Modification and Characterization of Biomaterials	Westin	Cambria West
	315	Sustainability and Biobased Materials	Convention Center	304
	318	Thermochemical Conversion of Forest/Plant Biomass II	Convention Center	303
3:15pm-5:45pm	322	Advances in Algal Biorefineries II	Convention Center	335
	323	Advances In Biomaterial Evaluation	Westin	Cambria West
	326	Bionanotechnology Graduate Student Award Session	Convention Center	407
	327	Catalytic Biofuels Refining II	Convention Center	322
	329	Catalytic Processing of Fossil and Biorenewable Feedstocks: Fuels I	Convention Center	315
	340	Electroporation, Electrophysiology, and Cell Electrokinetics	Westin	Somerset West
	342	Food, Pharmaceutical, and Bioengineering Plenary Session	Westin	Allegheny I
	351	Innovations in Drug Delivery Technology II	Westin	Allegheny III
	352	In Silico Systems Biology: Cellular and Organismal Models I	Westin	Crawford East
	358	Modeling of Biomaterials	Westin	Westmoreland East
	360	Multifunctional Biomaterials	Westin	Westmoreland Central
	370	Pretreatment in Forest Biorefineries	Convention Center	304
	371	Primary Recovery in Bioprocessing	Convention Center	404
	380	Sustainable Biomass Feedstock Production and Supply for the Emerging Biorefinery Industry	Convention Center	334
	383	Thermochemical Conversion of Forest/Plant Biomass III	Convention Center	303
6:00pm-7:00pm	386	SBE's James E. Bailey Award Lecture	Westin	Allegheny I
6:00pm-8:00pm	391	Poster Session in Bioseparations	Convention Center	Hall B
9:00pm-11:00pm		Pfizer Hospitality Suite	Westin	Butler West/East

WEDNESDAY, OCTOBER 31, 2012

TIME	SESSION #	SESSION TITLE	LOCATION	ROOM
8:30am-11:00am	402	Applications of Continuous Processing in Manufacture of Pharmaceuticals: Drug Product	Westin	Allegheny III
	406	Biomass Characterization, Pretreatment and Fractionation	Convention Center	303
	407	Biomolecules at Interfaces	Convention Center	413
	408	Biophysical Behavior of Pharmaceutical Proteins in Processing, Storage and Delivery Environments II	Westin	Pennsylvania West
	409	Bioprocessing of Lignocellulosic Biomass to Biofuels and Value-Added Bioproducts I - Biological Approach	Omni	Shadyside
	411	Catalytic Processing of Fossil and Biorenewable Feedstocks: Fuels II	Convention Center	315
	419	Electrocatalysis for PEM Fuel Cells I	Convention Center	317

WEDNESDAY, OCTOBER 31, 2012

TIME	SESSION #	SESSION TITLE	LOCATION	ROOM
8:30am-11:00am	430	In Silico Systems Biology: Cellular and Organismal Models II	Westin	Crawford East
	433	Membranes for Bioseparations	Convention Center	402
	436	Modeling Approaches for Biological Phenomena II	Westin	Westmoreland East
	439	Nanoscale Science and Engineering in Biomolecular Catalysis I	Convention Center	407
	440	Nanotechnology for Biotechnology and Pharmaceuticals	Convention Center	310
	447	Protein Engineering IV - Applications	Westin	Westmoreland West
	448	Protein Structure, Function, and Stability II	Westin	Washington
	450	Separation Processes in Biorefineries	Convention Center	304
	451	Simulation-Based Engineering and Science for Biomedical Advances II	Westin	Pennsylvania East
	453	Stem Cells In Tissue Engineering	Westin	Somerset West
	454	Sustainable Biorefineries Plenary Session (Invited Papers)	Convention Center	334
12:30pm-3:00pm	462	Advances in Metabolic Engineering and Bioinformatics for Biofuels II	Westin	Washington
	467	Applications of Continuous Processing in Manufacture of Pharmaceuticals: Drug Substance	Westin	Allegheny III
	469	Bench to Bedside to Business: Translation of Biomedical Technology	Westin	Pennsylvania East
	470	Bio-Fluid Dynamics	Convention Center	409
	471	Biomass Characterization, Pretreatment and Fractionation II	Convention Center	303
	472	Biomaterials for Biosensing	Westin	Cambria West
	473	Biomolecules At Interfaces II	Convention Center	413
	474	Bioprocessing of Lignocellulosic Biomass to Biofuels and Value-Added Bioproducts II - Physicochemical Approach	Omni	Shadyside
	476	Catalytic Processing of Fossil and Biorenewable Feedstocks: Fuels III	Convention Center	315
	477	Chemical Conversion of Woody Biomass	Convention Center	304
	482	Developments In the Pretreatment of Lignocellulosics for Bioconversion I	Convention Center	333
	483	Drug Delivery I	Westin	Somerset West
	485	Electrocatalysis for PEM Fuel Cells II	Convention Center	317
	489	Engineering Stem Cell Therapy I	Westin	Pennsylvania West
	490	Fuel Cell Technology	Convention Center	322
	497	In Silico Systems Biology: Intracellular Signaling and Gene Regulation	Westin	Crawford East
	498	Integrated Processes for Biochemical Conversion of Renewable Feedstocks to Fuels and Chemicals I	Convention Center	335
	507	Metabolic Engineering and Bioinformatics II	Westin	Westmoreland East
	511	Nanomaterials for Hydrogen Production and Fuel Cells I	Convention Center	307
	512	Nanoscale Science and Engineering in Biomolecular Catalysis II	Convention Center	407
	518	Protein Engineering V - Applications	Westin	Westmoreland West
	519	Reaction Kinetics and Transport Fundamentals for Biomass Conversion I	Convention Center	334
3:15pm-5:45pm	528	Adsorption of Biomolecules	Convention Center	404
	531	Advances in Food and Bioprocess Engineering	Westin	Washington
	533	Application of Quality by Design in Drug Product Process Development	Westin	Allegheny II
	535	Biomass Characterization, Pretreatment and Fractionation III	Convention Center	303
	536	Biomaterials for Drug Delivery	Westin	Cambria West
	537	Biomolecules At Interfaces III	Convention Center	413
	546	Design of Biofuels and Bioproducts	Convention Center	323
	547	Developments In the Pretreatment of Lignocellulosics for Bioconversion II	Convention Center	333
	550	Drug Delivery II	Westin	Somerset West

WEDNESDAY CONTINUED

TIME	SESSION #	SESSION TITLE	LOCATION	ROOM
3:15pm-5:45pm	553	Electrocatalysis for PEM Fuel Cells III	Convention Center	317
	558	Engineering Stem Cell Therapy II	Westin	Pennsylvania West
	561	Fuel Cell Technology II	Convention Center	322
	563	Fundamentals of Biomass Utilization	Convention Center	331
	564	Genomic Approaches to Systems Biology	Westin	Crawford East
	570	Mathematical Approaches for Systems Biology	Westin	Somerset East
	575	Nanocellulose-Based Materials and Composites	Convention Center	304
	576	Nanomaterials for Hydrogen Production and Fuel Cells II	Convention Center	307
	577	Nanoscale Science and Engineering in Biomolecular Catalysis III	Convention Center	407
	579	Nanostructured Biomimetic and Biohybrid Materials and Devices	Convention Center	310
	580	Novel Biological Technologies for Industrial Wastewater Treatment	Convention Center	330
	583	Particle Engineering As Applied to Pharmaceutical Formulations	Westin	Allegheny III
	586	Reaction Kinetics and Transport Fundamentals for Biomass Conversion II	Convention Center	334
6:00pm-8:00pm	593	Poster Session: Bioengineering	Convention Center	Hall B
	594	Poster Session: Food and Bioprocess Engineering	Convention Center	Hall B
	601	Poster Session: Pharmaceutical Engineering	Convention Center	Hall B
	602	Poster Session: Sustainability and Sustainable Biorefineries	Convention Center	Hall B
	603	Poster Session: Sustainable Forest Bioresources Engineering	Convention Center	Hall B

THURSDAY, NOVEMBER 1, 2012

TIME	SESSION #	SESSION TITLE	LOCATION	ROOM
8:30am-11:00am	608	Advances In Biofuels: DOE Bioenergy Research Centers I	Convention Center	335
	612	Biobased Materials II: Lignin-Based Materials	Convention Center	304
	613	Biochemical Conversion Processes in Forest/Plant Biomass Biorefineries	Convention Center	303
	614	Biocomposites: Bio-Derived and Bio-Inspired Composites	Westin	Cambria East
	615	Biomaterial-Cell Interactions in Tissue Engineering	Westin	Pennsylvania East
	616	Biomaterials for Stem Cell Expansion and Differentiation	Westin	Cambria West
	617	Bionanotechnology for Gene and Drug Delivery I	Convention Center	407
	618	Biosensor Devices I	Westin	Washington
	626	Developments In Biobased Alternative Fuels I	Convention Center	333
	631	Engineered Composite Particulate Systems for Pharmaceutical Active Ingredient Delivery I	Omni	Oakmont
	635	Fuel Cell Membranes - I	Convention Center	402
	643	Interfacial Phenomena in Biomaterials	Westin	Westmoreland Central
	644	Life Cycle Analysis of Bio-Based Fuels, Energy, and Chemicals I	Convention Center	334
	661	Scale-up of Pharmaceutical Isolation and Drying Operations	Westin	Allegheny III
	662	Single Cell Analysis	Westin	Somerset East
	656	Pharmaceutical, Biotechnology and Materials Applications Using Compressible or Supercritical Fluids	Convention Center	409
12:30pm-3:00pm	667	Advances In Biofuels: DOE Bioenergy Research Centers II	Convention Center	335
	674	Biobased Materials III: Value-Added Coproducts	Convention Center	304
	675	Biochemical Conversion Processes in Forest/Plant Biomass Biorefineries II	Convention Center	303
	676	Bioimaging and Diagnostics	Westin	Pennsylvania East
	677	Biomass and Biorenewables Processing Under Pressure	Convention Center	409

THURSDAY CONTINUED

TIME	SESSION #	SESSION TITLE	LOCATION	ROOM
12:30pm-3:00pm	678	Biomimetic Materials	Westin	Westmoreland Central
	679	Bionanotechnology for Gene and Drug Delivery II	Convention Center	407
	680	Biosensor Devices II	Westin	Washington
	681	Biosensors, Biodiagnosis and Bioprocess Monitoring	Westin	Crawford East
	682	Bioseparations / Downstream Processing of Biopharmaceuticals	Westin	Allegheny I
	689	Developments In Biobased Alternative Fuels II	Convention Center	333
	692	Engineered Composite Particulate Systems for Pharmaceutical Active Ingredient Delivery II	Omni	Oakmont
	697	Fuel Cell Membranes II	Convention Center	402
	701	Hydrogel Biomaterials	Westin	Cambria West
	703	Intracellular Processes I	Westin	Somerset East
	704	Life Cycle Analysis of Bio-Based Fuels, Energy, and Chemicals II	Convention Center	334
	717	QbD for Drug Release From Pharmaceutical Dosage Forms	Westin	Allegheny II
	721	Self-Assembled Biomaterials	Convention Center	310
	725	Systems Engineering Approaches in Biology and Biomedicine	Convention Center	326
3:15pm-5:45pm	730	Biobased Materials IV: Biopolymers and Composites	Convention Center	304
	734	Biochemical Conversions Processes in Forest/Plant Biomass Biorefineries III	Convention Center	303
	731	Biomaterials for Nucleic Acid Delivery	Westin	Westmoreland Central
	732	Bionanotechnology for Gene and Drug Delivery III	Convention Center	407
	744	Control In Medicine and Biology	Convention Center	324
	745	Developments In Biobased Alternative Fuels III	Convention Center	333
	751	Fundamentals of Electrode and Cell Designs: A Tutorial Session	Convention Center	410
	752	Fundamentals of Environmental Biotechnology	Convention Center	331
	758	Integrated Thermo-Chemical and Biochemical Processing for Renewable Fuels and Chemicals	Convention Center	335
	760	Intracellular Processes II	Westin	Somerset East
	765	Nanostructured Biomaterials	Westin	Cambria West
	766	Nanotechnology and Nanobiotechnology for Sensors	Convention Center	310
	769	Reaction Engineering In Pharmaceuticals and Fine Chemicals	Convention Center	316

FRIDAY, NOVEMBER 2, 2012

TIME	SESSION #	SESSION TITLE	LOCATION	ROOM
8:30am-11:00am	778	Biomembrane & Water Management Innovation Complimentary to Industrial Needs	Convention Center	408
	779	Chemical Conversion Processes in Forest/Plant Biorefineries	Convention Center	303
	780	Demonstration Scale Biorefining-Scale up Challenges	Convention Center	334
	781	Electrospun Biomaterials	Westin	Cambria West
	782	Integrating Industrial Waste Into Biorefineries	Convention Center	333
	787	Recalcitrance of Woody Biomass	Convention Center	304
	789	Spatially Patterned Biomaterials	Westin	Cambria East

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Bring this form to the AIChE desk to become a member of SBE today and join us at the Pfizer Hospitality Suite on Tuesday, October 30th from 9:00 pm-11:00 pm in The Westin, Butler West/East.



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I, the undersigned, attest that the statements I have given are true. I agree to abide by the bylaws of the Society for Biological Engineering.



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Tuesday, October 30, 2012 from 9 to 11 PM in The Westin, Butler West/East