

SCHEDULE OF PRESENTATIONS

(Current as of March 22, 2019; subject to change)

THURSDAY, APRIL 4

1:00PM – 6:00PM	Registration Desk Open <i>3rd Floor Mezzanine</i>
5:00PM – 6:00PM	Welcome Reception <i>3rd Floor - Fleur de Lys Ballroom A</i>
7:00PM – 8:30PM	IBE Leadership Council Meeting <i>3rd Floor - Executive Boardroom</i>

FRIDAY, APRIL 5

7:00AM – 6:00PM	Registration Desk Open <i>3rd Floor Mezzanine</i>
7:00AM – 8:00AM	Continental Breakfast <i>Grand Ballroom</i>
7:00AM – 8:00AM	IBE Council Committee Meetings
8:00AM – 9:00AM	Opening Remarks and Keynote Presentation I <i>Grand Ballroom</i> Opening Remarks: David Jones, IBE President Keynote Presentation: <i>Engineering Nitrogen Fixation Ability in an Oxygenic Photosynthetic Organism</i> , Himadri B. Pakrasi, Ph. D., Myron and Sonya Glassberg/Albert and Blanche Greensfelder Distinguished University Professor and Director of the International Center for Energy, Environment and Sustainability (InCEES), Washington University
9:00AM – 11:00AM	Session 5A: Biomaterials Engineering – Tissue Engineering & Drug Delivery <i>Gallery Ballroom II</i>
9:00AM – 9:20AM	6 <i>Effects of Mechanically Active Substrates on HaCaT Cell Cultures</i> , Dahiana Mojena Medina, Marina Martínez Hernández, Miguel de la Fuente López, Julio Posada Román, Guadalupe García Isla, José Luis Jorcano Noval and Pablo Acedo Gallardo
9:20AM – 9:40AM	66 <i>Fabrication and Characterizations of Hydrogel Microspheres for Sustained Delivery of Platelet-Rich Plasma for the Treatment of Osteoarthritis</i> , Miran Choi, Alexandra Blanco, Xin Duan, Natasha Case, Scott Sell, M Farooq Rai and Silviya Zustiak
9:40AM – 10:00AM	73 <i>Incorporation of Decellularized Extracellular Matrix in Cryogels for Muscle Regeneration</i> , Eileen Robertson, Houston Linder, Krishna Patel, Koyal Garg and Scott Sell

To read the abstract for a presentation, go to www.ibe.org.

10:00AM – 10:20AM	87 <i>Using Mesenchymal Stem Cell Transfected with Thymidine Phosphorylase for Gene-directed Enzyme Prodrug Therapy</i> , Xutu Wang and Ching-An Peng
10:20AM – 10:40AM	63 <i>Resorbable Radiopaque Microspheres for Catheter Embolization using Microfluidics</i> , Lavanya Aryan, Kyle Vogt, Andrew Hall and Silviya Zustiak
10:40AM – 11:00AM	64 <i>Manipulating Air-Gap Electrospinning to Create Polymer Nanofiber-Wrapped Glass Microfibers for Regenerating Critical Size Bone Defects of Cortical Bone</i> , Houston Linder, Austin Glass and Scott Sell
11:00AM – 11:20AM	62 <i>Exploration of Extracellular Macromolecular Crowding Effects on Protein Diffusion and Interactions via Fluorescence Correlation Spectroscopy</i> , Samuel Stealey, Constance Wall, Saahil Sheth, Nicola Pozzi, Silviya P. Zustiak and Natasha Case
9:00AM – 11:00AM	Session: 5B Biomedical Engineering – Imaging Techniques Gallery I
9:00AM – 9:20AM	61 <i>Development of A Near-Infrared Daratumumab-Based Contrast Agent for Preclinical Imaging Of CD38 Expression In Multiple Myeloma</i> , Nicholas Cho, Anchal Ghai and Monica Shokeen
9:20AM – 9:40AM	53 <i>White Blood Cells Analysis for Leukemia Classification Using Image Processing Techniques</i> , Qanita Bani Baker and Hadeel Miqdadi
9:40AM – 10:00AM	82 <i>Investigation of Fatty Acid Recognition and Internalization Process by Two Receptors on Living Cell Surface using Surface Enhance Raman Spectroscopy</i> , Wei Zhang, Fangjun Lin, Timothy Gilbertson and Anhong Zhou
10:00AM – 10:20AM	4 <i>Tracking Optical Thin Film and Coating Properties during Dissolution via Optical Tunneling Photoacoustic Spectroscopy (OTPAS)</i> , Aishik Das, Jonathan Baumstark, Yowting Tsay, Benjamin Goldschmidt and Heather K. Hunt
10:20AM – 10:40AM	1 <i>Burn Wound Imaging Hand-held Device Via Optoacoustic Computed Tomography</i> , Quinn Duncan, Courtney Gooch, Mason Schellenberg and Heather K. Hunt
11:00AM – 12:30PM	Lunch on Own
12:30PM – 2:30PM	Session 6A: Food Engineering Gallery II
12:30PM – 12:50PM	48 <i>Biology-Inspired Engineered Agricultural and Food Systems</i> , Brahm P. Verma
12:50PM – 1:10PM	80 <i>Cellulolytic Activity of Edaphic Fungi Native to Yaqui Valley, Mexico, for the Production of Fermentable Sugars from Wheat Straw Cellulose Pulp</i> , Iram Mondaca-Fernandez, Raúl Benjamín Reyes-Caro, Sergio De Los Santos-Villalobos, Maria Mercedes Meza-Montenegro and Jose De Jesus Balderas-Cortes

To read the abstract for a presentation, go to www.ibe.org.

1:10PM – 1:30PM	3 <i>Improved Antimicrobial Thin-Films for Food Processing</i> , Eduardo Torres Dominguez, Phong Nguyen and Heather K. Hunt
12:30PM – 2:30PM	Session 6B: Biosensors & Diagnostics – Human Health Gallery I
12:30PM – 12:50PM	78 <i>Structural Protein-Based Whispering Gallery Microresonators for Ultraviolet Sensing</i> , Yiming Liu, Linhua Xu and Lan Yang
12:50PM – 1:10PM	28 <i>Selective Isolation of Listeria Monocytogenes in a Microfluidic Device</i> , Alyssa Ghuman, Yan Zhou, Yang Liu, Leidong Mao and Ramaraja Ramasamy
1:10PM – 1:30PM	77 <i>Laser Carbonized Biosensors for Listeria Monocytogenes Detection in Large Sample Volumes via Vacuum Driven Flow</i> , Nicholas Cavallaro, Eric McLamore and Carmen Gomes
1:30PM – 1:50PM	32 <i>A Novel Biosensor for Methicillin-Resistant Staphylococcus Aureus</i> , Dhara Patel, Yan Zhou and Ramaraja Ramasamy
1:50PM – 2:10PM	57 <i>Development of a Speculum-Free Optical Probe for Cervical Assessment during Pregnancy</i> , Christine O'Brien, Katherine Cochran, Laura Masson, Mack Goldberg, Eric Marple, Kelly Bennett, Jeff Reese, Chris Slaughter, J Michael Newton and Anita Mahadevan-Jansen
2:10PM – 2:30PM	58 <i>Raman Spectroscopy Detects Biochemical-Specific Changes in the Cervix during Human Pregnancy</i> , Christine O'Brien, Elizabeth Vargis, Amy Rudin, Chris Slaughter, Giju Thomas, J Newton, Jeff Reese, Kelly Bennett and Anita Mahadevan-Jansen
2:30PM – 2:50PM	71 <i>"Detection by Death": A Rapid and Inexpensive Way to Rapidly Detect Viable Organisms of Interest in Complex Substrates</i> , Yongqiang Yang, Roli Kargupta, Amandeep Sharma, Sachidevi Puttaswamy and Shramik Sengupta
2:50PM – 3:10PM	72 <i>Direct-from-Sputum Rapid Phenotypic Drug Susceptibility Test for Mycobacteria</i> , Timothy Butler, Aiden Lee, Yongqiang Yang, Roli Kargupta, Mitchell Newton, Sachidevi Puttaswamy and Shramik Sengupt
2:30PM – 2:45PM	Break
2:45PM – 4:45PM	Session 7A: Biosensors & Diagnostics – High-Throughput Phenotyping Gallery I
2:45PM – 3:05PM	83 <i>Chlorophyll Fluorescence Imaging and Image Processing to Determine Canopy Leaf Coverage</i> , Mark Haidekker
3:05PM – 3:15PM	29 <i>Detection of Plant Disease Chemical Markers using a Microfluidic Biosensor Device</i> , Yi Fang, Or Zolti and Ramaraja Ramasamy
3:15PM – 3:45PM	84 <i>Fast and Low-Cost Chlorophyll Fluorometer -- Second Iteration</i> , Mark Haidekker, Kevin Dong and Marc van Iersel
3:45PM – 4:05PM	22 <i>Adoption of Unmanned Aerial System (UAS)-Based Imaging System in Soybean Breeding Program</i> , Chin Nee Vong, Jianfeng Zhou, Md. Liakat Ali and Pengyin Chen

To read the abstract for a presentation, go to www.ibe.org.

4:05PM – 4:25PM	20 Discrimination of Soybean Leaf Wilting due to Drought Stress Using UAV-Based Imaging , Jing Zhou, Heng Ye, Ali Liakat, Henry Nguyen and Jianfeng Zhou
2:45PM – 4:45PM	Session 7B: Biomaterials Engineering – Nanomaterials Gallery II
2:45PM – 3:05PM	49 Hybrid Hyperthermia Strategy Using Multifunctional Nanostructures , Varun Sadaphal, Siddhartha Mukherjee and Santaneel Ghosh
3:05PM – 3:25PM	46 Templated Macroporous Polyethylene Glycol Hydrogels for Spheroid and Aggregate Cell Culture , Mozhddeh Imaninezhad, Lindsay Hill, Jessica Conley, John Ortlund and Silviya Zustiak
3:25PM – 3:45PM	2 Lysozyme Sorption Behavior of Pure-Silica Zeolite MFI Films , Keisha Avery, Caio Peixoto, Marcos Barcellona, Matthew Bernards and Heather K. Hunt

SATURDAY, APRIL 6

7:00AM – 6:00PM	Registration Desk Open <i>3rd Floor Mezzanine</i>
7:00AM – 8:00AM	Continental Breakfast <i>Grand Ballroom</i>
7:00AM – 8:00AM	Poster Set-Up <i>Fleur de Lys B</i>
8:00AM – 8:45AM	9 Keynote Presentation: How Will Innovative Methods in Improving Stress Tolerance of Plants Change the Face of Agriculture, and Who Cares , Dr. Kathleen Liang, W. K. Kellogg Distinguished Professor of Sustainable Agriculture, Director of Center for Environmental Farming Systems, North Carolina State University <i>Grand Ballroom</i>
8:45AM – 9:00AM	Break <i>Grand Ballroom</i>
9:00AM – 11:00AM	Session 10A: Advances in Biological Engineering Education Practices Gallery I
9:00AM – 9:20AM	54 Framework for the Professional Formation of Biological Engineers , David Jones
9:20AM – 9:40AM	51 Teaching Creativity to Bioengineers—and Everybody Else , Ferris Pfeiffer, Heather Hunt, Johannes Strobel and Suzanne Burgoyne
9:40AM – 10:00AM	34 MIT's Living Machines: An Engineering Education Transformation (NEET) Thread , Timothy Kassis, Rebekah Costello, Ronit Langer, Dorothy Szymkiewicz, Ning 'Alexa' Guan, Julie Vaughn, Adil Yusuf, Amitava 'Babi' Mitra, Eric Alm and Linda Griffith

To read the abstract for a presentation, go to www.ibe.org.

10:00AM – 10:20AM	11 <i>Development of Synthetic Biology Kits for STEM Education</i> , A.J. Walters, Ron Sims and Charles Miller
10:20AM – 10:40AM	50 <i>Implementing a Pedagogy of Creativity into Summer Programming in an NSF REU Site</i> , Ferris Pfeiffer, Heather Hunt, Johannes Strobel and Suzanne Burgoyne
10:40AM – 11:00AM	44 <i>A BioMakerSpace at MIT Enables Hands-On, Student-Directed Exploration of Biological Engineering</i> , Maxine Jonas, Anthony Kulesa, Julie Sutton, Steven Wasserman, Paul Blainey and Douglas Lauffenburger
9:00AM – 11:00AM Session 10B: Bioenvironmental Engineering & Monitoring Gallery II	
9:00AM – 9:20AM	60 <i>Use of Stem-Loop DNA Probes in Biosensors Targeting Legionella Pneumophila in Drinking Water</i> , Parker Dulin, Carmen Gomes and Kaoru Ikuma
9:20AM – 9:40AM	35 <i>Photonic Molecularly Imprinted Polymer Film for the Detection of Testosterone in Aqueous Samples</i> , Abbas Kadhem, Shuting Xiang and Maria Fidalgo
9:40AM – 10:00AM	70 <i>Low-Cost, Facile, and Rapid Nanosensors for Establishing a Participatory Monitoring Program on Mercury Exposure in Rural Colombia</i> , Victoria Morgan, Kelli McCourt, Dianna Vanegas, Irene Velèz-Torres, Liseth Casso-Hartmann and Eric McLamore
10:00AM – 10:20AM	43 <i>Algalytic Bacteria Increase Methane Production during Anaerobic Digestion of Algal Biomass</i> , Anna Doloman, Ronald Sims and Charles Miller
10:20AM – 10:40AM	12 <i>Increasing Biomethane Production with the Addition of Rotating Algal Biofilm Reactor Algae for Energy Recovery in Wastewater Treatment</i>
11:00AM – 12:15PM	Luncheon Presentation: <i>Challenges and Best Practices in Developing Diversity and Inclusion in Sustainable Intensification of Precision Agriculture</i> , Dr. Kathleen Liang, North Carolina A&T <i>Grand Ballroom</i>
12:15PM – 2:45PM Session 11: Bioethics Essay & Student Design Competition Gallery II	
12:15PM – 1:55PM	Bioethics Essay Contest
12:15PM – 12:35PM	39 <i>Ethical Considerations of Artificial Intelligence in Healthcare</i> , Jordan Maass and Tasha Repella, University of Arkansas
12:40PM – 1:00PM	38 <i>The Unstoppable Joins the Immutable: The Impact of Big Data and Blockchain on Healthcare</i> , James J. Kim, Jr and Chavis E. Ferguson III, University of Missouri - Columbia
1:05PM – 1:25PM	36 <i>Big Data – In the Hands of the Small Farmer or Large Business</i> , Rose Schaufler, University of Missouri - Columbia

To read the abstract for a presentation, go to www.ibe.org.

1:30PM – 1:50PM	56 <i>Paving Big Data in Agribusinesses: Economical and Ethical Considerations in Health and Human Rights</i> , Robin Hu, University of Pennsylvania
2:00PM – 2:45PM	Student Design Contest
2:00PM – 2:20PM	52 <i>Nanoimprinted Leaf: A Step Toward Developing an Inexpensive Biological Sensor for Increasing Healthy Crop Yields</i> , Keith R. Berry, Jr and Michelle A. Dopp, University of Arkansas
2:25PM – 2:45PM	51 <i>Adoption of Unmanned Aerial System (UAS)-Based Imaging System in Soybean Breeding Program</i> , Chin Nee Vong, University of Missouri
12:30PM – 2:30PM	Session 11B: Metabolic Engineering Gallery I
12:30PM – 12:50PM	42 <i>Enhanced Production of Indigoidine Using a Cold-Shock Inducible Promoter</i> , Gary Zhan and Fuchao Xu
12:50PM – 1:10PM	27 <i>Electricity Generation by Genetically Engineered Hyperthermophiles</i> , Baviththira Suganthan, Chang-Hao Wu, Dominik K Haja, Yi Fang, Michael Ww Adams and Ramaraja P Ramasamy
1:10PM – 1:30PM	13 <i>Characterization of the Truncated Caffeine N-demethylase Reductase NdmD Isolated from Pseudomonas putida CBB5</i> , Shelby Brooks and Ryan M Summers
1:30PM – 1:50PM	89 <i>Regulating Metabolic Pathways and Microbial Subpopulations for Chemical and Biofuel Production</i> , Fuzhong Zhang
1:50PM – 2:10PM	55 <i>Bio-Halogenation of Flavonoids by a Fungal Flavin-Dependent Halogenase</i> , Ozkan Fidan, Yonghong Liang and Jixun Zhan
2:10PM – 2:30PM	88 <i>Sustainable Production of Sucrose in the Fast-Growing Cyanobacterium Synechococcus elongatus UTEX 2973</i> , Po-Cheng Lin, Fuzhong Zhang and Himadri Pakrasi
2:30PM – 2:45PM	Break
2:45PM – 4:45PM	Session 12A: Biomedical Engineering – Biomechanics Gallery II
2:45PM – 3:05PM	91 <i>Mechanical Properties of Atria and Annulus in Radial and Circumferential Direction</i> , Lydia Webster, Eswara Priyanka Nalla and Shamik Bhattacharya
3:05PM – 3:25PM	7 <i>Effect of Stress Relaxation Time on Parameter Optimization Using Finite Element Simulation</i> , Muhammad Salim and Ferris Pfeiffer
3:25PM – 3:45PM	74 <i>Design and Fabrication of a Novel Ultrasound Bioreactor</i> , Jacob Crapps and Natasha Case
2:45PM – 4:45PM	Session 12B: Bionanotechnology Gallery I
	47 <i>Designing New Nano-Biocomposite Materials using CNTs and ZnO Hybrid Interfaces and Hydrogel Environments for Biomedical Applications</i> , Nicholas Schaper, Brannan Hutchinson, Silviya P Zustiak and Irma Kuljanishvili

To read the abstract for a presentation, go to www.ibe.org.

3:05PM – 3:25PM	75 <i>Microbial Growth Response to Highly Water Dispersible Boron Nitride Nanotubes</i> , Sourav Chakraborty, Htet Linn and Santaneel Ghosh
3:25PM – 3:45PM	9 <i>Carbon-nanotube-polyethylene Glycol Nanocomposite Biomaterials as Neural Substrates</i> , Brannan Hutchinson, Mozhdeh Imaninezhad, Fenglian Xu, Irma Kuljanishvili and Silviya Zustiak
3:45PM – 4:05PM	68 <i>Optoelectronic Plant Leaf Sensors with Nanoantenna</i> , Keith Roper
4:05PM – 4:25PM	65 <i>A Simple Microfluidic Device for the Production of Monodisperse Hydrogel Microspheres</i> , Kyle Vogt, Mozhdeh Imaninezhad, Dzhuiliya Vasileva, Mark McQuilling and Silviya Zustiak
4:25PM – 4:45PM	67 <i>Interaction between Nano-particle Covered Carbon Nano-tubes and Human Blood</i> , Zach Hancock, Jacob Seabaugh, Caleb Ellenburg, Sidney Siebert, Santaneel Ghosh and Derek Yarbro
5:00PM – 6:00PM	Session 13: Poster Session <i>Fleur de Lys Ballroom B</i>
	90 <i>Potential Strategy to Increase the Quantum Yield of Photochemistry via the Control of a Redox Switch in an Antenna Protein</i> , Hui-Yuan Chen, Michelle Liberton, Dariusz Niedzwiedzki and Himadri Pakrasi
	86 <i>Struvite Formation Influenced by Microalgae Biofilms</i> , Kyle Hillman
	85 <i>Analysis of Productivity and Characterization of Microalgae Grown on Bioreactor for Wastewater Remediation</i> , Jake Accordino
	81 <i>A Smartphone, Paper-Based Optical Platform for Whole Blood Glucose Colorimetric Assay</i> , Han Zhang, Wei Zhang and Anhong Zhou
	79 <i>Emerging Optical Materials for Whispering Gallery Mode Microresonators</i> , Yiming Liu, Linhua Xu, Guangming Zhao, Xuefeng Jiang and Lan Yang
	76 <i>Design of a High Frequency Photo-Magnetic Actuator for Biomedical Applications</i> , Daniel Bird, Tyler Howard, Jimmy Keng'Ara, Benjamin Nielsen and Adam Stone
	69 <i>Multiplexed Sensing by Two Microtoroid Cavities</i> , Jaehoon Choi
	59 <i>Investigation of Electrical Characteristics of Nanoporous GaN for Optoelectronic Neural Recording Probe</i> , Min Hyuck Kim and Joonhee Lee
	45 <i>Wastewater Remediation of Anaerobic Digester Effluent by a Rotating Algal Biofilm Reactor</i> , Nathan Guymon
	41 <i>Surgical Needle Counter</i> , Michael Bender, Corneila Dittmar, Malik Woulard, William Schulze and Genevieve Jones
	37 <i>Production of Bioproducts from Waste Nutrients</i> , Dylan Ellis, Daniel Derrick, Jenson Walters, Ron Sims and Charles Miller
	33 <i>A Novel, Visual Indicator for Influenza Detection</i> , Clare Kercher, Ian Heck, Sarah Gebken and Robert Rolette

To read the abstract for a presentation, go to www.ibe.org.

	30 <i>Prolonged Sitting Affects Somatosensory-Evoked N300 and N500</i> , Yue Dong, Ann Harlos, Allison Paoli and Yan Gai
	25 <i>Machine Learning and Eye Tracking on Motion-Evoked EEG Signals</i> , Matthew O'Brien, Ann Harlos, Yue Dong, Allison Paoli, Aaron Sass, Yuktresh Kalidindi, Nicole Bajerek and Yan Gai
	16 <i>Microfluidic Cassette for Aerobic Growth of Microorganisms</i> , Rachel Rinkus, Trisha Wuestling, Jay Patel and Dennis Tran
	15 <i>Machine Learning and Eye Tracking on Motion-Evoked EEG Signals</i> , Rassam Rassam, Yan Gai and Vahdeta Suljic
	14 <i>Robotics Localization and Separation for Selective Auditory Attention in Hearing Aids</i> , Zahra Eslami and Yan Gai
	8 <i>Pediatric Wheelchair Assistive Device</i> , Nosakhare Eke
	5 <i>Organic Dermal Intratissular Rehabilitation System</i> , Helberth Velasquez, Veronica Lara and Ricardo Jaramillo
5:00PM – 6:00PM Reception <i>Fleur de Lys Ballroom B</i>	
6:00PM – 8:15PM IBE Banquet and Student Competition Awards Announcement <i>Grand Ballroom</i>	
8:30PM – 9:30PM IBE Council Meeting <i>Executive Boardroom</i>	

To read the abstract for a presentation, go to www.ibe.org.