



**ANNUAL MEETING
CO-CHAIRS:**

Jason A. Burdick, *U Penn* – burdick2@seas.upenn.edu
Alisa Morss Clyne, *Drexel University* – asm67@drexel.edu
Ruth Ochia, *Temple University* – ruth.ochia@temple.edu

To submit an abstract go to: <http://submissions.mirasmart.com/BMES2019>

BIOINFORMATICS, COMPUTATIONAL AND SYSTEMS BIOLOGY

Track Chair: Kathryn Miller-Jensen, *Yale* - kathryn.miller-jensen@yale.edu
Track Chair: Matthew Lazzara, *University of Virginia* - mlazzara@virginia.edu

- Analysis of Cell Signaling (*Cell & Molecular)
- Analysis of Multi-Cellular Systems
- Computational Modeling of Cancer (*Cancer)
- Computational Modeling of Cell Motility and Proliferation
- Models of Metabolism
- Novel Methods for Systems Biology
- Omics Data: Methods, Modeling and Analysis
- Single-Cell Measurements and Models (*Cell & Molecular)
- Stem Cell Systems Biology & Bioinformatics (*Stem Cell)
- Systems Approaches to Therapy, Therapeutics, and Precision Medicine
- Systems Biology of Infectious Disease
- Theory and Practice of Synthetic Biology
- Other / Non-specified

BIOMANUFACTURING

Track Chair: Kaiming Ye, *Binghamton University* - kye@binghamton.edu
Track Chair: Guohao Dai, *Northeastern University* - g.dai@northeastern.edu

- Molecular Biomanufacturing
- Cellular Biomanufacturing
- Tissue and Organ Biomanufacturing (*Tissue Engineering)
- Biomaterials for Cell Manufacturing and Tissue Biofabrication (*Biomaterials)
- Microphysiological Systems (MPS) Manufacturing (*Nano & Micro)
- Multiscale Computation Modeling
- Biomanufacturing Process Integration and Scale-up/out
- Bioprocess Monitoring and In-Line Sensing
- Cell Culture Medium Formulation and Cell Banking
- Cryopreservation and Regulatory Sciences in Biomanufacturing
- Other / Non-specified

BIOMATERIALS

Track Chair: Tatiana Segura, *Duke University* - tatiana.segura@duke.edu
Track Chair: Yizhou Dong, *Ohio State University* - dong.525@osu.edu

- 3D Printing and Advanced Biomaterial Manufacturing (*Biomanufacturing)
- Advanced Characterization and imaging of Biomaterial Environments
- Advances in Biomaterials Integration with Chips and Devices (*Nano & Micro)
- Biomaterials for Immunoengineering
- Biomaterials for Regenerative Medicine
- Biomaterials Scaffolds
- Biomechanics of Biomaterials (*Biomechanics)
- Drug Delivering Biomaterials (*Drug Delivery)
- Engineering the Stem Cell Microenvironment (*Stem Cells)
- Hydrogel Biomaterials
- Natural and Bioinspired Biomaterials
- Other / Non-specified

BIOMEDICAL ENGINEERING EDUCATION (BME)

Track Chair: Bilal Ghosn, *Rice University* - bghosn@rice.edu
Track Chair: C. LaShan Simpson, *Mississippi St U* - clsimpson@abe.msstate.edu

- Design and Curriculum
- ABET Program Criteria, Student Outcomes
- Industry Preparation
- Classroom Technology, Pedagogy and Innovation
- Ethics in Education
- Service Learning
- Multi-disciplinary and Inter-disciplinary Curriculum
- Other / Non-specified

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BIOMECHANICS

Track Chair: Rouzbeh Amini, *U of Akron* - ramini@uakron.edu
Track Chair: Daniel Conway, *Virginia Commonwealth U* - dconway@vcu.edu

- Advances in Biomechanical Testing of Medical Devices
- Biofluid Mechanics
- Biomechanics in Cell and Tissue Engineering (*Tissue Engineering)
- Biomechanics of Biomaterials (*Biomaterials)
- Biomechanics of Rehabilitation/Injury
- Cancer Mechanobiology (*Cancer)
- Cardiovascular Biomechanics (*Cardiovascular)
- Cellular and Molecular Biomechanics: Mechanobiology (*Cell & Molecular)
- Computational and Multiscale Modeling in Biomechanics
- Hemodynamics and Vascular Mechanics (*Cardiovascular)
- Human Performance/Sports Biomechanics
- Imaging Techniques in Biomechanics (*Imaging)
- Injury Biomechanics
- Matrix Effects in Mechanobiology (*Cell & Molecular)
- Mechanics of the Respiratory System (*Respiratory)
- Mechanobiology of Cardiac and Smooth Muscle (*Cardiovascular)
- Mechanobiology of Cell Adhesion
- Mechanobiology of the Vascular and Nervous System
- Molecular Bioengineering (*Cell & Molecular)
- Neuromuscular and Brain Biomechanics (*Neural)
- Orthopedic: Mechanobiology and Mechanotransduction (*Orthopedic & Rehab)
- Topics in Mechanobiology
- Other / Non-specified

BIOMEDICAL IMAGING AND INSTRUMENTATION

Track Chair: Muyinatu Bell, *Johns Hopkins University* - mledijubell@jhu.edu
Track Chair: Carolyn Bayer, *Tulane University* - carolynb@tulane.edu

- Architecture and Design of Imaging Systems
- Approaches in Cellular/Molecular Imaging and Tracking
- Advances in Multimodal and Multiscale Imaging
- From Diagnostics to Theranostics and Image-Guided Therapy
- Image Processing and Analysis, Modeling, Data Science and Informatics
- Imaging Contrast Agents, Therapeutic Agents and Theranostic Agents
- Image Guided Therapies (*Translational)
- Imaging in Cardiovascular Systems (*Cardiovascular)
- Imaging in Neuroscience and Brain Initiatives (*Neural Engineering)
- Imaging Strategies and Molecular Profiling in Cancer (*Cancer)
- Imaging Techniques for Musculoskeletal System (*Orthopedic and Rehab)
- Imaging Techniques in Biomechanics (*Biomechanics)
- Imaging Techniques in Tissue Engineering (*Tissue Engineering)
- Imaging Technologies in Clinical Translation (*Translational)
- Imaging the Respiratory System (*Respiratory)
- Magnetic Resonance Imaging (MRI)
- Nuclear Medicine Imaging (PET/SPECT)
- Optical Imaging, Microscopy and Spectroscopy (Optics)
- Photoacoustic Imaging (PA)
- Ultrasound Imaging and Therapeutic Ultrasound (US)
- X-ray and Computed Tomographic Imaging (CT)
- Other / Non-specified

CANCER TECHNOLOGIES

Track Chair: Xiling Shen, *Duke University* - xiling.shen@duke.edu
Track Chair: Ovijit Chaudhuri, *Stanford University* - chaudhuri@stanford.edu

- Cancer Cell Motility and Migration (*Cellular and Molecular)
- Cancer Drug Delivery (*Drug Delivery)
- Cancer Immunoengineering
- Cancer Mechanobiology (*Biomechanics)
- Circulating Biomarkers: CTCs, Extracellular Vesicles and DNA
- Computational Modeling of Cancer (*Comp & Systems Bio)
- Drug Delivery for Immunomodulation and Immunotherapy (*Drug Delivery)
- Imaging Strategies and Molecular Profiling in Cancer (*Imaging)
- Metastasis, Dormancy & Treatment Response
- Microfluidic Cancer Models
- Microscale Cancer Cell Analysis
- Precision Medicine and Biomarkers in Cancer
- Tumor Microenvironment
- Other / Non-specified



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CARDIOVASCULAR ENGINEERING

Track Chair: Mehdi Nikkhah, *Arizona State University* - mehdi.nikkhah@asu.edu

Track Chair: Karen Coulombe, *Brown Univ* - karen_coulombe@brown.edu

- Angiogenesis and Engineered Vascularization
- Cardiac Electrophysiology
- Cardiovascular Biomechanics (*Biomechanics)
- Cardiovascular Devices (*Devices)
- Cardiovascular Regeneration and Stem Cells (*Stem Cells)
- Cardiovascular Tissue Engineering (*Tissue Engineering)
- Computational Modeling in Cardiovascular Systems
- Heart Valve Structure, Function, and Disease
- Hemodynamics and Vascular Mechanics (*Biomechanics)
- Imaging in Cardiovascular Systems (*Imaging)
- Mechanobiology of Cardiac and Smooth Muscle (*Biomechanics)
- Thrombosis and Hemostasis
- Other / Non-specified

CELLULAR AND MOLECULAR BIOENGINEERING

Track Chair: Ning Jenny Jiang, *Univ of Texas Austin* - jiang@austin.utexas.edu

Track Chair: Roland Kaunas, *Texas A&M* - rkaunas@tamu.edu

- Analysis of Cell Signaling (*Comp & Systems Bio)
- Bioenergetics and Metabolism
- Cancer Cell Motility and Migration (*Cancer)
- Cell Migration
- Cellular and Molecular Biomechanics: Mechanobiology (*Biomechanics)
- Engineering and the Extracellular Matrix and Plasma Membrane
- Engineering and the Microbiome
- Engineering Multi-Cellular Systems (*Tissue Engineering)
- Gene Delivery and Genome Bioengineering
- Immuoengineering
- Ligand, Receptor, and Effector Signaling Systems
- Micro/Nano Tools in Molecular Biology (Genomics, Proteomics) (*Nano & Micro)
- Molecular and Cellular Engineering for Functional Materials and Sensors
- Molecular and Cellular ImmunoEngineering
- Molecular Bioengineering (*Biomechanics)
- Reprogramming/Directed Differentiation in Stem Cell Engineering (*Stem Cell)
- Single-Cell Measurements and Models (*Comp & Systems Bio)
- Other / Non-specified

DEVICE TECHNOLOGIES AND BIOMEDICAL ROBOTICS

Track Chair: Woon-Hong Yeo, *Georgia Tech* - woonhong.yeo@me.gatech.edu

Track Chair: Jacqueline C. Linnes, *Purdue University* - jlinnes@purdue.edu

- Affordable Health Devices and Frugal Innovation
- Assistive Technology
- Biosensors
- Cardiovascular Devices (*Cardiovascular)
- Design and Control of Prostheses and Exoskeletons
- Implantable Devices and Implantable Electronics
- Interventional devices and robotics (*Translational)
- Implantable and wearable sensors (*Translational)
- Musculoskeletal Robotics and Biomechatronics in Rehabilitation (*Orthopedic and Rehab)
- Point of Care / Mobile Devices
- Surgical Robotics
- Translation of Devices from the Lab to the Clinic/Market
- Wearable Sensors and Devices
- Other / Non-specified

DRUG DELIVERY

Track Chair: Anirban Sen Gupta, *Case Western* - anirban.sengupta@case.edu

Track Chair: Craig Duvall, *Vanderbilt University* - craig.duvall@vanderbilt.edu

- Bioinspired Materials and Self Assembly
- Cancer Drug Delivery (*Cancer)
- Delivery Systems for Proteins and Vaccines
- Drug Delivering Biomaterials (*Biomaterials)
- Drug Delivery for Immunomodulation and Immunotherapy (*Cancer)
- Drug Delivery in Tissue Engineering & Medicine (*Tissue Engineering)
- Nanotechnologies for Drug and Nucleic Acid Delivery (*Nano & Micro)
- Nucleic Acid Delivery
- Respiratory Drug Delivery (*Respiratory)
- Targeted or Responsive Delivery Systems
- Translational Aspects of Drug Delivery
- Other / Non-specified

NANO AND MICRO TECHNOLOGIES

Track Chair: Evangelia Bellas, *Temple University* - evangelia.bellas@temple.edu

Track Chair: Deok-Ho Kim, *University of Washington* - deokho@uw.edu

- Advances in Micro/Nano Manufacturing in Biomedicine
- Advances in Biomaterials Integration with Chips and Devices (*Biomaterials)
- Bioinspired/Biomimetic Micro and Nano Devices
- Micro/Nano Fluidic Engineering and Lab-on-Chip Systems
- Micro/Nano Tools for Cancer Detection, Diagnosis, or Therapy (*Cancer)
- Micro/Nano Tools for Immune Engineering
- Micro/Nano Tools for Infectious Diseases
- Micro/Nano Tools in Molecular and Cellular Biology (Genomics, Proteomics) (*Cell & Molecular)
- Micro/Nano Tools in Neurosciences (*Neural)
- Molecular Sensors and Nanodevices for Diagnostics
- Nanotechnology-Enabled Biomedical Imaging
- Nanotechnologies for Global Health
- Nanotechnologies for Drug and Nucleic Acid Delivery (*Drug Delivery)
- Organ-on-Chip for Regenerative Medicine (*Tissue Eng.)
- Other / Non-specified (Implantable systems, flexible/wearable systems, tools to study and manipulate the microbiome, etc.)

NEURAL ENGINEERING

Track Chair: Bryan Pfister, *NJIT* - bryan.j.pfister@njit.edu

Track Chair: Bonnie Firestein, *Rutgers Univ* - firestein@biology.rutgers.edu

- Glial Cell Engineering
- Imaging in Neuroscience and Brain Initiatives (*Imaging)
- Micro/Nano Tools in Neurosciences (*Nano and Micro)
- Neural Cell Model Systems
- Neural Decoding and Control
- Neural Device Interfaces
- Neural Disease: Model Systems and Therapeutics
- Neural Progenitor and Neural Stem Cell Engineering (*Stem Cell)
- Neuromodulation: Brain and Spinal Cord
- Neuromuscular Biomechanics (*Biomechanics)
- Peripheral Nerve Stimulation and Repair
- Regenerative Rehabilitation Engineering
- Rehabilitation Engineering: Implantable Devices (*Orthopedic and Rehab)
- Rehabilitation: Blast Injury and Spinal Cord Injury (*Orthopedic and Rehab)
- Repair and Regeneration of the Injured Brain
- Spinal Cord Tissue Engineering & Repair
- Stroke and Neurovascular Disease and Models (*Biomechanics)
- Traumatic Brain Injury Biomechanics (*Biomechanics)
- Other / Non-specified

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ORTHOPAEDIC AND REHABILITATION ENGINEERING

Track Chair: Larry Bonassar, *Cornell University* - lb244@cornell.edu

Track Chair: Grace O'Connell, *UC Berkeley* - g.oconnell@berkeley.edu

- Articular Cartilage, Meniscus and Joints
- Bone
- Imaging Techniques for Musculoskeletal System (*Imaging)
- Musculoskeletal Robotics and Biomechanics in Rehabilitation (*Devices)
- Musculoskeletal Stem Cell Engineering (*Stem Cell)
- Musculoskeletal Tissue Engineering (*Tissue Engineering)
- Orthopedic and Rehabilitation Engineering: Implant and Prosthetic Biomechanics (*Biomechanics)
- Orthopedic: Mechanobiology and Mechanotransduction (*Biomechanics)
- Rehabilitation Engineering: Implantable Devices (*Neural Engineering)
- Rehabilitation: Blast Injury and Spinal Cord Injury (*Neural Engineering)
- Spine and Intervertebral Disc
- Other / Non-specified

RESPIRATORY BIOENGINEERING

Track Chair: Jessica Oakes, *Northeastern University* - j.oakes@northeastern.edu

Track Chair: Jason Gleghorn, *University of Delaware* - gleghorn@udel.edu

- Bioengineering Approaches to Lung Development, Regeneration, Repair and Replacement
- Imaging the Respiratory System (*Imaging)
- Mechanics of the Respiratory System (*Biomechanics)
- Modeling of the Respiratory System
- Respiratory Drug Delivery (*Drug Delivery)
- Respiratory Mechanobiology
- Translational Respiratory Engineering
- Other / Non-specified

STEM CELL ENGINEERING

Track Chair: Penney Gilbert, *Univ of Toronto* - penney.gilbert@utoronto.ca

Track Chair: Trenea Arinze, *NJIT* - arinze@njit.edu

- Advanced Biomanufacturing and Translation of Stem Cell-Derived Therapies and Tissues (*Biomanufacturing)
- Cardiovascular Regeneration and Stem Cells (*Cardiovascular)
- Engineering Organoid Development & Morphogenesis
- Engineering the Stem Cell Microenvironment (*Biomaterials)
- Gastrointestinal Stem Cell Engineering
- Hematopoietic Stem Cell Engineering
- Mechanobiology of Stem Cell Engineering
- Musculoskeletal Stem Cell Engineering (*Orthopedic and Rehab)
- Neural Stem/Progenitor Cell Engineering (*Neural Engineering)
- Reprogramming/Directed Differentiation in Stem Cell Engineering (*Cell & Molecular)
- Respiratory Stem Cell Engineering
- Stem Cell Systems Biology & Bioinformatics (*Bioinformatics & Systems Biology)
- Stem Cells in Tissue Engineering (*Tissue Engineering)
- Other / Non-specified

TISSUE ENGINEERING

Track Chair: Ho-Wook Jun, *University of Alabama* - hwjun@uab.edu

Track Chair: Kara Spiller, *Drexel University* - kls35@drexel.edu

- Advanced Biomanufacturing in Tissue Engineering (*Biomanufacturing)
- Biomechanics in Cell and Tissue Engineering (*Biomechanics)
- Cardiovascular Tissue Engineering (*Cardiovascular)
- Drug Delivery in Tissue Engineering & Medicine (*Drug Delivery)
- Engineering Multi-cellular Systems (*Cellular and Molecular)
- Engineering Replacement Tissues
- Engineering Tissue Interfaces
- Imaging Techniques in Tissue Engineering (*Imaging)
- Immunoengineering and Immunomodulation in Tissue Engineering
- Integration of Developmental Biology and Morphogenesis in Tissue Engineering
- Mechanobiology in Cell and Tissue Engineering
- Musculoskeletal Tissue Engineering (*Orthopedics and Rehab Engineering)
- Naturally-Derived and Extracellular Matrix Biomaterials in Tissue Engineering
- Neural and Neurovascular Tissue Engineering
- Organ-on-Chip for Regenerative Medicine (*Nano & Micro)
- Printing and Patterning in Tissues
- Stem Cells in Tissue Engineering (*Stem Cell)
- Other / Non-specified

TRANSLATIONAL BIOMEDICAL ENGINEERING

Track Chair: Karen Christman, *UC San Diego* - christman@eng.ucsd.edu

Track Chair: Blanka Sharma, *Univ of Florida* - blanka.sharma@bme.ufl.edu

- Cell Therapeutics Biomanufacturing (*Biomanufacturing)
- Image Guided Therapies (*Imaging)
- Imaging Technologies in Clinical Translation (*Imaging)
- Interventional devices and robotics (*Device)
- Implantable and wearable sensors (*Device)
- Micro/Nano Tools in Medicine (*Nano & Micro)
- Preclinical Models, GMP, GLP, FDA, and Unexpected Challenges
- Prototype clinical evaluation
- Tissue/Organoid Biofabrication (*Biomanufacturing)
- Other / Non-specified

UNDERGRADUATE RESEARCH & DESIGN

Track Chair: Jennifer Choi, *UC Davis* - jhkchoi@ucdavis.edu

Track Chair: Harini Sundararaghavan, *Wayne State U* - hsundara@wayne.edu

- Summer research submissions opens - July 1, 2019
- Submission deadline – July 31, 2019
- Undergraduates are welcome to submit for consideration in both the general program in addition to the special undergraduate (REU) program

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