



ANNUAL MEETING CO-CHAIRS:

John P. Fisher, *University of Maryland* - jpfisher@umd.edu

James W. Tunnell, *The University of Texas at Austin* - jtunnell@mail.utexas.edu

To submit an abstract go to: <http://submissions.mirasmart.com/BMES2018>

BIOINFORMATICS, COMPUTATIONAL AND SYSTEMS BIOLOGY

Track Chair: Jason Papin, *University of Virginia* - papin@virginia.edu

Track Chair: Megan McClean, *University of Wisconsin* - mmcclean@wisc.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

BIOMATERIALS

Track Chair: Adam Engler, *Univ of California San Diego* - aengler@ucsd.edu

Track Chair: Katie Bratlie, *Iowa State University* - kbratlie@mail.iastate.edu

- 3D Printing and Advanced Biomaterial Manufacturing
- 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

BIOMECHANICS

Track Chair: Stefan Duma, *Virginia Tech* - duma@vt.edu

Track Chair: Amit Pathak, *Washington University* - patbaka@wustl.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
- Brain Biomechanics
- 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 Biomechanics (*Neural)
- Orthopedic: Mechanobiology and Mechanotransduction (*Orthopedic & Rehab)
- Topics in Mechanobiology
- Other / Non-specified

BIOMEDICAL ENGINEERING EDUCATION (BME)

Track Chair: Colin Drummond, *Case Western* - colin.drummond@case.edu

Track Chair: Devin K. Hubbard, *UNC/NC State* - dhubbard@email.unc.edu

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

BIOMEDICAL IMAGING AND INSTRUMENTATION

Track Chair: Kyle Quinn, *University of Arkansas* - kpquinn@uark.edu

Track Chair: Stanislav (Stas) Emelianov, *Georgia Tech* - stas@gatech.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)
- Ultrasound Imaging and Therapeutic Ultrasound (US)
- X-ray and Computed Tomographic Imaging (CT)
- Other / Non-specified

CANCER TECHNOLOGIES

Track Chair: Amy Brock, *University of Texas at Austin* - amy.brock@utexas.edu

Track Chair: Kostas Konstantopoulos, *Johns Hopkins Univ* - kkonsta1@jhu.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

CARDIOVASCULAR ENGINEERING

Track Chair: Marsha Rolle, *Worcester Polytechnic Institute* - mrolle@wpi.edu

Track Chair: Lauren Black, *Tufts University* - lauren.black@tufts.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

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CELLULAR AND MOLECULAR BIOENGINEERING

Track Chair: Princess Imoukhuede, *University of Illinois Urbana Champaign* - pji@illinois.edu

Track Chair: Kimberly Stroka, *University of Maryland* - kstroka@umd.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: Abidemi Ajiboye, *Case Western* - aba20@case.edu

Track Chair: Mike McShane, *Texas A&M* - mcschane@tamu.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 Biomechanics 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: Jamal Lewis, *University of California Davis* - jamlewis@ucdavis.edu

Track Chair: Erin Lavik, *Univ of Maryland Baltimore County* - elavik@umbc.edu

- 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)
- Novel Materials and Self Assembly
- Nucleic Acid Delivery
- Respiratory Drug Delivery (*Respiratory)
- Targeted or Responsive Delivery Systems
- Topics in Drug Delivery
- Other / Non-specified

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NANO AND MICRO TECHNOLOGIES

Track Chair: Emily Day, *University of Delaware* - emilyday@udel.edu

Track Chair: John Zhang, *Dartmouth College* - john.zhang@dartmouth.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: Stephanie Seidlits, *UCLA* - seidlits@ucla.edu

Track Chair: Abigail Koppes, *Northeastern University* - a.koppes@neu.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

ORTHOPAEDIC AND REHABILITATION ENGINEERING

Track Chair: Peter Yang, *Stanford University* - pyyang@stanford.edu

Track Chair: Vincent Wang, *Virginia Tech* - vmwang@vt.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



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RESPIRATORY BIOENGINEERING

Track Chair: Gregg Duncan, *University of Maryland* - gaduncan@umd.edu

Track Chair: Rebecca Heise, *Virginia Commonwealth Univ* - rheise@vcu.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: Stephanie Willerth, *University of Victoria* - willerth@uvic.ca

Track Chair: Kris Saha, *University of Wisconsin* - ksaha@wisc.edu

- Advanced Biomanufacturing and Translation of Stem Cell-Derived Therapies and Tissues
- 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: Janet Zoldan, *Univ of Texas at Austin* - zjanet@austin.utexas.edu

Track Chair: Warren Grayson, *Johns Hopkins University* - wgrayson@jhmi.edu

- Advanced Biomanufacturing in Tissue Engineering
- 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: Mark Van Dyke, *Virginia Tech* - mvandyk5@vt.edu

Track Chair: Daniel Elson, *Imperial Coll London* - daniel.elson@imperial.ac.uk

- Cell Therapeutics Biomanufacturing (*ABioM SIG)
- 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 (*ABioM SIG)
- Other / Non-specified

UNDERGRADUATE RESEARCH & DESIGN

Track Chair: Casey Ankeny, *Northwestern* - casey.ankeney@northwestern.edu

Track Chair: Sarah Rooney, *University of Delaware* - srooney@udel.edu

- Summer research submissions opens - July 1, 2018
- Submission deadline – July 31, 2018
- Undergraduates are welcome to submit for consideration in both the general program in addition to the special undergraduate (REU) program

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