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## Pitt Bioengineering Undergraduates Present at the BMES Annual Meeting

“Every year, I am so impressed with the high quality and quantity of the research presented by our Pitt bioengineering undergraduates at the national BMES conference. The depth and breadth of bioengineering research represented here showcases the many abilities and in-depth knowledge gained by our students in both the classroom and the laboratory.”

– **Mark Redfern, PhD**  
Interim Chair, Department of Bioengineering and William Kepler Whiteford Professor of Bioengineering

### 2023 Undergraduate Student Presentations

***Boldfaced** names represent bioengineering undergraduate students*

- Mechanical Stability of Functionalized High-Performance Oxide Ceramic Surfaces for Implantation  
**Belch MJ**, Schröder P, Fischer H
- Self-Adjustable and Breathable Lower Limb Prosthetic Liner  
**Bibbo E, Moore A, Ven S**
- HER2+ Breast Cancer Drives the In-Vitro Expression of Tumor-Associated Macrophage Markers in the Tumor Microenvironment  
**Blackledge CW**, Li RU, Cho Y, Poskus MD, Zervantonakis IK
- Developing RNA-Based Sensors for Cell-Specific Detection and Manipulation Using Adar to Improve Liver Organoids  
**Bostich JA**, Naser-Taheri M, Xiang Y, Ebrahimkhani MR
- Improved Long-Term Stimulation Stability of Thin Flexible Microelectrode Arrays for Intracortical Microstimulation via Carbon Nanotube Doped Polyethylenedioxythiophene Conducting Polymer Coatings  
**Buscay I**, Williams N, Wu B, Cui XT
- Superelastic Biodegradable Growing Percutaneous Heart Valve Frame for Pediatric Patients With Congenital Heart Valve Defects  
**Chupein MC**, Chun YJ, Nghiem K, Chung K, Wagner WR, Kim S, Elsisy M
- Biomaterials Design for Bioengineered Meats  
**Daita VD**
- First Experiences Integrating Functional Near-infrared Spectroscopy (fNIRS) and Virtual Reality  
**Forsythe K**, Huppert T, Santosa H
- Comparison of Prosthetic Knee Joints in Relation to Slip Risk  
**Ibata-Arens E**, Chambers A, Fiedler G
- Visualizing Ovarian Cancer Fate in Response to Chemotherapy  
**Johnston TJ**
- NF- $\kappa$ B Dynamics in Response to Dual Stimulation  
**Kim MK**, Smeal SW, Lee REC
- AI-Driven Growth Predictions: Tracking the Evolution of Morphology in Abdominal Aortic Aneurysms Over Time  
**Kottakota AK**, Lee J, Gueldner P, Vorp DA, Chung TK
- Generation of Fat-Cartilage Microphysiological Model as a New Tool to Study Obesity-Associated Osteoarthritis  
**Lintz CL, Lipa KE**, Makarczyk MJ, Hines SO, Lin H
- Developing an In Vitro Miniature Joint Model to Study the Biochemical Correlations Between Osteoarthritis and Obesity  
**Lipa K**, Makarczyk M, Hines S, Lin H

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15. Low-Cost Fabrication of Organ-On-A-Chip Devices with 3D Printing  
**Liu Y**, DeAngelis MA, Fuller HC, LeDuc PR, Ruder WC
16. Periodic and Aperiodic Power Spectrum Analysis of Local Field Potentials in the Monkey Superior Colliculus  
**McDonald NJ**, Bourelly C, Gandhi NJ
17. Assessing the Growth Dynamics of a Mock Community with *Pseudomonas Aeruginosa* and *Staphylococcus Aureus*  
**Medvedeva E**, Usman H
18. Microfluidics Technology for Analysis of Cell Surface Biomarkers  
**Miller Z**
19. Electrochemical Analysis of Bioabsorbable Peripheral Nerve Stimulator Devices  
**Mischler E**, Gormaley A, Woepel K, Liu K, Cui X, Kubendran R, Shih D
20. Ex Vivo Human Skin Perfusion Device  
**Mody N**
21. Dopamine Release in the Monkey Striatum and Anticipatory Licking  
**Murray R**, Amjad U, Choi J, Schwerdt HN
22. Assessing Functional Compound Action Potential Measurements In Ex-vivo Peripheral Nerves  
**Myers NA**, Forrest AM, German RZ, Paniello RC, Vasas NC, Barkmeier-Kraemer JM, Vande Geest JP
23. Comparing Laser Fenestration vs Mechanical Puncture for In-Situ Abdominal Aortic Aneurysm Repair  
**Parks HM**, Darvish CJ, Gueldner PH, Eslami MH, Vorp DA, Chung TK
24. Altering the Stiffness of Two Photon Polymerized Human Lamina Cribrosa Models  
**Pemberton B**, Shittu R, Vande Geest J
25. Investigating Chondroitin Sulfate as a Bioactive Coating for Neural Interfaces  
**Reddy N**
26. Collective Behaviors Drive Self-Correcting Vascular Network Formation in Fetal Liver Organoids  
**Schoenberger R**, Keshavarz K, Hislop J, Ebrahimkhani M
27. Creation of pH Sensitive Liposomes for Drug Delivery  
**Shivakumar A**, Mohammadzadeh A, Little SR
28. High-Throughput Patterning of Micro-Invasive Parylene-Coated Carbon Fiber Probes for Neurochemical Recording  
**Shrivastav R**, Choi J, Amjad U, Schwerdt H
29. Compound Action Potential and Microvasculature Analysis During Uniaxial Stretching: Implications for Vocal Fold Paralysis  
**Vasas NC**
30. Downregulation of TFAM Enhances the Sensitivity of Human Papillomavirus-Negative Head and Neck Cancer to Radiation and Immunotherapy  
**Walter KL**, Patel RB, Edinger RS, Rajkumar HA, Kaufman BA, Duvall SW
31. Assaying Extracellular Matrix Gene Expression by Vertebral Endplate Chondrocytes in 3D Hydrogel Culture.  
**Wood PW**, Alexander PG, Clark KL
32. MRTF-SRF Interaction Promotes Breast Cancer Cell Migration in a DIAPH3-Dependent Manner  
**Yu V**, Eder I, Gau D, Boone D, Roy P