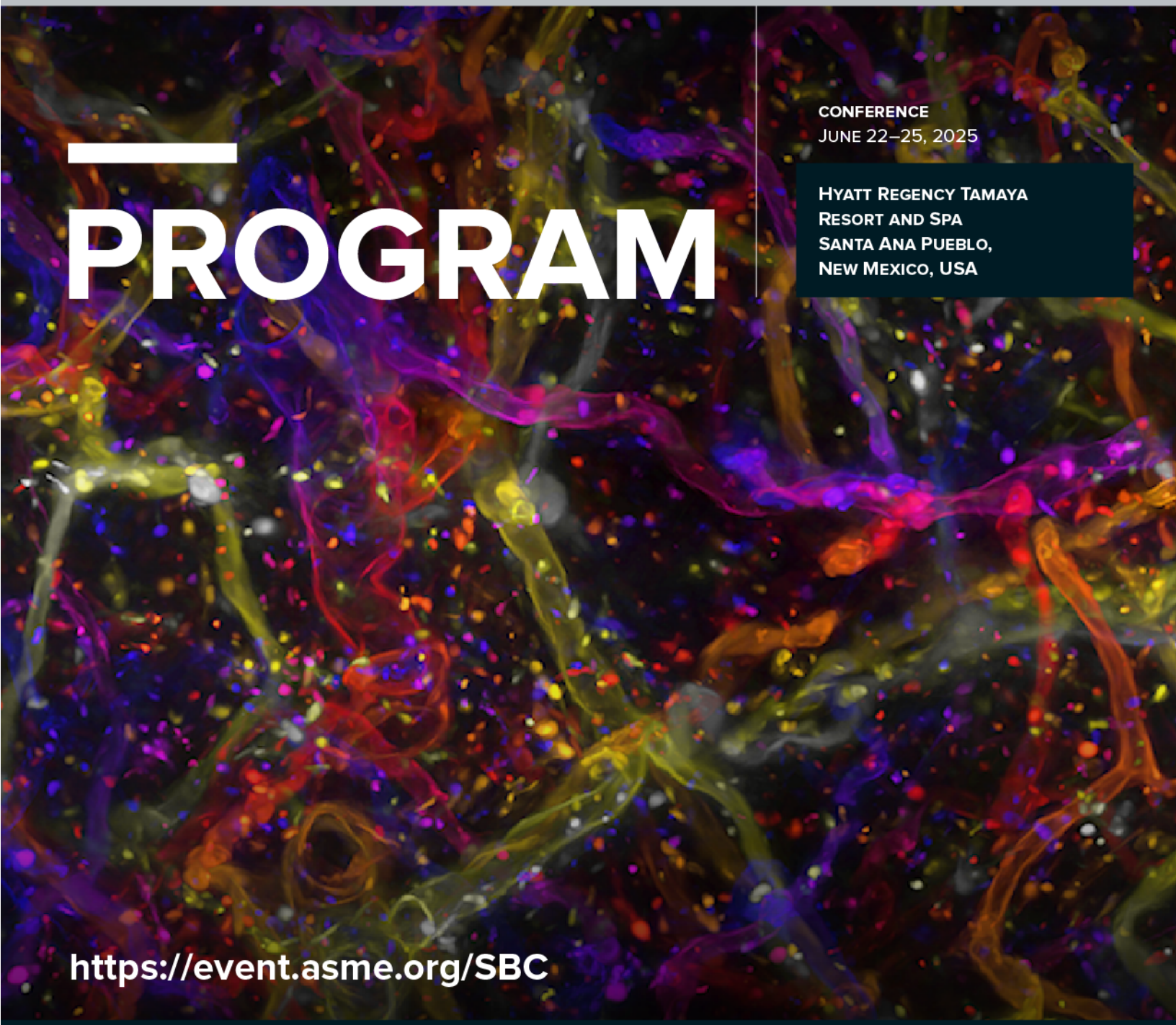
SBC 2025

SUMMER BIOENGINEERING CONFERENCE



PROGRAM

CONFERENCE
JUNE 22–25, 2025

HYATT REGENCY TAMAYA RESORT AND SPA
SANTA ANA PUEBLO,
NEW MEXICO, USA

https://event.asme.org/SBC

The American Society of Mechanical Engineers®
ASME®

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SETTING THE STANDARD

This conference was supported by the National Science Foundation's Civil, Mechanical, and Manufacturing Innovation Division (Biomechanics and Mechanobiology) under award number 2526752. The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of National Science Foundation; nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.

U.S. National Science Foundation

Congratulations to the 2024 Cover Art Contest Winner:

Susannah Waxman and Ian A. Sigal, University of Pittsburgh

Title: Circulation celebration: capillaries throw a party with lipofuscin confetti in the monkey optic nerve, multiphoton microscopy paparazzi

Description: Fluorescently-labeled vasculature and autofluorescent lipofuscin in the non-human primate optic nerve visualized across 800µm in depth. This vasculature provides essential metabolic support to the neurons that bridge the eye and brain, enabling vision. Visualizing the vasculature helps us understand its healthy function and changes that may threaten vision. Deep imaging was enabled by tissue clearing and multiphoton microscopy. This 2D representation of a 3D image is color-coded by depth, with yellow at the sample surface, red in the middle, and purple at the sample base.

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Forward and Acknowledgement

Dear ASME BED Community,

Welcome to SBC2025! We are thrilled to gather with so many colleagues and friends at the beautiful Grand Hyatt Tamaya Resort in Santa Ana, Pueblo. This year's conference will include 50 stellar scientific sessions and 15 special sessions and workshops, all centered around our theme: *Transforming Healthcare through Bioengineering*. This theme underscores how innovation in bioengineering, biomechanics, and biotransport continues to shape the future of health care for all.

Our plenary speaker, Dr. Manu Platt, exemplifies this vision of accelerating healthcare solutions through interdisciplinary engineering. Dr. Platt, formerly at Georgia Tech, now leads the NIH's Center for Biomedical Engineering Technology Acceleration (BETA Center), a national model for rapid development, validation, and dissemination of biomedical technologies that meet emerging healthcare needs. A widely recognized researcher and Fellow of the American Institute for Medical Biological Engineering (AIMBE), Dr. Platt's work embodies the impact of the transformative impact of bioengineering research.

In the United States, the federal government and agencies like the NIH have long supported foundational and translational research, driving innovations in disease diagnostics, prevention, and treatment. As national priorities continue to evolve, it's more important than ever for scientists and bioengineers to be active participants in shaping the future of research. This year, we are happy to host a special AIMBE-led workshop on scientific advocacy, highlighting how researchers can effectively communicate the impact of their work and engage with policymakers to support continued progress in healthcare innovation. We encourage you to attend this important session on Wednesday morning (10-11:30am in Tamaya A) to explore how your voice can contribute to the future of biomedical research.

We are also honored to feature six ASME medal awardees giving presentations at the conference. Their exceptional accomplishments are highlighted in the Whova app and in digital program book. Additionally, a special symposium will honor Dr. John Bischof's 60th Birthday and his pioneering work in thermal bioengineering and biopreservation. Join us in celebrating these remarkable individuals and their lasting contributions to the field.

Of course, we cannot overlook our outstanding student community – the backbone to workforce development and a driving force in healthcare innovation. We're proud to support trainees through a range of events, including networking opportunities, workshops on careers in academia and industry, the Future Faculty Poster Session, the BS Design competition, and the Student Paper Competition. Thanks to support from the

National Science Foundation (grants: BMMB-2526752, CBET-2404775) and the SB3C Foundation, all finalists in the BS, MS, and PhD Student Paper Competitions, as well as the BS Design Competition received waived registrations fees. Be sure to attend these sessions and support the future leaders of our field.

The success of SBC2025 is made possible by the tireless efforts of our ASME staff, the 2025 Organizing Committee, the ASME Bioengineering Division Technical and Student Leadership Committees, the SB3C Foundation, and the generous contributions of our sponsors, exhibitors, and advertisers. We are deeply grateful for this community's continued support.

We look forward to a week filled with science, community, and inspiration—let's make SBC2025 one to remember!

Grace D. O'Connell, PhD
Conference Chair
University of California – Berkeley

Kristin S. Miller, PhD
Program Chair
University of Texas at Dallas

Conference code of conduct

ASME is dedicated to a safe, productive, and welcoming environment free from unlawful discrimination or harassment of any kind, including but not limited to conduct based on an individual's race, national origin, citizenship, sex, gender identity or expression, age, sexual orientation, disability or familial status. "Harassment" includes, but is not limited to: verbal comments, jokes, or imagery, unwelcome physical contact or sexual attention.

Should you have any concerns pursuant to this policy or experience or observe any conduct you believe may violate this policy, please immediately contact any ASME staff member or send an email to events@asme.org. You may also report concerns to the ASME HOTLINE at 212-591-8700. Reports to the hotline may be made anonymously.

Conduct believed to be in violation of this policy, as determined within ASME's sole discretion, may result in a warning, removal from or denial of access to ASME-sponsored meetings and events, exclusion from future ASME-sponsored meetings or events on a temporary or permanent basis, or other remedial measures. No refunds will be issued to a meeting participant asked to leave a meeting pursuant to this policy.

General Information

All times below are in MDT.

Registration Hours

The registration desk will be open during the following hours:

Sunday, June 22 12:00 pm – 7:00 pm
Monday, June 23 7:30 am – 4:00 pm
Tuesday, June 24 7:30 am – 4:00 pm
Wednesday, June 25 8:00 am – 1:00 pm

Networking Events

Sunday, June 22, 7:15 – 9:00 PM, Tamaya Pre Function and Veranda

Welcome reception

Please join us for our annual opening reception! The SBC prides itself on being an open and welcoming community. Be a part of it by attending this event, and don't forget to introduce yourself to someone new.

Monday, June 23, 2:30 – 3:45 PM, Puma AB

1st Time Attendee Networking Event

Monday, June 23, 2:30 – 3:45 PM, Wolf AB

Lavender Networking Event

Monday, June 23, 3:45 – 4:55 PM

Student Networking Event

Join us for the SBC 2025 Student Networking Event hosted by the ASME BED Student Leadership Committee (SLC) and SB3C Foundation! All students attending the conference are invited to unwind and connect with one another.

Tuesday, June 24, 5:00 – 6:00 PM, Puma AB

Women's Networking Event

The Women's Networking Group provides a rich environment to bring together women, industry leaders and allies at SBC. This group has been meeting since 2007 with the purpose of providing networking, communication, and recognition opportunities for women involved in the biomechanics field. It also seeks to identify eligible and deserving individuals for awards and

fellow status within ASME as well as other professional societies. We are very excited to get together again at this social gathering in New Mexico!

Tuesday, June 24, 7:00 – 10:00 PM, Sunrise Amphitheater

BEDRock concert

The SBC conference date and venue each year coincides with the annual concert of BEDrock, the world's most influential unknown band. Come dance to the band as it takes us through a history of the BEDrock repertoire. Come see if this is the year we lose a percussionist to spontaneous human combustion! There is never a cover charge and all are invited. Are you a musician with time to rehearse and be part of the band? Please contact Alan Eberhardt at aeberhar@uab.edu.

Wednesday, June 25, 7:00 – 7:30 PM, Tamaya DEFGH Ballroom

Banquet Reception

Wednesday, June 25, 7:30 – 10:00 PM, Tamaya DEFGH Ballroom

Banquet and Awards Ceremony

Be sure to stay through the banquet that closes the conference! In addition to a final gathering with all your colleagues and friends, the winners of the student competitions will be announced. The ASME Medals and awards will be presented at the banquet. You won't want to miss it.

Committee Meetings

The committee meetings listed below are open to all except the ASME BED Executive meeting, the SB^{3}C Foundation Board Meeting, and the JBME Editorial Board Meeting. Attending the open meetings is a terrific way to get more involved with the Bioengineering Division of the ASME.

Sunday, June 22

ASME BED Executive committee meeting	Puma AB	11:30 AM – 1:00 PM
Education open meeting	Puma AB	1:00 – 2:00 PM
Fluid mechanics open meeting	Wolf AB	1:00 – 2:00 PM
Industry open meeting	Eagle A	1:00 – 2:00 PM
Student leadership committee meeting	Eagle B	1:00 – 2:00 PM
Biotransport open meeting	Puma AB	2:00 – 3:00 PM
Tissue and Cellular Engineering open meeting	Wolf AB	2:00 – 3:00 PM
Design, Dynamics, Rehabilitation and Regulation open meeting	Eagle A	2:00 – 3:00 PM
Solid Mechanics open meeting	Eagle A	3:00 – 4:00 PM

Monday, June 23

ASME-SB^{3}C open meeting	Tamaya B	3:45 – 4:55 PM

Tuesday, June 24

JBME editorial board meeting	Bear B	12:30 – 2:00 PM

Wednesday, June 25

SB^{3}C Foundation board meeting	Eagle B	8:30 AM – 10:00 AM

Whova App for the SBC 2025 Conference

ASME SBC 2025 conference information, including the program and schedule, is available on the Whova app, which has additional features including a personal conference agenda, and more. The QR code for the Whova app is below.

Instructions for Poster Presenters

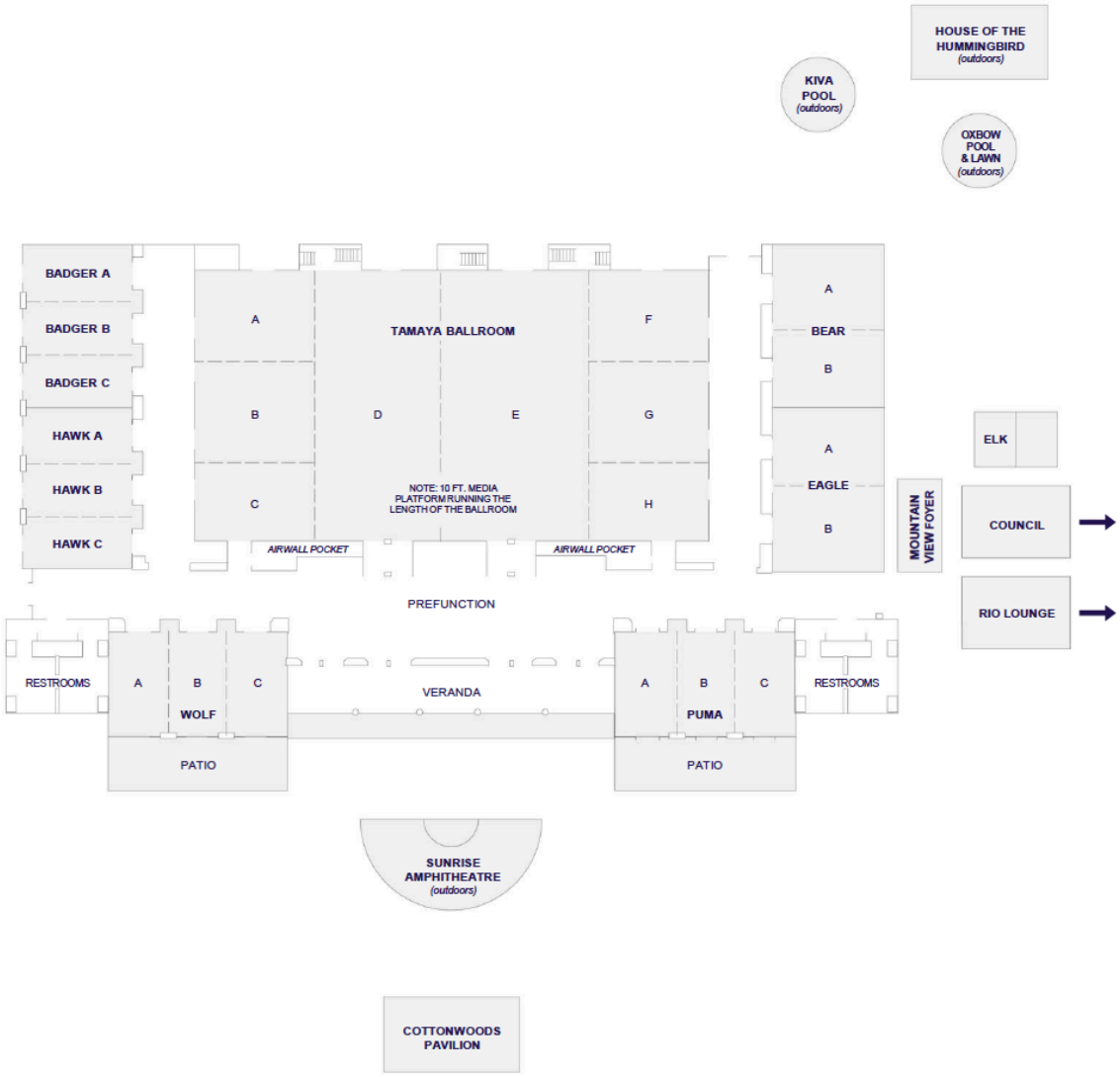
General Session Posters
Poster Session I & BS SPC Posters: 1:00 - 2:30 PM, Monday, June 23, Tamaya EFGH Ballroom
Poster Session II & MS SPC Posters: 12:30 - 2:00 PM, Tuesday, June 24, Tamaya EFGH Ballroom

Prospective Faculty Poster Session
1:00 - 2:30 PM, Monday, June 23, Tamaya EFGH Ballroom

The poster exhibition hall (Forum) opens at 10:00 AM. Please hang your poster on the board with the number that corresponds to your poster number (P1, P2, etc.), which is provided to you and is also available in the Whova app. Authors should stand next to their poster during their assigned session, and may also stand at their posters at other times.

Posters for Poster Session I and Prospective Faculty Poster Session should be set up before 10:00 AM on Monday, June 23 and must be removed by 4:00 PM the same day. Posters for Poster Session II should be set up before 10:00 AM on Tuesday, June 24 and must be removed by 4:00 PM the same day. Posters that are part of the BS or MS Student Paper Competition (SPC) may stay up throughout both days of poster presentations, from 10:00 AM on Monday, June 23 through 4:00 PM on Tuesday, June 24. For more information about poster presentations, and for instructions for podium presentations, see the Information for Presenters page on the conference website.

Conference Site Map



Nursing room/ Childcare room
Wolf A

Conference Organizing Committees

Organizing Committee

Grace D. O'Connell, Conference chair, University of California, Berkeley

Keefe Manning, Conference vice chair, Pennsylvania State University

Kristin Miller, Program chair, The University of Texas at Dallas

Manuel Rausch, Local arrangement chair, University of Texas at Austin

Ethan Kung, Exhibits chair, Clemson University

Mariana Kersh, Students paper competition chair, University of Illinois at Urbana-Champaign

Debanjan Mukherjee, Information Chair, University of Colorado Boulder

Melissa Brindise, Culture & community chair, Pennsylvania State University

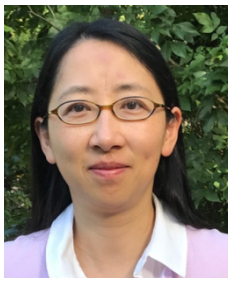
Soham Ghosh, Publications chair, Colorado State University

Zhongping Huang, Finance chair, West Chester University

Jonathan Vande Geest, President, SB3C foundation, University of Pittsburgh

ASME-BED Technical Committee Chairs

Biotransport



Sihong Wang, The City College of New York

Chris Rylander, The University of Texas at Austin

Design, Dynamics, Rehabilitation and Regulations

Anita Singh, Temple University

Antonia Zaferiou, Stevens Institute of Technology

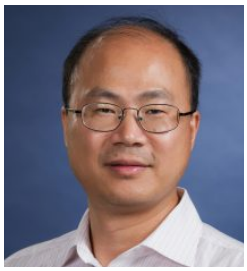
Fluid mechanics

Alejandro Roldan-Alzate, UW Madison

Lucas Timmins, Texas A&M University

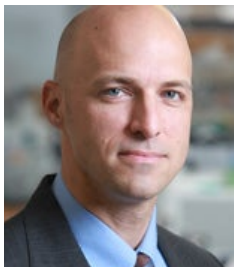
Solid Mechanics

David Pierce, University of Connecticut



Songbai Ji, Worcester Polytechnic Institute

Tissue & Cellular Engineering



David Corr, Rensselaer Polytechnic Institute

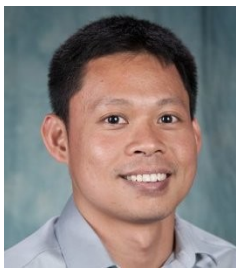
Alix Deymier, University of Connecticut

Industry

Ethan Kung, Clemson University

Lin Li, University of North Texas

Education



Victor Lai, University of Minnesota Duluth

Chiara Bellini, Northeastern University

Zhongping Huang, West Chester University

Student Paper Competition Committee

Mariana Kersh, chair, University of Illinois at Urbana-Champaign

Mary Kathryn Sewell-Loftin, PhD level, University of Alabama at Birmingham

Matthew Bersi, MS level, Washington University in St. Louis

Noelia Grande Gutierez, BS level, Carnegie Mellon University

Anita Singh, UG student design competition, Temple University

Thank you to all committee members, subcommittee members and ASME staff!

Plenary Speaker, Special Sessions, and Workshops

Sunday, June 22	Tamaya D	6:00 – 7:10 PM

Plenary Lecture: Dynamic Interplay between Biomechanics and Biochemistry in Large Artery Remodeling due to Sickle Cell Disease

Manu Platt, Director, Center for Biomedical Engineering Technology Acceleration (BETA Center), National Institute of Biomedical Imaging and Bioengineering / National Institutes of Health)

Biography: Dr. Manu Platt became the inaugural director of the NIH-wide Center for Biomedical Engineering Technology Acceleration (BETA Center) housed within NIBIB, as a new NIH campus model for accelerating technology-driven interdisciplinary research and clinical translation and to bring engineering, clinicians, and basic scientists together in February 2023. Dr. Manu Platt earned his B.S. in Biology from Morehouse College and Ph.D. from Georgia Tech/Emory in Biomedical Engineering. After a postdoc at MIT, he returned to Georgia Tech/Emory's joint department as an Assistant Professor where he worked up to promotion to full Professor. His research program focuses on proteolytic mechanisms of disease, translational approaches to reduce strokes in people affected by sickle cell disease, and harnessing proteolytic networks and systems biology tools to predict disease progression. Among other awards, Dr. Platt was awarded the Biomedical Engineering Society Diversity Award, is a Fellow of American Institute for Medical and Biological Engineering (AIMBE), Fellow of Biomedical Engineering Society, the Root 100 in 2019, and AAAS Mentor Award in 2021.

Tuesday, June 24	Tamaya C	8:00 – 9:30 AM

Special Session: Cancer Biomechanics and Mechanobiology

Organizer: Meenal Datta, University of Notre Dame

This session explores multidisciplinary approaches to understand and perturb biomechanics and mechanobiology in solid cancerous tumors. Research at the intersection of fundamental mechanics and basic biology reveals previously unknown pathologies and potentially targetable vulnerabilities within tumor microenvironments, particularly by leveraging non-traditional and/or emerging fields and technologies. Talk topics include mechanical property versus mechanical force effects on malignant and non-malignant cells, non-invasive and live-imaging methods to track dynamic mechanobiological signaling, and biomaterials-based approaches to model tumor mechanics and microenvironmental abnormalities.

Tuesday, June 24	Wolf AB	8:00 – 9:30 AM

Special Session: John Bischof's 60th Birthday - Bioheat and Mass Transfer Research

Organizer: Zhengpeng Qin, The University of Texas at Dallas

Who would believe that John Bischof is turning 60? John has been a pillar of the bioengineering community and the ASME BED for as long as any of us can remember, and for many of us that's a whole lot of years. A thought leader in the biotransport community, John's research impact spans many of the most critical biotransport problems of our generation(s), including cryopreservation & regenerative medicine, focal energy-based therapy, and theranostics. Along the way, he has been a role model and mentor for 32 PhD students, 31 MS students, 22 postdocs, and for most of his friends and mentors as well, including all of us. Eleven of his trainees are now faculty members running their own labs, and his friends and students span the globe. He is at once the star who is continuing to rise – several of us have to keep checking the program to see if it is this year that he is receiving the ASME Mow Medal – and is simultaneously the man whose leadership is timeless. All of us know and admire John as a leader in the community, the visionary who leads his field and leads the Bioengineering Division (BED) of ASME. He has received all of the honors and accolades available to scientist at the University of Minnesota, including UMN's most prestigious professorship, and being selected to lead UMN's globally renowned Institute for Engineering in Medicine. His numerous leadership roles in the ASME Bioengineering Division (BED) and Summer Bioengineering Conference (SBC ± 3) include chairing the biotransport committee and chairing the BED Executive Committee. He was the leader behind the ASME NanoEngineering for Medicine and Biology (NEMB) conference series, a revolutionary conference model for ASME that continues to be viewed as the leading model and one of the greatest conference series of the ASME. In addition to the Mow Medal and the respect and admiration of all of his friends and colleagues, he has received the ASME Heat Transfer Memorial Award. What greater sign could there be of being the field's elder statesman of advanced age than to have already received an award with the name memorial in it? But incredibly, John is only 60, and that means that many of us should be able to remember the days before he started the Bioheat and Mass Transfer lab at Minnesota three decades ago. This is a great opportunity to try to remember all the way back then, and to recognize and celebrate John's career milestones with his trainees, colleagues and the broader SBC community.

List of speakers:
John Bischof, Distinguished McKnight University Professor, Mechanical Engineering Medtronic-Bakken Endowed Chair for Engineering in Medicine, University of Minnesota

Mehmet Toner

Center for Engineering in Medicine and Surgery, Massachusetts General Hospital and Harvard Medical School; Shriners Children's Boston.

Guillermo Aguilar, Professor and Department Head, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University

Nichole Rylander, Associate Professor and Werner W. Dornberger Centennial Teaching Fellowship in Engineering, Department of Mechanical Engineering, The University of Texas, Austin

Guy M. Genin, Harold and Kathleen Faught Professor of Mechanical Engineering, Mechanical Engineering and Materials Science, NSF Science and Technology Center for Engineering Mechanobiology, Washington University, St. Louis.

Kenneth Diller, Professor, Robert M. and Prudie Leibrock Endowed Professorship in Engineering Department of Biomedical Engineering, The University of Texas, Austin.

Tuesday, June 24	Tamaya A	2:00 – 3:30 PM

Workshop: Funding Opportunities to Support Health Equity Education and Outreach Activities

Organizer: Stephanie George, East Carolina University

The primary goal of this workshop is to educate attendees on funding opportunities to support health equity education and outreach efforts. Investigators and trainees are typically well-informed of traditional research funding mechanisms; however, many may not have experience in seeking opportunities to support education and outreach. The workshop will focus on opportunities to support education, outreach, broadening participation, and workforce development. Growing a diverse workforce and instilling the core value of equity is paramount to driving healthcare change and innovation. The workshop will bring together funding agencies and community leaders to highlight health equity education and outreach funding opportunities, provide tips on how to successfully secure funding, and encourage collaboration among the SBC community. Key takeaways from the workshop for conference attendees include the following:1) Learn about health equity related education, outreach, broadening participation, and workforce development funding opportunities.2) Learn how to advance and promote health equity through education and outreach.3) Tips for successful proposal preparation.4) How to successfully integrate education and outreach with scholarly activities.5) Identify potential new collaborators and project concepts.

Tuesday, June 24	Tamaya B	2:00 – 3:30 PM

Workshop: Funding Transitioning between Academia and Industry

Organizer: Lance Frazer, Southwest Research Institute

The workshop's primary goal is to educate attendees on applying and preparing for potential jobs in Academia (research or teaching-focused tenure-track), emphasizing how they can promote and incorporate health education through Bioengineering. Students will learn more about the academic job application process from different types of institutions (e.g., R1/2, Primarily Undergraduate Institutions). The workshop will offer a discussion-based environment where all attendees can learn the importance of advancing healthcare through Bioengineering. Key takeaways from the workshop for conference attendees include the following: (1) Learn about the importance of health education in Bioengineering, (2) Learn how to advance and promote healthcare in an Academic or Teaching setting, (3) How to prepare and apply for jobs in Academia (e.g., research or teaching-focused positions)

Tuesday, June 24	Tamaya C	2:00 – 3:30 PM

Workshop: Women's Health and Engineering

Organizers: Michelle Oyen, Wayne State University; Kristin Myers, Columbia University

This workshop will highlight efforts to advance engineering research in women's health. The importance of supporting, engaging with, and pursuing research in the field of women's health has been brought into stark focus in recent years, with engineers helping to shape a future with equitable healthcare for all. This workshop will feature a panel of distinguished researchers who will share their journeys into the field, highlights of their research, and insights on opportunity areas for future research. Panelists will include Kyoko Yoshida (Assistant Professor, University of Minnesota), Sara Roccabianca (Associate Professor, Washington University), Megan Routzong (Postdoctoral Fellow, UCSD), and Matthew Bersi (Assistant Professor, Washington University). Time will be dedicated for an interactive audience Q&A, and attendees will be provided access to a curated list of resources for those eager to enter or expand their work in this vital space.

Tuesday, June 24	Wolf AB	2:00 – 3:30 PM

Medical Device Workshop: Computational Models in FDA Submissions and the Role of Devices in Healthcare Equity

Organizer: Anita Singh, Temple University

The workshop will focus on raising awareness and informing the audience of FDA strategies that serve to promote and protect the health of diverse populations through research and communication of science that addresses health-care disparities. Additional topics will include details of how to design a new medical device and get it approved for sale. Brief presentations on product design and development processes used in the development of medical devices, getting FDA approval for the device, and where to get help will also be offered. Additionally, the finalists of the NSF-funded UG Design Competition held at SB3C will have a hands-on component aimed at improving upon their design ideas while accounting for issues related to healthcare disparity such as expanding the stakeholder community, understanding diverse patient perspectives, preferences, and unmet needs, and how to design a killer experiment that accounts for enrollment of underrepresented populations etc.

Tuesday, June 24	Tamaya A	3:30 – 5:00 PM

NIH-NSF Program Officer Webinar

Organizer: Grace O'Connell, University of California, Berkeley

Panelists

Shivani Sharma (BMMB, NSF)
Steven Zehnder (CBET, NSF)
Jessica Falone (NIBIB, NIH)

Tuesday, June 24	Tamaya B	3:30 – 5:00 PM

Mentor-mentee Workshop

Organizer: Melissa Brindise, Pennsylvania State University

Tuesday, June 24	Tamaya C	3:30 – 5:00 PM

Workshop: The Effect of Biological Sex on Tissue Mechanics Throughout the Body

Organizer: Stephanie Cone, University of Delaware

The importance of biological sex is of great importance across the biomedical research landscape with recent efforts underway to better account for sex differences in experimental planning, to improve reporting of relevant biomarkers, and to enhance the quality of research outcomes across sexes via improved practices. Widespread support for these improvements in both scientific understanding and experimental best practices is evident through both noted researcher interest and major funding initiatives (NIH reporting guidelines, NIH NOSI for Women's Health, NSF Dear Colleague Letters, ARPA-H, etc). In this workshop, we aim to bring researchers from the ASME BED community together to share practices and findings from sex-specific research across four major topic areas in biomechanics: musculoskeletal, brain, cardiovascular, and skin. By assembling speakers across a diverse range of fields, our objective with this workshop is to provide the SBC community with opportunities to learn about and discuss best scientific practices in sex-specific research. Specific topics of discussion will include experimental planning, research challenges, and exciting outcomes in sex-specific studies across the four physiological systems of interest. This workshop will provide attendees with insight into research planning for sex-specific studies from four experts, the opportunity to see research developments outside of their typical field, and a network of fellow researchers with interest in improving research equity by improving our understanding how sex influences tissue mechanics.

Tuesday, June 24	Wolf AB	3:30 – 5:00 PM

Workshop: How to Apply for Academic Positions: Incorporating Health Education in Research and Teaching

Organizers: Luke Mattar, University of Pittsburgh

The workshop's primary goal is to educate attendees on how to apply and prepare for potential jobs in Academia (research or teaching-focused, tenure-track or term, Minority Serving Institutions (MSIs), Predominantly Undergraduate Institutions (PUIs), National Labs, etc.), emphasizing how they can promote and incorporate advancements in health equity through Bioengineering. Based on feedback from prior conferences, students would like to learn more about the job application process for different academic positions. The workshop will offer a discussion-based environment where all attendees can learn the importance of advancing health equity through Bioengineering.

Wednesday, June 25	Tamaya A	10:00 – 11:30 AM

Workshop: The Importance of Advocacy in Bioengineering and Medical Research

Organizers: Dawn Beraud, AIMBE

This 90-minute general session will begin with a 10-minute presentation by Dr. Beraud on the critical role of advocacy in the field of bioengineering. Next, we will feature individual presentations from three AIMBE Fellows or Emerging Leaders in the SBC community. Speakers will share different ways they have engaged in advocacy, including their professional experiences, personal anecdotes, and the impact that these activities have had on the fields of bioengineering and biomechanics. We will then host a 30-minute Q&A panel session with audience questions that will be moderated by Dr. Beraud, which serves as an open forum for attendees to learn more about current challenges and opportunities within our evolving science policy landscape. Lastly, we will conclude with closing remarks by Dr. Beraud and the invited speakers, during which we will administer an anonymous survey to evaluate the impact of this session on the attendees' perceptions and interests towards advocacy.

Wednesday, June 25	Tamaya B	8:30 – 11:30 AM

CRIMSON Workshop

Organizers: C. Alberto Figueroa, University of Michigan; Sadman Sadid, University of Michigan; Matt Eden, University of Michigan

CRIMSON is an advanced open-source simulation environment capable of performing state-of-the-art hemodynamics modeling. In this workshop, you will learn how to perform a patient specific hemodynamic analysis from medical images. Emphasis will be placed on demonstrating CRIMSON's dynamic lumped parameter network framework, which enables users to model conditions with transitional physiology, such as hemorrhage and exercise. Furthermore, we will showcase advanced modeling techniques in CRIMSON, such as immersed boundary method, Lagrangian particle tracking, scalar transport, and more!

Wednesday, June 25	Tamaya C	8:30 – 11:30 AM

SimVascular Workshop

Organizers: Alison Marsden, Stanford University; Shawn Shadden, University of California Berkeley

SimVascular (www.simvascular.org) is a fully open-source software package providing a complete pipeline from medical image data to cardiovascular blood flow simulation results and analysis. It offers capabilities for image segmentation, unstructured and adaptive meshing, physiologic boundary conditions, and multi-physics simulations. The newly developed svMultiPhysics parallel, finite element solver provides capabilities to simulate tissue and blood flow mechanics, diffusion and electrophysiology. It offers a variety of material models and large deformation fluid structure interaction simulation capabilities. Extensive online documentation and video tutorials with clinical examples are provided online. In addition, a companion project, the Vascular Model Repository (VMR), provides over 275 freely available clinical data sets with image data and simulation results from different vascular regions (www.vascularmodel.com).

In this workshop, we will offer focused sessions tailored to new and experienced users. New users will be guided through step-by-step tutorials, covering basic steps of image segmentation, model construction, meshing, boundary condition assignment, flow simulations, and best practices (and pitfalls to avoid) for high quality results. For experienced users, we will cover advanced topics including an introduction to the flexible svMultiPhysics solver as well as automated segmentation and model construction methods using machine learning for vascular and cardiac models. Users will have the opportunity to discuss current challenges from their research with the SimVascular team and thus participants are encouraged to bring their own models and questions to the workshop.

Wednesday, June 25	Puma AB	8:30 – 11:30 AM

FEBio Workshop

Organizers: Jeff Weiss, University of Utah; Gerard Ateshian, Columbia University

The FEBio workshop will offer beginning and intermediate users of FEBio a full-day course on how to setup FEBio models, run, and analyze them. All demos will be given using FEBioStudio, the new, fully integrated software environment for FEBio. The workshop will be divided in several focused, hands-on sessions, with topics including importing geometry, creating surface and volume meshing, doing solid mechanics and biphasic analyses, handling material anisotropy, setting up contact models, performing parameter optimizations, and more. Participants will also learn proven techniques for debugging their models, avoiding common pitfalls, and improving runtime performance. There will also be opportunities for discussing specific modeling challenges with the FEBio developers, so participants are encouraged to bring their own models and questions to the workshop.

Wednesday, June 25	Wolf AB	8:30 – 11:30 AM

simVITRO Workshop

Organizers: Robb Colburn, Cleveland Clinic; Axel Moore, Carnegie Mellon University; Alex Hooke, Mayo Clinic; Rohit Badida, Brown University; Logan Shannon, Cleveland Clinic; Tara Nagle, Cleveland Clinic; Elizabeth Pace, Cleveland Clinic; Jeremy Loss, Cleveland Clinic

Many in vitro joint biomechanics researchers, and their in vivo and in silico collaborators, attend the SBC conference but only participate in sessions regarding their specific joint or clinical problem of interest. Best practices, novel methodologies, and unique analysis techniques are not necessarily joint or clinical question specific. Researchers using simVITRO systems have expressed a desire for a workshop to collaborate and discuss these technical challenges and solutions with the greater biomechanical engineering community. At this workshop we aim to present an overview of robot-based orthopedic biomechanics research to newcomers in the field; provide interesting talks on the origins of 6 degree of freedom robotic in vitro joint testing, and present more advanced topics by seasoned researchers developing novel solutions in this field. We also want to provide in vitro, in silico, and in vivo joint biomechanics researchers the ability to network and have on-on-one discussions regarding technical challenges and solutions for collecting in vitro joint biomechanics data.

List of speakers: Robb Colburn, Cleveland Clinic; Axel Moore, Carnegie Mellon University; Alex Hooke, Mayo Clinic; Rohit Badida, Brown University; Logan Shannon, Cleveland Clinic; Tejus Surendran, Carnegie Mellon University; Hiro Fujie, Tokyo Metropolitan University

Awards

Robert E. Nerem Education and Mentorship Medal

2018 Roger D. Kamm
2019 Kenneth R. Diller
2020 Dawn M. Elliott
2021 Maury L. Hull
2022 Michele Grimm
2023 Victor Barocas
2024 James E. Moore
2025 Alan Eberhardt

The Robert M. Nerem Education and Mentorship Medal is given to an individual who has demonstrated a sustained level of outstanding achievement in education and mentoring of trainees. Examples of meritorious activities include leadership within the nominee's institution, mentoring activities that are above and beyond those expected from others employed in similar positions, mentoring activities tailored to meet the needs of the trainees, and innovative mentoring activities.

2025 Alan Eberhardt, PhD

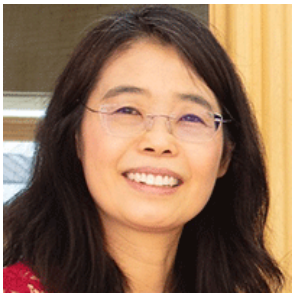
As Professor and Associate Chair of Education, Dr. Eberhardt oversees all activities related to undergraduate and graduate education in the Department of Biomedical Engineering at (UAB). He serves as the Undergraduate Program Director and works with the Graduate Program Director to help maintain and direct the curricula and teaching responsibilities for each program. For over 30 years, he has been an active and productive researcher in orthopedic and injury biomechanics at UAB and is the Director of the Experimental Biomechanics Core. With respect to mentoring, he has accumulated extensive experience leading innovation and design activities within the School of Engineering. As the recipient of NSF funding (21 years) and NIH funding (13 years), he has mentored student teams through work with clinicians and therapists to develop rehabilitation and assistive devices. He has served as instructor for the senior capstone sequences since 1995 and has coached hundreds of senior capstone students who have designed, constructed, and delivered new or modified prototype medical and rehab equipment. As Director for the Design & Commercialization track within the UAB Master of Science in Engineering Management, he brought these efforts to the graduate level and partnered with the Harbert Institute for Innovation and Entrepreneurship to promote commercialization of student design projects, primarily in rehabilitation and assistive technologies. He has won numerous teaching and mentorship awards, including the 2021 Graduate School Dean's Mentorship Award for Excellence in Mentorship, and the 2012 Ellen Gregg Ingalls UAB National Alumni Society Award for Lifetime Achievement in Teaching.

2005 Kyriacos A. Athanasiou
2006 Robert Lie-Yuan Sah
2007 Lori A. Setton
2008 Scott L. Delp
2009 Michael Sacks
2010 Tony M. Keaveny
2011 David A. Vorp
2012 John Bischof
2013 Jeffrey Weiss
2014 Christopher R. Jacobs
2015 Dawn M. Elliott
2016 Beth A. Winkelstein
2017 Richard R. Neptune
2018 Jeffrey W. Holmes
2019 Tony Jun Huangm 2020 Stavros Thomopoulos
2021 Rafael V. Davalos
2022 Robert L. Mauck
2023 Alison Marsden
2024 Thao D. Nguyen
2025 Yongjie Jessica Zhang

Van C. Mow Medal

The Van C. Mow Medal is bestowed upon an individual who has made significant contributions to the field of bioengineering through research, education, professional development, leadership in the development of the profession, as a mentor to young bioengineers, and with service to the bioengineering community. The individual must have earned a Ph.D. or equivalent degree between ten and twenty years prior to June 1 of the year of the award. The award was established by the Bioengineering Division in 2004.

2025 Yongjie Jessica Zhang, PhD



As Professor Jessica Zhang is the George Tallman Ladd and Florence Barrett Ladd Professor of Mechanical Engineering at Carnegie Mellon University (CMU) with a courtesy appointment in Biomedical Engineering. She received her B.Eng. in Automotive Engineering, and M.Eng. in Engineering Mechanics from Tsinghua University, China; and M.Eng. in Aerospace Engineering and Engineering Mechanics and Ph.D. in Computational Engineering and Sciences from Oden Institute, The University of Texas at Austin. Her research interests include computational geometry, isogeometric analysis, finite element method, data-driven simulation, image processing, and their applications in computational biomedicine and engineering. Zhang has co-authored over 240 publications in peer-reviewed journals and conference proceedings and received several Best Paper Awards. She published a book entitled *Geometric Modeling and Mesh Generation from Scanned Images* with CRC Press, Taylor & Francis Group. Zhang's recent major awards include ASME Van C. Mow Medal, AWM-SIAM Sonia Kovalevsky Lecture Award, and Simons Visiting Professorship from Mathematisches Forschungsinstitut Oberwolfach of Germany. She is a Fellow of ASME, SIAM, IAMBE, AIMBE, IACM, USACM, SMA, and ELATES at Drexel. She also received the prestigious US Presidential Early Career Award for Scientists and Engineers, NSF CAREER Award, Office of Naval Research Young Investigator Award, and USACM Gallagher Young Investigator Award. Zhang's current leadership roles in her research societies include Vice President of USACM (rotate to President in 2026), Chair of AIMBE College of Fellows, Chair of SIAM Activity Group of Geometric Design, and Vice Chair of ASME AMD-CONCAM. She is the Editor-in-Chief of Engineering with Computers.

1986 Mark H. Holmes
1987 Steven A. Goldstein
1989 David N. Ku
1990 Jay D. Humphrey
1991 Michael Kwan
1992 Cheng Zhu
1993 John A. Frangos
1994 Mehmet Toner
1995 Cheng Dong
1996 Antony Keaveny
1997 Gerard A. Ateshian
1998 Louis J. Soslowsky
1999 Rebecca Richards-Kortum
2000 Farshid Guilak
2001 David F. Meaney
2002 Jeffrey A. Weiss
2003 Sangeeta N. Bhatia
2004 Richard E. Debski
2005 Jeffrey W. Holmes
2006 Beth A. Winkelstein
2007 Stavros Thomopoulos
2008 Gabriel A. Silva
2009 Robert Mauck
2010 Matthew J. Gounis
2011 Ali Khademhosseini
2012 Marissa Nichole Rylander
2013 Jonathan Vande Geest
2014 W. David Merryman
2015 Adam J. Engler
2016 Triantafyllos Stylianopoulos
2017 Kristin Myers
2018 Spencer P. Lake
2019 Grace D. O'Connell
2020 Matthew B. Fisher
2021 Kristin S. Miller
2022 Zhenpeng Qin
2023 Jessica Oakes
2024 Adrian Buganza Tepole
2025 Spencer Szczesny

Y.C. Fung Early Career Medal

The Y.C. Fung Early Career Award is given to young investigators who are committed to pursuing research in the field of Bioengineering and have demonstrated significant potential to make substantial contribu- tions to the field of Bioengineering. Such accomplishments may take the form of, but are not limited to, design or development of new meth- ods, equipment or instrumentation in bioengineering; and research publications in peer- reviewed journals. The award was established by the Bioengineering Division in 1985 and operated as a division award until 1998 when it was elevated to a Society award.

2025 Spencer Szczesny, PhD

Dr. Szczesny is an associate professor at the Pennsylvania State University with a joint appointment in the Departments of Biomedical Engineering and Orthopaedics & Rehabilitation. He completed his postdoctoral training in 2017 as an NIH NRSA F32 fellow and obtained a PhD in bioengineering in 2015 at the University of Pennsylvania. Prior to his doctorate, Dr. Szczesny developed medical implants as a design engineer for Aesculap Implant Systems and as a research assistant at the Helmholtz Institute for Biomedical Technology in Aachen, Germany. He obtained a MS in mechanical engineering at the Massachusetts Institute of Technology in 2005 and a BS in mechanical engineering at the University of Pennsylvania in 2003. Dr. Szczesny's research on tendon/ligament mechanics and mechanobiology has been recognized by his 2024 election as an ASME Fellow, a 2022 NSF CAREER Award, 2022 CMBE Rising Star Award, 2016 ORS New Investigator Recognition Award (NIRA) finalist, 2015 Acta Student Award, and two-time winner of the ASME/SB3C PhD competition. Dr. Szczesny has served as co-chair of the Mechanobiology Theme within the Tissue and Cellular Engineering ASME Technical Committee, Associate Editor of the journal Connective Tissue Research, member of the Orthopaedic Research Society (ORS) Annual Meeting Program Committee, and member of the ORS Tendon Section Board. Dr. Szczesny is also committed to improving diversity, equity, and inclusion (DEI) within engineering. He currently is a Diversity Advocate for the ASME Journal of Biomechanical Engineering and served as the 2022 SB3C Diversity Chair and member of the ORS DEI Committee.

1977 Robert W. Mann
1978 Y.C. Fung
1979 Robert F. Rushmer
1980 F. Gaynor Evans
1981 Max Anliker
1982 R.M. Kenedi
1983 Henning E. von Gierke
1984 Perry L. Blackshear
1985 Richard Skalak
1986 Albert H. Burstein
1987 Van C. Mow
1988 Alf Louis Nachemson
1989 Robert M. Nerem
1990 Albert B. Schultz
1991 Savio Lau-Yuen Woo
1992 John C. Chato
1993 Don P. Giddens
1994 Sheldon Weinbaum
1995 Robert E. Mates
1996 Albert I. King
1997 Ajit P. Yoganathan
1998 Malcolm H. Pope
1999 Stephen C. Cowin
2000 Morton H. Friedman
2001 W. Michael Lai
2002 Kenneth R. Diller
2003 Vijay K. Goel
2004 John M. Tarbell
2005 Steven A. Goldstein
2006 Peter A. Torzilli
2007 Maury L. Hull
2008 Noshir A. Langrana
2009 Thomas P. Andriacchi
2010 Roger D. Kamm
2011 Jay D. Humphrey
2012 David Butler
2013 Mehmet Toner
2014 Kyriacos A. Athanasiou
2015 James A. Ashton-Miller
2016 Roger C. Haut
2017 Gerard A. Ateshian
2018 Louis J. Soslowsky
2019 Jennifer S. Wayne
2020 Larry A. Taber
2021 C. Ross Ethier
2022 Lori Setton
2023 Boris Rubinsky
2024 Marjolein C. H. van der Meulen
2025 Kai-Nan An

H. R. Lissner Medal

The H.R. Lissner Medal recognizes outstanding achievements in the field of bioengineering. These achievements may be in the form of (1) significant research contributions in bioengineering; (2) development of new methods of measuring in bioengineering; (3) design of new equipment and instrumentation in bioengineering; (4) educational impact in the training of bioengineers; and/or (5) service to the bioengineering community, in gen- eral, and to the Bioengineering Division of ASME, in particular. The Bioengineering Division of ASME established the H. R. Lissner Award as a divisional award in 1977. It was upgraded to a society award in 1987, made possi- ble by a donation from Wayne State University and is named in honor of Professor H. R. Lissner of Wayne State University for his pioneering work in biomechanics that began in 1939.

2025 Kai-Nan An, PhD

Professor Kai-Nan An received his B.S. in Mechanical Engineering from National Cheng-Kung University in Taiwan in 1969. After completing his military service in the Air Force, he went on to Lehigh University in Bethlehem, PA, where he earned his M.S. and Ph.D. in Applied Mechanics in 1973 and 1975, respectively. He then joined the Biomechanics Laboratory at the Mayo Clinic in Rochester, MN, where he served as Director from 1993 to 2014. In 1993, he was named the John and Posy Krehbiel Professor of Orthopedics at Mayo Medical School. Dr. An has co-authored over 900 scientific articles and book chapters. His research interests span biomechanics, biomaterials, imaging, orthopedics, and rehabilitation. His clinical focus has been on the joint and tissue mechanics of the musculoskeletal system, particularly in the upper extremities. He has been awarded numerous grants from the NIH and industry, and his collaborative work extends globally. Throughout his career, Dr. An has received several prestigious awards, including the Borelli Award from the ASB, the Muybridge Award from the ISB, the Neer Award from the ASES, and the Kappa Delta Award from the AAOS. He has also received Distinguished Alumni Awards from Mayo Clinic College of Medicine and National Cheng-Kung University. Dr. An is an Academician of Academia Sinica, Taiwan.

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2023 Dawn Elliot &Robert Mauck
2024 DASI SimulationTeam
2025 John Bishcof & Mehmet Toner

Edward Grood Interdisciplinary Team Science Medal

The Edward Grood Interdisciplinary Team Science Medal in Bioengineering seeks to recognize a team of scientists and engineers who have collaboratively carried out impactful interdisciplinary science and engineering research in the bioengineering field.

2025 ATP-Bio Team: John Bischof & Mehmet Toner

ATP-Bio is focused on halting biological time, enabling living products to be readily available across the globe to advance healthcare, biodiversity, and food sustainability. ATP-Bio is co-led by the University of Minnesota and Massachusetts General Hospital and comprised of 6 institutions (University of Minnesota, Massachusetts General Hospital, UC Berkeley, UC Riverside, Carnegie Mellon and Texas A+M), 30+ faculty, 100+ trainees and more than 40 industrial, academic and non-profit partners. ATP-Bio's biological testbeds include cells for therapy, tissues and organoids for drug discovery and therapeutics, organs for transplantation, and whole organisms to preserve genetic model systems (e.g. Drosophila and Zebrafish), as well as agricultural products and biodiversity. ATP-Bio breakthrough platform technologies include high subzero (e.g. supercooling and partial freezing), and lower subzero cryogenic (e.g. vitrification and isochoric) approaches. These technologies now enable organ and organoid preservation up to months, with the potential to address the organ wait list, and offer solutions for complex diseases such as diabetes, cardiac conditions, and liver failure. Work on whole organisms will allow critical genetic lines from Drosophila and Zebrafish to be banked at stock centers to avoid genetic drift or catastrophic loss and may one day support a lunar biorepository for terrestrial and aquatic species. In addition to research, ATP-Bio is training the workforce for the emerging "Cryo Supply Chain" which comprises a growing innovation ecosystem of commercial, academic and NGO partners. Finally, with our ELSI (Ethical, Legal, and Societal Implications) colleagues, we are evaluating anticipatory governance, regulation, and societal adoption of these transformative technologies.

Savio L-Y. Woo Translational Biomechanics Medal

2016 Baruch Barry Lieber
2017 Arthur Erdman
2018 Kyriacos A.Athanasiou
2019 Rita M. Patterson
2020 Mehmet Toner
2021 Daniel Bluestein
2022 Zong-Ming Li
2023 Tamara Bush
2024 Guy M. Genin2025
Umut Atakan Gurkan

The Savio L-Y. Woo Translational Biomechanics Medal was established in June 2015 as a society-level award and recognizes a sustained level of meritorious contributions in translating bioengineering research to clinical application, to improve the quality of life. This award is named in honor of Savio Lau-Yuen Woo, Ph.D., Distinguished University Professor of Bioengineering and the Founder and Director of the Musculoskeletal Research Center (MSRC), a diverse multidisciplinary research and educational center in the Department of Bioengineering at the University of Pittsburgh. Beyond pioneering and world- renowned scholarly contributions, Professor Woo has made an enormous impact in 40 years of translational research that has significantly contributed to the delivery of healthcare. Any member of ASME who has demonstrated a sustained level of outstanding achievement in translating bioengineering findings to the clinical community may be eligible for this medal.

2025 Umut Atakan Gurkan, PhD

Dr. Umut Gurkan is the Wilbert J. Austin Professor of Engineering and leads the Case Biomanufacturing and Microfabrication Laboratory at Case Western Reserve University (CWRU). He holds appointments in Mechanical and Aerospace Engineering, Biomedical Engineering, Orthopedics, the Case Comprehensive Cancer Center, and the Clinical and Translational Science Collaborative of Northern Ohio. His work centers on microcirculation, vascular mechanobiology and red blood cell biomechanics, driving the development of innovative microfluidic systems and point-of-care diagnostics for blood disorders, aiming for global diagnostic equity. Gurkan's academic journey includes a Ph.D. from Purdue University and postdoctoral training at Harvard-MIT, leading to over 110 publications, 18 US patents, 100+ international patent applications, and the founding of four biotech firms, with products like Gazelle Hb Variant impacting millions across 40+ countries for sickle cell disease and thalassemia screening. His leadership in international technology translation extends from the US to Africa, Middle East, Asia, and India. Recognized globally, Gurkan has received prestigious awards, including, Distinguished Investigator Award from the Association for Clinical and Translational Science, Wiederhielm Award from the Microcirculatory Society, Faculty Distinguished Research Award from the CWRU, Featured New Investigator Award from the Central Society for Clinical and Translational Research, NSF Faculty Early Career Development Award, Rising Star Award from the BMES Cellular and Molecular Bioengineering Division, MIT Technology Review Innovator under 35 Award, and Doris Duke Innovations in Clinical Research Award. He is a Senior Member of the National Academy of Inventors (NAI) and a Fellow of the American Institute for Medical and Biological Engineering (AIMBE

Award Lecture Abstracts

Monday, June 23, 2025, 9:45 – 11:15 AM, Tamaya D Ballroom

Alan Eberhardt, Robert M. Nerem Education and Mentorship Medal

Title: *"When will you quit this drumming nonsense?" Lessons in mentoring learned over 40+ years in academia*

This talk will tell my history in academia in parallel with my pursuit of music, while highlighting the mentors with whom I was engaged along the way and how they affected my mentoring style. From my "dark years" of 9th and 10th grade, to the completion of my PhD and ultimately to a successful career in academia, I'll share my experiences with great professors and amazing local musicians, who helped shaped my life and were formative in my mentoring style. The recognition that happiness, for me, involves maintaining a healthy mind and body, with a consistent influx of music, helped me to recognize that my students have a life outside of the classroom/lab, and one that I should fully support.

Yongjie Jessica Zhang, Van C. Mow Medal

Title: *Integrating Isogeometric Analysis with Deep Learning and Digital Twins to Investigate Neurological Disorders*

Coupling physics-based simulation and data-driven modeling have demonstrated great power in predicting complex systems. This talk focuses on integrating an advanced finite element method called isogeometric analysis (IGA) with deep learning and digital twins to address challenging problems in investigating neurological disorders. To investigate neurodevelopmental disorders, we introduce a novel phase field model coupled with tubulin and synaptogenesis concentration to simulate intricate neurite outgrowth and disorders using IGA, dynamic domain expansion and local refinement. By integrating IGA with deep learning and digital twins, we conduct thorough investigations into the functional role of various parameters affecting the neurodevelopmental disorder with comparison to experimental results. To investigate intracellular transport induced neurodegenerative disorders, we develop a PDE-constrained optimization model to simulate traffic jams induced by microtubule reduction and swirl. We also build a novel IGA-based physics-informed graph neural network to quickly predict normal and abnormal transport phenomena in complex neuron geometries.

Spencer Szczesny, Y. C. Fung Early Career Award

Title: *To Be or Not To Be: Questions on Tendon Development and Inclusive Science*

Tendons have a complicated hierarchical structure that enables them to sustain high tensile loads and facilitate functional activities of daily living. While several structure-function relationships have been identified in mature tendons, the key structural changes that produce a robust tensile load-bearing tissue during development remain unclear. This talk will describe my research utilizing multiscale structural, mechanical, computational, and biological techniques to understand how mature tendons come into being. Additionally, I will discuss my broader efforts to create a more inclusive scientific community and facilitate the development of biomedical engineers. Specifically, I will describe a novel open-source load-controlled tensile bioreactor intentionally designed without a feedback control system to minimize accessibility barriers. Additionally, I will present my research investigating whether the incorporation of education on inequality and bias into engineering curricula improves the sense of belonging and retention of women in biomedical engineering.

Tuesday, June 24, 2025, 9:45 – 10:45 AM, Tamaya D Ballroom

Kai-Nan An, H. R. Lissner Medal
Title: *Biomechanics of the Upper Extremities - A Rewarding Career at the Mayo*
I was recruited to the Mayo Clinic in the mid-1970s to contribute to the development of arthroplasties for joint replacement of the upper extremities. At the time, I had limited knowledge of design, so fundamental studies were initiated. Experimental measurements and theoretical analyses were conducted. The methods, principles, and concepts developed not only contributed to implant design but also facilitated the clinical understanding of disorder etiologies, diagnoses, treatments, and even prevention. In this lecture, I will discuss the application of biomechanics principles in various areas: pulley reconstruction of the flexor tendon in the hand, tendon transfer in the shoulder, restoration of elbow stability, potential etiology and prevention of carpal tunnel syndrome, and the clinical applications of elastography for soft tissue assessments. Throughout my rewarding career, the most fulfilling aspect has been the fruitful and blessed collaborations between engineers, scientists, and physicians—particularly with my mentors and fellows.

Wednesday, June 25, 2025, 1:00 – 2:00 PM, Tamaya D Ballroom

ATP-Bio Team: John Bischof & Mehmet Toner, Edward Grood Medal
Title: *Advanced Technologies for the Preservation of Biological Systems (ATP-Bio): A Shining Example of Convergent Team Science*
This NSF ERC ATP-Bio focuses on halting biological time to preserve living products, thereby advancing healthcare, biodiversity, and food sustainability. Co-led by the University of Minnesota and Massachusetts General Hospital, ATP-Bio includes six institutions and over 40 partners. The project's biological testbeds encompass cells for therapy, tissues for drug discovery, organs for transplantation, and whole organisms to preserve genetic models, agricultural products, and biodiversity. Its breakthrough technologies, such as high subzero supercooling and cryogenic vitrification, enable long term organ and organoid preservation to address organ shortages and providing treatments for diabetes and liver failure. Additionally, ATP-Bio works to prevent loss or genetic drift of model organisms like Drosophila and Zebrafish, with future plans for supporting a lunar biorepository for other critical species. Along with research, ATP-Bio trains the workforce for the emerging "Cryo Supply Chain" and evaluating governance and societal adoption with its ethical, legal, and societal implications (ELSI) team.

Umut Atakan Gurkan, Savio L-Y. Woo Medal
Title: *Bridging the Gap: Innovative Point-of-Care Diagnostics and Personalized Medicine for Global Health Equity*
We are in a transformative era for healthcare with innovations like point-of-care diagnostics and genome editing. However, there's a stark gap in access, especially in low- and middle-income countries where diseases like sickle cell anemia disproportionately affect millions, leading to high child mortality. My group's research focuses on understanding biomechanics and biophysics of hemoglobin, red blood cells, and microcirculation, leading to new diagnostic technologies that enhance timely treatment. I'll discuss our approach to engineering solutions tailored for underserved regions, presenting real-world impacts from our clinical studies worldwide, including the deployment of Gazelle Hb Variant technology in over 40 countries.

Scientific Sessions

Sunday, June 22	Tamaya A	4:15 PM - 5:45 PM

Emerging Topics in Computational Biomechanics and Mechanobiology

Session Chairs: ***Sara Roccabianca***, *Washington University in St. Louis*
Manuel Rausch, *The University of Texas at Austin*

4:15 PM **Virtual Surveillance: Forecasting Biomechanical Wall Stress and 3D Surface Geometry of Abdominal Aortic Aneurysms Using Artificial Intelligence**
Aakash Kottakota[1], Jason Lee[1], Pete Gueldner[1], Nathan Liang[1], David Vorp[1], Timothy Chung[1]
[1]University of Pittsburgh

4:30 PM **A Neural Network Surrogate and Inverse Finite Element Framework to Identify Human Airway Material Properties**
Arif Badrou[1], Crystal A. Mariano[1], Mona Eskandari[1]
[1]University of California Riverside, Riverside

4:45 PM **A Machine Learning Framework for Non-Invasive Prediction of Left Ventricle End-Diastolic Pressure Using Cardiac Strains**
Emilio Mendiola[1], Rana Raza Mehdi[1], Kyle Myers[1], Reza Avazmohammadi[1]
[1]Texas A&M University

5:00 PM **Automatic Pipeline to Generate Hexahedral Meshes with Layer-Specific Smoothing from Biomedical Images for Finite Element Modeling**
Amirhossein Bagherian[1], Bahram Jafari[1], Marzieh Memar[1]
[1]The University of Texas at San Antonio

5:15 PM **Computational Simulations of Pregnancy Show Biomechanical Benefit of Cervical Cerclage**
Abigail Laughlin[1], Erin Louwagie[2], Michael House[3], Mirella Mourad[1], Kristin Myers[1]
[1]Columbia University, [2]Wayne State University, [3]Tufts Medical Center

5:30 PM **Advanced Glycation Endproducts Modulate Collagen Mechanics in Fibrosis: Insights from a Mikado Discrete Network Model**
Yuxuan Huang[1], Xiangjun Peng[2], Wenyu Kong[2], Yanan Du[2], Guy Genin[1]
[1]Washington University in St. Louis, [2]Tsinghua University

Sunday, June 22	Tamaya B	4:15 PM - 5:45 PM

Growth and Remodeling Mechanics

Session Chairs: **Morten Jensen,** *University of Arkansas*
Stephane Avril, *Ecole des Mines de Saint-Etienne*

4:15 PM **Deep Folds in the Brain Result from Cortex Pulling on Astrocytes: A Numerical Study**
Karan Taneja[1], Maria Holland[1], Kengo Saito[2], Hiroshi Kawasaki[2]
[1]University of Notre Dame, [2]Kanazawa University

4:30 PM **Time Dependent Mechanical Properties of the Scapholunate Interosseous Ligament: Evaluating Fiber Recruitment**
Natalia Mciver[1], Christina Salas[1], Deana Mercer[1], Mahmoud Reda Taha[1]
[1]The University of New Mexico

4:45 PM **Effects of Axial Pre-Stretch on Growth and Remodeling in the Thoracic Aorta of Hypertensive Patients**
Ali Akbar Karkhaneh Yousefi[1], Stephane Avril[1]
[1]Ecole des Mines de Saint-Etienne

5:00 PM **The Role of Sex and Testosterone in Tricuspid Valve Leaflet Remodeling**
Colton Kostelnik[1], Chien-Yu Lin[1], Shreya Sreedhar[1], Magda Piekarska[2], Boguslaw Gaweda[2], Austin Goodyke[2], Tomasz Timek[2], Manuel Rausch[1]
[1]The University of Texas at Austin, [2]Corewell Health

5:15 PM **Generational-Based Constrained Mixture Model Captures Changes in Aortic Geometry and Material Properties in an Ang-Ii Infused Mice**
Hadi Wiputra[1], Matthew Bersi[2], Craig Goergen[3], Victor Barocas[1]
[1]University of Minnesota Twin Cities, [2]Washington University in St. Louis, [3]Purdue University

5:30 PM **Postpartum Vaginal Remodeling in Mice of Advanced Maternal Age**
Lily Buchanan[1], Matthew Bersi[2], Kristin S. Miller[1]
[1]The University of Texas at Dallas, [2]Washington University in St. Louis

Sunday, June 22	Tamaya C	4:15 PM - 5:45 PM

Mechanobiology I: Tools and Models to Study Mechanobiology in TCE

Session Chairs: ***Soham Ghosh****, Colorado State University*
Jonathan Vande Geest*, University of Pittsburgh*

4:15 PM **Deep Learning-Guided Optogenetic Tool Engineering for Control of Yap Localization and Mechanotransduction**
Erin Berlew[1], Joel Boerckel[1]
[1]University of Pennsylvania

4:30 PM **Exploring the Influence of Initial Shape on Spheroid Deformation in an Extensional Flow Microfluidic Device**
Joanna Dahl[1], Jonathan Celli[1], Sara Ghanbarpour Mamaghani[1]
[1]University of Massachusetts Boston

4:45 PM **Wavy Morphology Regulates Yap Signaling**
Shih-An Huang[1], Pen Hsiu Grace Chao[1]
[1]National Taiwan University

5:00 PM **Biophysical Regulation of Macrophages and Fibroblasts in the Stiffening Osteoarthritic Synovium**
Sung Yeon Kim[1], Easton Farrell[2], Kevin Burt[1], Alexander Knights[2], Vu Nguyen[1], Tristan Maerz[2], Robert Mauck[1], Carla Scanzello[1]
[1]University of Pennsylvania, [2]University of Michigan

5:15 PM **Investigating Fibroblast-Mediated Biomechanics for Angiogenesis and Reperfusion in a Three-Dimensional Microfluidic Model**
Vaishali Bala[1], Mary Katherine Sewell-Loftin[1]
[1]University of Alabama at Birmingham

5:30 PM **High-Throughput Automated Atomic Force Microscope Elastography Using Convolutional Long Short-Term Memory Neural Networks**
Jonathan Haydak[1], Evren Azeloglu[1]
[1]Icahn School of Medicine at Mount Sinai

Sunday, June 22	Puma AB	4:15 PM - 5:45 PM

Emerging In Vitro and Computational Approaches in Biofluids

Session Chairs: **Colleen Witzenburg,** *University of Wisconsin - Madison*
Vijay Vedula, *Columbia University*

4:15 PM **Digital Twin of the Left Atrium: Toward a Personalized Multiscale and Multi-Physics Model of Atrial Biomechanics**
Boyang Gan[1], Hannah Haider[1], Lei Shi[2], Vijay Vedula[1]
[1]Columbia University, [2]Kennesaw State University

4:30 PM **Modeling the Pulmonary Arterial Network – How Much Detail Is Sufficient?**
Callyn Kozitza[1], Christian Andrade Herrera[2], Naomi Chesler[2], Pim Oomen[2], Colleen Witzenburg[1]
[1]University of Wisconsin-Madison, [2]University of California, Irvine

4:45 PM **Hemodynamic Insights into Post-Operative Complications of Systemic-to-Pulmonary Artery Shunts via Computational Fluid Dynamics**
Tanmay Mohan Khare[1], Imran Shah[1], Srujana Joshi[1], Shweta Karnik[1], Luis René Mata Quiñonez[1], Sanchita S. Bhat[1], Kevin O. Maher[2,3], Subhadra Shashidharan[2,3], Mohan M. John[2,3], Lakshmi Prasad Dasi[1]
[1]Georgia Institute of Technology, [2]Children's Healthcare of Atlanta, [3]Emory University School of Medicine

5:00 PM **Hemodynamic Performance and Fluid Dynamics Analysis Following Redo Transcatheter Aortic Valve Replacement: An In-Vitro Study Using a Patient-Specific Model**
Maryam Bagheri[1], Lakshmi Prasad Dasi[1]
[1]Georgia Institute of Technology

5:15 PM **A Constrained Mixture Theory Model to Study Autoregulation in the Coronary Circulation**
Matthew Eden[1], Hamidreza Gharahi[1], Victoria Sturgess[1], Daniel Beard[1], Seungik Baek[2], C. Alberto Figueroa[1]
[1]University of Michigan, [2]Michigan State University

5:30 PM **Effect of Wall Compliance on Vessel Hemodynamics: A Baseline Particle Tracking Velocimetry Study**
Cheng Peng[1], Melissa Brindise[1]
[1]Pennsylvania State University

Sunday, June 22	Wolf AB	4:15 PM - 5:45 PM

Head & Injury I

Session Chairs: **Marzieh Memar,** *The University of Texas at San Antonio*
Kaveh Laksari, *University of California, Riverside*

4:15 PM **Material Properties of Arachnoid Trabeculae Using Inverse Finite Element Analysis**
Leonardo Marin[1], Brittany Coats[1]
[1]University of Utah

4:30 PM **Optimizing Design of Combat Helmet Pad for Blast Protection and Comfort: A Computational and Data-Driven Approach**
Chaokai Zhang[1], Feng Zhu[2], Wenye He[3], Zhiqing Cheng[3], Songbai Ji[1]
[1]Worcester Polytechnic Institute, [2]Johns Hopkins University, [3]Innovision LLC

4:45 PM **Cortical Curvedness Patterns Alter with Volumetric Expansion During Infancy: A Longitudinal Analysis**
Cameron Godin[1], Maria Holland[1]
[1]University of Notre Dame

5:00 PM **The Impact of Perfusion on Hippocampal Brain Mechanics**
Caitlin M Neher[1], Em Triolo[1], Oleksandr Khegai[2], Priti Balchandani2, Mehmet Kurt[1]
[1]University of Washington
[2]Icahn School of Medicine

5:15 PM **The Influence of Head Rotation on the Mechanical Vulnerability of the Human Brain**
Ruth Okamoto[1], Jordan Escarcega[1], Ahmed Alshareef[2], Curtis Johnson[3], Philip Bayly[1]
[1]Washington University in St. Louis, [2]University of South Carolina, [3]University of Delaware

5:30 PM **Temperature Effects on the Dynamic Impact Behavior of American Football Helmet Padding**
Alireza Abbasi Ghiri[1], Morteza Seidi[1]
[1]The University of Texas at San Antonio

Sunday, June 22	Eagle A	4:15 PM - 5:45 PM

Innovations in Bioengineering Education Pedagogies

Session Chairs: **Hoda Hatoum,** *Michigan Technological University*
Joanna Dahl, *University of Massachusetts Boston*

4:15 PM **Assessing Self-Assessment Contract Grading in an Engineering Design Group Project**
Sara Wilson[1]
[1]University Of Kansas

4:30 PM **Redefining the Use of Evaluation Metrics in Assessing Convolutional Neural Networks for Semantic Segmentation Tasks with Class Imbalances**
Sohaila Aboutaleb[1], Nellie Haug[1], Prachi Keni-Mccray[2], Arthur Mccray[3], Heidi Phillips[4], Stephanie Keating[4], Julian Norato[5], David Cohen[5], Amy Wagoner Johnson[1]
[1]University of Illinois Urbana-Champaign, [2]Stanford University, [3]Stanford University, [4]UIUC College of Veterinary Medicine, [5]University of Connecticut

4:45 PM **Virtual Immersion in Biomedical Engineering (Vibe): Exposing Undergraduates to Culturally Sensitive Engineering Design and Professional Experiences at Scale**
Kristen Billiar[1], Taimoor Afzal[1], Solomon Mensah[1], Funmi Ayobami[2]
[1]Worcester Polytechnic Institute, [2]University of Massachusetts Chan Medical School

5:00 PM **Beyond Traditional Metrics: Evaluating Modern Approaches to Research Attribution in Biomedical Engineering**
Anjelyka Fasci[1], Connor Evans[2], Lyle Hood[1]
[1]University of Texas at San Antonio, [2]University of Texas Health Science Center at San Antonio

5:15 PM **Fostering Healthy Competition in the Stem Setting: An Experiential Workshop**
Fatiesa Sulejmani[1], Ahmad Bshennaty[2], Hoda Hatoum[2]
[1]Georgia Institute of Technology, [2]Michigan Technological University

5:30 PM **Virtual Reality for Clinical Immersion**
Jennifer Wayne[1], Toru Oyama[1], Cameron Moore[1], Wallace Lages[2], Farrell Adkins[3]
[1]Virginia Tech, [2]Northeastern University, [3]Virginia Tech Carilion School of Medicine

Sunday, June 22	Eagle B	4:15 PM - 5:45 PM

Experimental Mechanics & Mineralized Tissues

Session Chairs: ***John Peloquin,*** *University of Delaware*
Benjamin Gadomski, *Colorado State University*

4:15 PM **Regional Effects of Acute Ulcerative Colitis on Colonic Mechanical Properties Using a Dextran Sodium Sulfate Murine Model**
Chastity Chavez[1], Soto Kubo[1], Piper Welsh[1], Christy Gliniak[2], Philipp Scherer[2], Jacopo Ferruzzi[1]
[1]The University of Texas at Dallas, [2]UT Southwestern Medical Center

4:30 PM **Towards Understanding the Mechanisms of Pressure Ulcer Formation in a Murine Model of Ischemic Cutaneous Wounds**
Chien Yu Lin[1], Colton Kostelnik[1], Shreya Sreedhar[1], Adrian Buganza Tepole[2], Manuel Rausch[1]
[1]The University of Texas at Austin, [2]Purdue University

4:45 PM **Compatibility of Biphasic Constitutive Models With 3D Strain of Knee Meniscus Tissue**
John Peloquin[1], Dawn Elliott[1]
[1]University of Delaware

5:00 PM **Fatigue Fracture and Remodeling in Mineralized Collagen Fibrils in 3-D**
Stephen Ching[1], Riti Sharma[1], Ottman Tertuliano[1]
[1]University of Pennsylvania

5:15 PM **Sex-Specific Effects of Exercise on Bone Strength and Muscle Gene Expression in Juvenile Horses**
Sara Moshage[1], Samantha Hammack[2], Annette Mccoy[2], Mariana Kersh[2]
[1]Exponent Inc., [2]University of Illinois Urbana-Champaign

5:30 PM **Multiscale Mechanical Analysis of the Dentin-Enamel Junction Within a Dentinogenesis Imperfecta Murine Model**
Sobhan Katebifar[1], Bradley Rosenberg[1], Elsa Vennat[2], Haiyan Tan[1], Alix C Deymier[1]
[1]University of Connecticut, [2]Universite Paris-Saclay

Monday, June 23	Tamaya A	8:00 AM - 9:30 AM

Reproductive Mechanics I

Session Chairs: ***Kara Peak,*** *University of Minnesota*
Rouzbeh Amini, *Northeastern University*

8:00 AM **Biaxial Contractility and Remodeling of the Murine Uterus with Age**
Mari Domingo[1], Abigail Fisk[2], Niyousha Karbasion[2], Raffaella De Vita[3], Matthew Bersi[2], Kristin Miller[1]
[1]University of Texas at Dallas, [2]Washington University in St. Louis, [3]Virginia Tech

8:15 AM **Scar-Induced Remodeling of Murine Uterus Involves Dynamic Biomechanical and Histological Changes**
Savannah Chatman[1], Abigail Fisk[1], Niyousha Karbasion[1], Perry Ann Brody[1], John Engelbach[1], Jeffrey Neil[1], Joel Garbow[1], Matthew Bersi[1]
[1]Washington University in St. Louis

8:30 AM **Methods for in Situ Mechanical Testing of the Murine Vagina**
Ritika Singh[1], Kristin Miller[2], Raffaella De Vita[1]
[1]Virginia Polytechnic Institute and State University, [2]The University of Texas at Dallas

8:45 AM **Regional Differences in Rabbit Vaginal Smooth Muscle Structure and Vaginal Contractile Function**
Sophya Breedlove[1], Gabrielle King[2], Pamella Moalli[2], Katrina Knight[1]
[1]University of Pittsburgh, [2]Magee-Womens Research Institute

9:00 AM **Impact of Cgas Deletion on Vaginal Biomechanics and Composition in a Mouse Model of Pelvic Organ Prolapse**
Triniti Vanoven[1,2], Mari Domingo[2], David Matayo[2], Haolin Shi[1], Maria Florian-Rodriguez[1], Kristin Miller[2], Isaac Pence[1]
[1]UT Southwestern Medical Center, [2]The University of Texas at Dallas

9:15 AM **Statistical Shape Modeling for Quantitative Assessment of Perineal Body Motion in Patients with an Avulsion Injury to Their Pelvic Floor**
Durwash Badr[1], Liam Martin[1], Henry Chill[2], Ali Hadizadeh[3], Ghazala Rostaminia[3], Steven Abramowitch[1]
[1]University of Pittsburgh, [2]Hebrew university of Jerusalem, [3]University of Chicago, NorthShore University Health System

Monday, June 23	Tamaya B	8:00 AM - 9:30 AM

Vascular Biomechanics I

Session Chairs: ***Sara Roccabianca,*** *Washington University in St. Louis*
Ender Finol, *The University of Texas at San Antonio*

8:00 AM **Computational Modeling of Aortic Graft Implantation: Assessing the Hemodynamic Impact of Graft Displacement and Comparing Against in Vivo Porcine Results**
Seda Aslan[1], Enze Chen[2], Miya Mese-Jones[1], Jacqueline Contento[3], Hidenori Hayashi[4], Joey Huddle[5], Jed Johnson[5], Mark Fuge[6], Yue-Hin Loke[3], Laura Olivieri[7], Narutoshi Hibino[4], Axel Krieger[1], Thao Nguyen[1]
[1]Johns Hopkins University, [2]University of Wisconsin-Madison, [3]Children's National Hospital, [4]University of Chicago, [5]Nanofiber Solutions, [6]University of Maryland, [7]University of Pittsburgh

8:30 AM **Sex- and Region-Specific Differences in Microstructural Remodeling and Passive Biomechanics of the Aorta Correlate with Aneurym Propensity in a Mouse Model of Marfan Syndrome**
Krashn Dwivedi[1], Yufan Wu[1], Jacob Rother[1], Jessica E Wagenseil[1]
[1]Washington University in St. Louis

8:45 AM **On the Role of Structural Wall Stress in Aortic Growth Prognosis of Acute Uncomplicated Type B Aortic Dissection**
Yuhang Du[1], Hannah Cebull[2], Asanish Kalyanasundaram[3], Hai Dong[2], Marina Piccinelli[2], John Oshinski[3], John Elefteriades[3], Rudolph Gleason Jr[4], Bradley Leshnower[2], Minliang Liu[1]
[1]Texas Tech University, [2]Emory University, [3]Yale University, [4]Georgia Institute of Technology

9:00 AM **Time and Sex-Dependent Effects of High-Fat Diet and Perivascular Adipose Tissue on Aortic Mechanics in Dahl-Ss Rats**
Maxwell Hakun[1], Dillon Mcclintock[1], Matthew Fular[2], Sydney Bush[2], Stephanie Watts[2], Lisa Sather[2], Adam Lauver[2], Gregory Fink[2], Nathan Tycocki[2], Sara Roccabianca[1]
[1]Washington University in St. Louis, [2]Michigan State University

9:00 AM **Exploring the Mechanical Heterogeneity and Inflammation of Giant Cerebral Aneurysms**
Sergio Pineda-Castillo[1], Yashar Ebadi[1], Andrew Grande[1], Patrick Alford[1]
[1]University of Minnesota

9:15 AM **Experimental and Computational Investigation into the Link Between Local Density and Failure Strength in Porcine Aortic Tissue**
Pete Gueldner[1], Yamnesh Agrawal[1], Timothy Chung[1], T. Kevin Hitchens[1], Kumbakonam Rajagopal[2], Spandan Maiti[1], David Vorp[1]
[1]University of Pittsburgh, [2]Texas A&M University

Monday, June 23	Tamaya C	8:00 AM - 9:30 AM

Engineered In Vitro Models

Session Chairs: ***Mary Kathryn Sewell-Loftin,*** *University of Alabama at Birmingham*
Nathaniel Dyment, *University of Pennsylvania*

8:00 AM **Tensional Homeostasis in Tissue Equivalents Arises from a Balance Between Cell Contractility and Extracellular Matrix Densification**
Victor Nguyen[1,2], Andrew Glick[1], Bishant Karki[1], Huocong Huang[2], Jacopo Ferruzzi[1,2]
[1]University of Texas at Dallas, [2]University of Texas Southwestern Medical Center

8:15 AM **A Multi-Physics 3D Human Brain Model Reveals Mechanical Mechanisms in Alzheimer's Disease**
Xun Wang[1,2], Zhengyu Zhang[1], Annabel Tiong[1], Seunggyu Kim[1], Maria Proestaki[1], Zhengpeng Wan[1], Rudolph Tanzi[2], Ming Guo[1], Se Hoon Choi[2], Roger Kamm[1]
[1]Massachusetts Institute of Technology, [2]Massachusetts General Hospital

8:30 AM **Mechanical Trauma Causes Genotype-Dependent Pathology in Brain Organoids**
Shahrzad Shiravi[1], Alexandra Yufa[1], Dylan Murphy[2], Steven Lotz[2], Taylor Bertucci[2], Sally Temple[2], John Finan[1]
[1]University of Illinois at Chicago, [2]Neural Stem Cell Institute

8:45 AM **Biomimetic 3D Reconstruction and Meshing of Collagen Micro-Structure and Surrounding Tissue of Healthy and Aneurysmal Adult Human Ascending Thoracic Aortic Wall**
Panagiotis Chatzisavvas[1], Petros Kroustalias[1], Maria Ntina[1], David Vorp[2], Alkiviadis Tsamis[1]
[1]University of Western Macedonia, [2]University of Pittsburgh

9:00 AM **Investigating Acquired Resistance in Her2+ Breast Tumor Aggregates via Non-Destructive Assessment of Morphology and Regional Cell Density**
Elizabeth McDonough[1], Lilian R. Murphy[1], Cassandra L. Roberge[1], Margarida Barroso[2], David T. Corr[1]
[1]Rensselaer Polytechnic Institute, [2]Albany Medical College

9:15 AM **Development of an Engineered in Vitro Model of Outer Retinal Tissue Stiffening Using Two-Step Photocrosslinking**
Richard Cliver[1], Michael Arrington[1], Kristan Worthington[1]
[1]The University of Iowa

Monday, June 23	Puma AB	8:00 AM - 9:30 AM

Scientific Computing in Cardiovascular Fluid Mechanics and Device Design

Session Chairs: ***Ellie Rahbar,*** *Texas A&M University*
Ethan Kung, *Clemson University*

8:00 AM **Optimization of a Pulsatile Fontan Conduit in a Confluence Configuration**
Zinan Hu[1], Kb Ko[1], Tain Yen Hsia[2], Jay Humphrey[3], Alison Marsden[1]
[1]Stanford University, [2]Arnold Palmer Hospital for Children, [3]Yale University

8:15 AM **Real-Time Shape Optimization of Patient-Specific Fontan Surgical Planning Procedures via Reduced Order Models**
Imran Shah[1,4], Francesco Ballarin[2], Zhenglun Wei[3], Lakshmi Dasi[1,4], Alessandro Veneziani[4]
[1]Georgia Institute of Technology, [2]Università Cattolica del Sacro Cuore, [3]Worcester Polytechnic Institute, [4]Emory University

8:30 AM **Computational Investigation of Embolic Injury Risk in Patient-Specific Aortas During Cardiopulmonary Bypass**
Nafis Arefin[1], Bryan Good[1]
[1]University of Tennessee

8:45 AM **Design Optimization to Minimize Hemolysis in a Maglev Centrifugal Left Ventricular Assist Device**
Huang Chen[1], Lakshmi Dasi[2], Nobuyuki Kurita[3]
[1]University of Nevada, Las Vegas, [2]Georgia Institute of Technology, [3]Baylor College of Medicine

9:00 AM **Characterizing Uncertainty in Patient-Specific Computational Fluid Dynamics Models of Coronary Arteries**
Muhammad Usman[1], Akil Narayan[2], Lucas Timmins[1]
[1]Texas A&M University, [2]University of Utah

9:15 AM **Realistic and High-Fidelity Hemodynamic Simulations of Patient Specific Aneurysm with Flow Diverting Stents**
Debarun Das[1], Karthik Muthuraman[1], Benedikt Koenig[2], Avinash Jammalamadaka[1], Gregory Laskowski[1]
[1]Dassault Systems North America, [2]Dassault Systèmes Deutschland

Monday, June 23	Wolf AB	8:00 AM - 9:30 AM

Spine and Joints

Session Chairs: ***Grace O'Connell,*** *University of* California, Berkeley
Jill Middendorf, *Johns Hopkins University*

8:00 AM **Development of a Force Sensing Spinal Rod Bending Simulation Device**
Joshua Bland[1], Hannah Levy[1], Alexander Hooke[1], Brett Freedman[1], Charles Mechas[1], Chunfeng Zhao[1]
[1]Mayo Clinic

8:15 AM **Using Unique Multiaxial Compressive and Tensile Experiments to Validate an Existing Constitutive Model of the Annulus Fibrosus**
Craig Almeida[1], Jill Middendorf[1]
[1]Johns Hopkins University

8:30 AM **Multiscale Modeling for Intervertebral Disc Fatigue Prediction During Long Flight**
Lance Frazer[1], Sarah Shaffer[1], Jack Seifert[2], Brian Stemper[2], Dan Nicolella[1]
[1]Southwest Research Institute, [2]Medical College of Wisconsin

8:45 AM **Enhancing Fracture Risk Prediction for Metastatic Spines by Integrating Baseline Bone Strength**
Mehran Fereydoonpour[1], Asghar Rezaei[2], Areonna Schreiber[2], Lichun Lu[2], Mariusz Ziejewski[1], Ghodrat Karami[1]
[1]North Dakota State University, [2]Mayo Clinic

9:00 AM **Association of Bone Mineral Density with Failure Force During Dynamic Compression of the Lumbar Spine**
Verushca Gasiorowski[1], Rachel Cutlan[1], William Curry[1], Brian Stemper[1]
[1]Medical College of Wisconsin

9:15 AM **Low Energy Impact Loading Induces DNA Damage and Inflammatory Responses in Cartilage Explants**
Katie Gallagher[1], Stephanie Ellyse Schneider[1], David Pierce[2], Corey Neu[1]
[1]University of Colorado Boulder, [2]University of Connecticut

Monday, June 23	Eagle A	8:00 AM - 9:30 AM

Precision health innovations

Session Chairs: ***Chung-Hao Lee,*** *University of* California, Riverside
Rita Patterson, *University of North Texas*

8:00 AM **Performative Characterization of Shape Memory Polymer Scaffolds for Endovascular Cerebral Aneurysm Therapeutics**
Tanner Cabaniss[1], Yingtao Liu[1], Bradley Bohnstedt[2], Chung Hao Lee[3]
[1]The University of Oklahoma, [2]Indiana University School of Medicine, [3]University of California, Riverside

8:15 AM **Design of a Preclinical Validation Platform for Patient-Specific Planning of Pulmonary Artery Reconstruction**
Shannen B Kizilski[1], Jocelyn M Davee[1], Dominic P Recco[1], Nicholas E Kneier[1], Patrick D Earley[1], Peter E Hammer[1], David M Hoganson[1]
[1]Boston Children's Hospital

8:30 AM **Older Adult Frontal Plane Angular Momentum and Lateral Distance** During 90 Degree **Turns While Walking**
Zahava Hirsch[1], Mitchell Tillman[1], Jun Ming[1], Janine Molino[2], Antonia Zaferiou[1]
[1]Stevens Institute of Technology, [2]Brown University

8:45 AM **Tricuspid Valve Mechanics During Transcatheter Edge-to-Edge Repair: Insights From in Vitro Experiments**
Collin Haese[1], Trace Larue[1], Diego Guajardo[1], Tomasz Timek[2], Manuel Rausch[1]
[1]The University of Texas at Austin, [2]Corewell Health

9:00 AM **Cardiocomposer: Flexible and Compositional Anatomic Structure Generation with Localized Geometric Guidance**
Karim Kadry[1], Shoaib Goraya[2], Ajay Manicka[1], Farhad Nezami[2], Elazer Edelman[1]
[1]Massachusetts Institute of Technology, [2]Brigham and Women's Hospital

9:15 AM **Patient-Specific 3D Reconstruction of Coronary Stents Using Intravascular Ultrasound: Validation and Applications**
Wei Wu[1], Usama Oguz[1], Shijia Zhao[1], Changkye Lee[1], Yiannis Chatzizisis[1]
[1]University of Miami

Monday, June 23	Eagle B	8:00 AM - 9:30 AM

Biotransport: Biotechnology Applications

Session Chairs: ***Joanna Dahl,*** *University of Massachusetts Boston*
Vivek Sree, *Eli Lilly and Company*

8:00 AM **Measurement and Correction of Lead Wire Conduction Error for Deep Tissue Sensing**
Dhru Patel[1], Sara Ho[1], Jalen Dobelbower[1], Emily Brata[1], Alexandra Fowler[1], Jake Richards[1], Hannah Melton[1], Sepideh Khoshnevis[1], Kenneth Diller[1]
[1]The University of Texas at Austin

8:15 AM **Two-Photon Excited Microparticle Thermoluminescence as Thermal Conductivity Probe in Biological Systems**
Alexandro Deanda[1], Chen Xie[1], Hugo Stolarczyk[2], Marigold Milano[3], Guosong Hong[3], Zhenpeng Qin[1]
[1]University of Texas at Dallas, [2]University of Reims Champagne-Ardenne, [3]Stanford University

8:30 AM **Multi-Functional Medical Foam for Battlefield Wound Care**
Amelia Stoner[1], Lynn Pezzanite[1], Steven Dow[1], Kirk Mcgilvray[1]
[1]Colorado State University

8:45 AM **Improving Combat Airway Management: Evaluation of a Multifunctional Suction System Through Structured End-User Testing in Military Medical Contexts**
Maria J. Londono[1], Saketh R. Peri[1], Jacqueline Kaase[1], Angeles Gomez[1], Sophia Cavanaugh[1], Anjelyka Fasci[1], Jacob Provencio[1], David Restrepo[1], Robert A. De Lorenzo[1], R. Lyle Hood[1]
[1]The University of Texas at San Antonio

9:00 AM **Ocular Surface Treatment by Ocufoam Intervention**
Jacqueline Linn[1], Steven Dow[1], Lynn Pezzanite[1], Ethan Young[1], Kirk Mcgilvray[1]
[1]Colorado State University

9:15 AM **Dielectrophoretic Characterization of Hl-60 Cells Infected with Anaplasma Spp.**
Sai Deepika Reddy Yaram[1], Soumya K Srivastava[1]
[1]West Virginia University

Monday, June 23	Tamaya A	11:30 AM - 1:00 PM

Reproductive Mechanics II

Session Chairs: ***Megan Routzong,*** *University of California, San Diego*
Lei Shi, *Kennesaw State University*

11:30 AM **Biomechanical Effects of Cesarean Section Scar Location and Niche Presence on the Second Trimester Maternal Anatomy**
Erin Louwagie[1], Adrienne Scott[2], Amrita Banerjee[3], Maria Ivan[3], Abigail Laughlin[4], Kristin Myers[4], Raffaele Napolitano[3], Anna David[3], Michelle Oyen[1]
[1]Wayne State University, [2]Washington University in St. Louis, [3]University College London, [4]Columbia University

11:45 AM **Relaxin Regulates Equilibrium Mechanical Response of the Mouse Cervix During Pregnancy**
Serena Russell[1], Bex Pendrak[1], Nicole Lee[1], Sudeshna Tripathy[2], Mala Mahendroo[3], Kristin Myers[1]
[1]Columbia University, [2]Oregon National Primate Research Center, [3]University of Texas Southwestern Medical Center

12:00 PM **Viscoelastic Properties of Murine Placenta Measured via Micro-Indentation**
Sean Harrington[1], Ana Vargas[1], Lukas Bose[1], Rouzbeh Amini[1], Frederick Sebastian[1]
[1]Northeastern University

12:15 PM **Impact of Pregnancy on the Mechanical Behavior of Third-Order Mesenteric Arteries**
Wendell Choi[1], Dillon Mcclintock[1], Katrina Linning-Duffy[2], Joseph Lonstein[2], Nathan Tykocki[2], Sara Roccabianca[1]
[1]Washington University in St. Louis, [2]Michigan State University

12:30 PM **Image-Based Computational Modeling of Uterine Mechanics with Excitation During Late Pregnancy**
Olivia Mergler[1], Parker Mixon[1], Abigail Laughlin[1], Lei Shi[2], Kristin Myers[1], Vijay Vedula[1]
[1]Columbia University, [2]Kennesaw State University

12:45 PM **Increasing Vessel Wall Thickness in a Finite Element Simulation Does Not Significantly Alter Umbilical Coiling or Tissue Stress**
Kara Peak[1], Sarah Wernimont[1], Kyoko Yoshida[1], Victor Barocas[1]
[1]University of Minnesota

Monday, June 23	Tamaya B	11:30 AM - 1:00 PM

Vascular Biomechanics II

Session Chairs: ***Mianling Liu,*** *Texas Tech University*
Hadi Wiputra, *University of Minnesota*

11:30 AM **Towards Lesion-Specific Stenting Strategies: Establishment and Validation of a Computational Framework for Vascular Stent Deployment**
David Jiang[1], Brandon Zimmerman[2], Steve Maas[3], Jeffrey Weiss[3], Gerard Ateshian[4], Lucas Timmins[1]
[1]Texas A&M University, [2]Lawrence Livermore National Laboratory, [3]The University of Utah, [4]Columbia University

11:45 AM **Geometry, Mechanics and Axial Stretch Vary Along the Length of Porcine Aorta**
Ruturaj Badal[1], Nathan Huntley[1], Weihua Guan[1], Paul Iaizzo[1], Victor Barocas[1]
[1]University of Minnesota

12:00 PM **Vascular Deformation Mapping Calibration with Physics-Based Synthetic Data: Applications to 3D Aortic Strain Estimation**
Taeouk Kim[1], Timothy J. Baker[1], Nicholas S. Burris[2], C. Alberto Figueroa[1]
[1]University of Michigan, [2]University of Wisconsin-Madison

12:15 PM **Biomechanical Implications of Medial Gaps in Cerebral Bifurcations: The Coupled Role of Collagen Fiber Orientation and Material Heterogeneity**
Mehdi Ramezanpour[1], Anne M. Robertson[1], Evelyn Hsu[2], Simon Watkins[1]
[1]University of Pittsburgh, [2]Harvard University

12:30 PM **Changes in Aortic Centerline Length/curvature Predict Diameter Growth of Chronic Type B Aortic Dissection**
Xue Liang[1], Marc- *Philipp Schmid* [2], Minliang Liu[3], Hannah Cebull[1], John Oshinski[1], John Elefteriades[4], Rudolph Gleason[2], Hai Dong[1], Bradley Leshnower[1]
[1]Emory University, [2]Georgia Institute of Technology, [3]Texas Tech University, [4]Yale University

12:45 PM **Provisional Stenting of Coronary Bifurcations: Insights into Different Post-Dilatation Strategies by Computational Modeling**
Shijia Zhao[1], Wei Wu[1], Sartaj Tanweer[1], Changkye Lee[1], Yiannis Chatzizisis[1]
[1]University of Miami

Monday, June 23	Tamaya C	11:30 AM - 1:00 PM

Mechanobiology II: Cellular Response to Microenvironmental Stimuli

Session Chairs: ***Victor Varner,*** *The University of Texas at Dallas*
Kristan Worthington, *The University of Iowa*

11:30 AM **Time-Lapse Analysis of Stress Fiber Organization and Force Evolution Following Stretch**
Ruiyuan Chi[1], Patrick Alford[1]
[1]University of Minnesota

11:45 AM **Flow–mediated Autologous Chemotaxis of Tumor Cells**
Aditya Paspunurwar[1], Hector Gomez[1]
[1]Purdue University

12:00 PM **Residual Stress in the Minipig Brain Supports an Expansion-Driven Model of Cortical Folding**
Ramin Balouchzadeh[1], Christopher Kroenke[2], Kara Garcia[3], Philip Bayly[1]
[1]Washington University in St. Louis, [2]Oregon Health and Science University, [3]Indiana University School of Medicine

12:15 PM **Adipokine Dysfunction Alters Meniscus Cell Mechano-Response to Microenvironmental Cues**
Meghan Kupratis[1], Darcy Huang[1], Elizabeth Bernstein[1], Robert Mauck[1]
[1]University of Pennsylvania

12:30 PM **Contractile Structure-Function Relationship in Umbilical Artery Smooth Muscle Cells After Exposure to Pregnancy Hormones**
Paige Nielsen[1], Kyoko Yoshida[1]
[1]University of Minnesota

12:45 PM **Compliance Matching of a Trilayer Vascular Graft Decreases Marker of Intimal Thickening Over Long Term Remodeling**
Katarina Martinet[1], David Maestas[1], Keishi Kohyama[1], Reyhaneh Gholami[1], Kang Kim[1], William Wagner[1], Jonathan Vande Geest[1]
[1]University of Pittsburgh

Monday, June 23	Puma AB	11:30 AM - 1:00 PM

Image-Driven Patient-Specific Modeling of Cardiovascular Flow

Session Chairs: ***Melissa Brindise,*** *Pennsylvania State University*
Jason Szafron, *Carnegie Mellon University*

11:30 AM **Potential Implications of Different Left Atrial Appendage Occlusion Devices on Atrial Flow and Device Related Thrombosis**
Ahmad Bshennaty[1], Brennan Vogl[1], Alessandra Bavo[2], Agata Sularz[3], Karam Ghazal-Aswad[3], Anders Kramer[4], Jens Erik Nielsen-Kudsk[4], Yuheng Jia[5], Ole De Backer[5], Matthieu De Beule[2], Mohamad Alkhouli[3], Hoda Hatoum[1]
[1]Michigan Technological University, [2]FEops, [3]Mayo Clinic, [4]Aarhus University Hospital, [5]Copenhagen University Hospital

11:45 AM **A Computational Pipeline for Simulating Lung Transplant Hemodynamics**
Jonathan Ibinson[1], Jorge Mallea[2], Jason Szafron[1]
[1]Carnegie Mellon University, [2]Mayo Clinic

12:00 PM **Patient-Specific Flap Motion, False Lumen Flow, and Wall Shear Stress in Acute Uncomplicated Type B Aortic Dissections Using 4D and 2D PC-MRI**
Hannah Cebull[1], Hai Dong[1], Minliang Liu[2], John Elefteriades[3], Rudy Gleason[4], Muhammad Naeem[1], John Oshinski[1], Bradley Leshnower[1]
[1]Emory University, [2]Texas Tech University, [3]Yale University, [4]Georgia Institute of Technology

12:15 PM **One-Dimensional Simulation of Hemodynamics in Pulmonary Atresia**
Labib Shahid[1], Arjith Rathakrishnan[1], Luke Lamers[1], Alejandro Roldán-Alzate[1]
[1]University of Wisconsin-Madison

12:30 PM **Computational Fluid Dynamics Analysis of Cerebrovascular Hemodynamic Differences in Adults with Sickle Cell Disease: Comparing a Stroke and Non-Stroke Patient**
Lara Abdelmohsen[1], Anyssa Oden[1], Rhea Soo[1], Tamer Ibrahim[2], Enrico Novelli[2], Sossena Wood[1], Noelia Grande Gutiérrez[1]
[1]Carnegie Mellon University, [2]University of Pittsburgh

12:45 PM **Hemodynamic Modeling in the Carotid Artery: A Comparative Study of Open-Source Fem Solvers**
Alexis Throop[1], Nathan Sudbury[1], Lucas Timmins[2], Hediyeh Baradaran[1], Jeffery Weiss[1], Amirhossein Arzani[1]
[1]University of Utah, [2]Texas A&M University

Monday, June 23	Wolf AB	11:30 AM - 1:00 PM

Joint Biomechanics

Session Chairs: ***Stephanie Cone,*** *University of Delaware*
Luke Mattar, *University of Pittsburgh*

11:30 AM **Stability Contribution of the Linking Component in Total Elbow Arthroplasty**
Alexander Hooke[1], Hiroki Nishikawa[1], Gaku Niitsuma[1], Ausberto Velasquez Garcia[1], Joshua Bland[1], James Fitzsimmons[1], Chunfeng Zhao[1], Mark Morrey[1], Shawn O'driscoll[1]
[1]Mayo Clinic

11:45 AM **In Vitro Force Measurements During Passive Knee Flexion After Simulated Reconstruction of the Anterior Cruciate Ligament – Does the Magnitude of Graft Tensioning Affect Outcomes**
Bryan Medina De La Paz[1], Natalia Mciver[1], Leilani Baker[1], Christina Salas[1]
[1]The University of New Mexico

12:00 PM **Impact of Sagittal Slope Reducing High Tibial Osteotomy Versus Lateral Extra-articular Tenodesis on ACL Force in Knees with Increased Lateral Tibial Slope: A Biomechanical Computational Study**
Reza Pourmodheji[1], Mark Amirtharaj[1], Matthieu Olivier[2], Thomas Wickiewicz[1], Andrew Pearle[1], Danyal Nawabi[1], Carl Imhauser[1]
[1]Hospital for Special Surgery, [2]Aix-Marseille University

12:15 PM **In-Vivo Joint Dynamics Conserve the Compression and Recovery Responses of Cartilage in Cadaveric Joints**
Tejus Surendran[1], Axel Moore[1]
[1]Carnegie Mellon University

12:30 PM **Spring Ligament Reconstruction for Flatfoot Repair: A Biomechanical Comparison of Two Techniques**
Hui Zhang[1], Mahant Malempati[1], Maksat Idris[1], Bonnie Chien[1], Thomas Gardner[1], Justin Greisberg[1]
[1]Columbia University

12:45 PM **Low Bone Mineral Density Correlates to an Increased Risk of Bone Failure Under Tka Tibial Implants**
Clarisse Zigan[1], Peter Sculco[1], Cynthia Kahlenberg[1], Joseph Lipman[1], Timothy Wright[1], David Mayman[1], Jonathan Vigdorchik[1], Eytan Debbi[1], Fernando Quevedo Gonzalez[1]
[1]Hospital for Special Surgery

Monday, June 23	Eagle A	11:30 AM - 1:00 PM

Novel Computational Approaches and Protective Devices

Session Chairs: ***David Camarillo,*** *Stanford University*
Sara Moshage, *Exponent*

11:30 AM **Multi-Sport Evaluation of Concussion Risk via Instrumented Mouthguard Kinematics**
Jessica Towns[1], David Camarillo[1]
[1]Stanford University

11:45 AM **Determining Body Segment Inertial Properties from Tomographic Imaging**
Aaron Henry[1], Carson Benner[1], Annabelle Helin[1], Bailee Covan[1], Dana Gaddy[1], Larry Suva[1], Andrew Robbins[2]
[1]Texas A&M University, [2]University of Texas at Tyler

12:00 PM **Surrogate Modeling Technique for Complex Finite Element Models**
Lance Frazer[1], Vivek Kote[1], Zach Hostetler[2], Matt Davis[2], Dan Nicolella[1]
[1]Southwest Research Institute, [2]Elemance, LLC

12:15 PM **Performance Analysis of Two-Layered Motorcycle Helmets with Varying Foam Densities at Impact Speeds of 6 (M/s) and 3 (M/s)**
Shabnam Rahimnezhad[1], Javad Marzbanrad[2]
[1]Pennsylvania State University, [2]Iran university of science and Technology

12:30 PM **Phase Change Material Based Numerical Model of a Head Cooling System for Firefighters**
Nabin Khanal[1], Rupak K. Banerjee[1]
[1]University of Cincinnati

12:45 PM **A Novel, 3-D Force Measuring Insole for 'In the Wild' Gait Analysis**
Seth Siemens[1], Ember Krech[2], Nicolas Philipp[1], Andrew Fry[1], Benjamin Abell[1], Stephen Houston[2], Lance Frazer[3], Tylan Templin[3], Travis Eliason[3], Nathan Louis[3], Jonathan Miller[1]
[1]The University of Kansas, [2]Axioforce, [3]Southwest Research Institute

Monday, June 23	Eagle B	11:30 AM - 1:00 PM

Biotransport: Nano and Micro

Session Chairs: ***Sihong Wang,*** *The City College of New York*
Li Zhan, *Purdue University*

11:30 AM **Development of a Vascularized 3D Microfluidic Platform to Investigate Lymphovascular Space Invasion and Tumor-Vessel Interactions in Inflammatory Breast Cancer**
Marissa Nichole Rylander[1], Wendy Woodward[2], Bisrat Debeb[2], Melika Mehrabi Dehdezi[1]
[1]The University of Texas at Austin, [2]University of Texas MD Anderson Cancer Center

11:45 AM **Elastin Collagen Nanovesicles - a Novel Platform for Collagen Targeting and Controlled Drug Delivery**
Ann Thomas[1], Sanjna Rao[1], Kristi Kiick[1], Christopher Price[1]
[1]University of Delaware

12:00 PM **Investigating Cardiac Strain and Glycocalyx Modifications as Biomarkers of Cardiotoxicity**
Kelsey Buonodono[1], Manuel Sanchez[2], Roberto Ribas[2], Ramon Sun[2], Colleen Crouch[1]
[1]University of Tennessee, [2]University of Florida

12:15 PM **Electrospun Nanofibers for Controlled Drug Delivery of Antioxidants Towards Treatment of Myocardial Infarction**
Mason Ferbert[1], Frances Imarhia[2], Zakhar Lyakhovych[2], Amy Oh[2], Jane Albro[2], Rayane Teixeira[2], Rajeev Kant[2], Peter Wipf[3], Ruhul Abid[2], Sankha Bhowmick[1]
[1]University of Massachusetts Dartmouth, [2]Brown University, [3]University of Pittsburgh

12:30 PM **Development of a Dual-Gel Microfluidic Device with Spatially Configurable Co-Culture**
Malgorzata Dwulat[1], Sihong Wang[1], Jing Fan[1]
[1]The City College of New York

12:45 PM **Microphysiological System of Neuroinflammation at Blood-Brain-Interface**
Ali Akalin[1], S. Choi[1], N. Ospina-Munoz[1], H. Gwak[1], S. Kang[1], M. Luo[1], Y. Chang[2], X. Bao[2], A. Wolberg[1], M. Gillette[1], H. Kong[1], Bumsoo Han[1]
[1]University of Illinois at Urbana-Champaign
[2]Purdue University

Tuesday, June 24	Tamaya A	8:00 AM - 9:30 AM

Emerging Topics in Experimental Biomechanics and Mechanobiology

Session Chairs: ***Guy Genin,*** *Washington University in St. Louis*
Mona Eskandari, *University of California, Riverside*

8:00 AM **Regionally Varying Active and Passive Biomechanical Properties of the Normal Mouse Colon**
Soto Kubo[1], Chastity Chavez[1], Andrew Glick[1], Nicole Huning[1], Jacopo Ferruzzi[1]
[1]The University of Texas at Dallas

8:15 AM **Exogenous Testosterone Affects Bladder Biomechanics and Mirrors Naturally Occurring Sex Differences**
Jordan Escarcega[1], Eli Broemer[2], Chiho Sugimoto[2], Alfred Robison[2], Michelle Mazei-Robison[2], Nathan Tykocki[2], Sara Roccabianca[1]
[1]Washington University in St. Louis, [2]Michigan State University

8:30 AM **Correlation of Biomechanics and Composition in a Murine Model of Pelvic Organ Prolapse**
Fatemeh Vahidi Zaman[1,2], Triniti Vanoven[1,2], Qinhan Zhou[1], Evelyn Pan[2], Isaac Pence[2], Maria Florian Rodriguez[2], Kristin Miller[1]
[1]University of Texas at Dallas, [2]University of Texas at Southwestern Medical Center

8:45 AM **Effects of Needle Geometry and Insertion Angle on Tympanic Membrane Puncture Behavior and Reaction Forces**
Hossein Mohammadi[1], Nima Maftoon[1]
[1]University of Waterloo

9:00 AM **Collagen Damage in the Retinal Vasculature from Failure and Subfailure Loading**
Rachel Buckley[1], Brittany Coats[1]
[1]University of Utah

9:15 AM **A Threshold for Reversible Strain Rate Softening of Adherent Cells**
Samuel Boland[1], Juan Abrahante[1], Patrick Alford[1]
[1]University of Minnesota

Tuesday, June 24	Tamaya B	8:00 AM - 9:30 AM

Cardiac Biomechanics

Session Chairs: ***Vijay Vedula,*** *Columbia University*
Lik-Chuan Lee, *Michigan State University*

8:00 AM **A Physics-Informed Neural Network for Patient-Specific Left Ventricular Finite Element** Modelling with Image-Consistency and Myocardial Stiffness and Active Tension Estimation
Siyu Mu[1], Wei Xuan Chan[1], Yap Choon Hwai[1]
[1]Imperial College London

8:15 AM **Learning Disease: Feasibility of Modeling of Myocardial Infarction Using a Neural Network Finite Element Approach**
Shruti Motiwale[1], Michael Sacks[1]
[1]The University of Texas at Austin

8:30 AM **Personalized Cardiac Mechanics: Evaluating Diffusion Tensor Imaging and Rule-Based Methods for Cardiomyocyte Orientation**
Devin Seyler[1], Aaron Brown[1], Tyler Cork[1], Daniel Ennis[1], Alison Marsden[1]
[1]Stanford University

8:45 AM **The Impact of Right Ventricular Fiber Re-Orientation on Inter-Ventricular Mechanical Energy Transfer: A Numerical Study**
Mengqian Zhang[1], Vitaly Oleg Kheyfets[1], Kurt Stenmark[1], Helena Adele Turton[2], Edda Spiekerkoetter[2], Sue Gu[1], Kenzo Ichimura[3]
[1]University of Colorado Anschutz Medical Campus, [2]Stanford University, [3]University of Cincinnati College of Medicine

9:00 AM **Cardiac Digital Twins for Hypertrophic Obstructive Cardiomyopathy: The Role of Epicardial Boundary Conditions and Myocardial Fibrosis**
Hannah Haider[1], Nathasha Thalpaguruge[1], Yu Hohri[1], Lei Shi[2], Jay Leb[1], Hiroo Takayama[1], Vijay Vedula[1]
[1]Columbia University, [2]Kennesaw State University

9:15 AM **Optimizing Curve Fitting for Rate-Dependent Soft Hydrated Tissues: A Case Study in Blood Clot Mechanics**
Jose Monclova[1], Keefe Manning[1], Francesco Costanzo[1]
[1]Pennsylvania State University

Tuesday, June 24	Tamaya C	8:00 AM - 9:30 AM

Special session: Cancer Mechanobiology

Session Chairs: ***Jacopo Ferruzzi,*** *The University of Texas at Dallas*
Jeremiah Zartman, *University of Notre Dame*

8:00 AM **Metabolic Profiling of Compressed Stromal Cells in the Breast Peritumor**
Julian Najera[1], Hao Chen[1], Scott Howard[1], Meenal Datta[1]
[1]*University of Notre Dame*

8:15 AM **Mechanical Strain Drives Changes in Migration and Proliferation in Triple Negative Breast Cancer**
Shalarria Cooper[1], Michael Knight[1]
[1]*The University of Alabama at Birmingham*

8:30 AM **Stromal Remodeling and Tissue Stiffening are Linked to Increased Epithelial Mechanosensing and Proliferation in Early Onset Colorectal Cancer**
Jacocpo Ferruzzi[1]
[1]*University of Texas at Dallas*

8:45 AM **Mechanosensitive Cancer Cells Active Long-Distance Intercellular Calcium Communications to Enhance Tumor Invasion and Growth**
Chenyu Liang[1], Xin Tang[1]
[1]*University of Florida*

9:00 AM **Shining light on Calcium-Mediated Growth Conrol and Tumor Progression with Optogenetics**
Jeremiah Zartman[1]
[1]*University of Note Dame*

9:15 AM **Dynamic Biomaterials to Elucidate Vasculogenic Mimicry witin Tumor Microenvironment**
Donny Hanjaya-Putra[1]
[1]*University of Note Dame*

Tuesday, June 24	Puma AB	8:00 AM - 9:30 AM

Investigating Heart Valves and Vascular Flow: Experimental and Computational Advances

Session Chairs: ***Hoda Hatoum,*** *Michigan Technological University*
Vrishank Raghav, *Auburn University*

8:00 AM **Diastolic Hemodynamic Responses of the Human Mitral Valve Following Transcatheter Edge-to-Edge Repair**
Keon Ho Kim[1], Ashton Corpuz[2], Natalie Simonian[1], Ming-Chen Hsu[2], Michael Sacks[1]
[1]The University of Texas at Austin, [2]Iowa State University

8:15 AM **Determining Cut-Off Values of the Aortic Valve Coefficient (AVC) as a Novel Index for Improved Assessment of Aortic Stenosis Severity: A Prospective Study**
Shreyash Milind Manegaonkar[1], Mohamed A. Effat[1], Marepalli B. Rao[1], Rishi Sukhija[1], Rupak K. Banerjee[1]
[1]University of Cincinnati

8:30 AM **Fluid-Structure Interaction Analysis of Repaired Ascending Aorta with Preserved Aortic Valve**
Hannah Zhai[1], Yurui Chen[1], Yu Hohri[1], Hiroo Takayama[1], Vijay Vedula[1]
[1]Columbia University

8:45 AM **Design and Implementation of a Cerebral Aneurysm Rupture Phantom**
Anna Mellin[1], Caden Adams[1], Amanda Ortiz-Velazquez [1], Kathryn Nelson[1], Rahul Raju Srinivasa Raju[1], Zhongwang Dou[1]
[1]Northern Arizona University

9:00 AM **In-Vitro Model of Peripheral Blood Vessels for Pressure Waveform Analysis and Medical Device Testing**
Cassidy Caffin[1], Breeanna Scott[1], Sam Stephens[1], Robert Saunders[1], Jingxian Wu[1], Hanna Jensen[1], Kevin Sexton[2], Morten Jensen[1]
[1]University of Arkansas, [2]Vanderbilt University Medical Center

9:15 AM **Ex Vivo Pulse Wave Velocity Measurement from Wavelength Rather Than Pulse Arrival Time: Feasibility Studies**
Jason Franzman[1], Joshua Do[1], Manali Rajendra Kulkarni[1], John-Paul Heinzen[1], Hadi Wiputra[1], Victor Barocas[1]
[1]University of Minnesota

Tuesday, June 24	Eagle A	8:00 AM - 9:30 AM

Clinical Translational Impacts to Improve Human Mobility

Session Chairs: ***Rita Patterson,*** *University of North Texas*
Antonia Zaferiou, *Stevens Institute of Technology*

8:00 AM **Utilizing Technology and AI Approaches to Facilitate Independence and Resilience in Older Adults**
Rita Patterson[1], Kathlene Camp[1], Ethan Bond[1], Zachary Dashner[1], Alexander Lovrien[1], Kimberly Fulda[1], Anna Espinoza[1], Shawn Kennedy[1], Guna Sindhuja Siripurapu[1], Haoxuan Zhang[1], Ting Xiao[1], Mark Albert[1]
[1]University of North Texas

8:15 AM **Lower-Limb Joint Kinetics of Healthy Older Adults in 90-Degree Walking Turns**
Erin Kreis[1], Zahava Hirsch[1], Jun Liu[1], Antonia Zaferiou[1]
[1]Stevens Institute of Technology

8:30 AM **Functional Assessment of an Ergonomic Backpack Compared to a Traditional Backpack During Walking**
Denis J. DiAngelo[1], Lyndsey Bouve[1]
[1]The University of Tennessee Health Science Center

8:45 AM **Can Spatiotemporal Full Body Motion Quality Differentiate Underlying Pain Mechanisms in Chronic Low Back Pain?**
Erin Archibeck[1], Grace O'connell[1], Jeannie Bailey[2]
[1]University of California, Berkeley, [2]University of California, San Francisco

9:00 AM **Improving ACL Graft Placement: A Kinematic Method for Knee Center of Rotation Determination to Be Used in Robotic Surgery**
Rocci Trumper[1], Kirk Mcgilvray[2]
[1]Orthopaedic & Spine Center of The Rockies, [2]Colorado State University

9:15 AM **A Sliding Articular Cartilage Testing System for Evaluation of Rolling Versus Sliding Spatial Profiles**
Vincent Sise[1], Suzanne Maher[1], Tony Chen[1]
[1]Hospital for Special Surgery

Tuesday, June 24	Eagle B	8:00 AM - 9:30 AM

Head & Injury II

Session Chairs: ***Mehmet Kurt,*** *University of Washington*
Ahmed Alshareef, *University of South Carolina*

8:00 AM **Expression of Injury Biomarkers in Avulsed Neonatal Brachial Plexus**
Gautam Moon[1], Baishakhi Mahapatra[2], Anita Singh[1], R.K. Singh[1,2]
[1]Temple University, [2]Banaras Hindu University

8:15 AM **Protective Capabilities of Recreational Sports Helmets in Blunt Impacts to the Upper Face**
Lenka Stepan[1], Alexander Horst[1], Garrett Porter[1], Tyler Shaw[2], Irving Scher[2]
[1]Guidance Engineering and Applied Research

8:30 AM **Precise Identification of Hyperelastic Material Parameters Through Optimal Experiment**
Amirreza Asadi[1], Kaveh Laksari[1]
[1]University of California, Riverside

8:45 AM **Data-Driven Discovery of Reduced-Order Models in Brain Biomechanics**
Amir Hossein Ghorbanpour Arani[1], Ahmed Alshareef[2], Ruth Okamoto[1], Philip Bayly[1]
[1]Washington University in St. Louis, [2]University of South Carolina

9:00 AM **A Biomechanical Analysis of Infant Head Trauma: Madymo Modeling of a Fall Resulting in Subdural Hematomas and Retinal Hemorrhages**
Keith D Button[1], Luis Nolasco[1], Yun Cai[1], Brian Weaver[1]
[1]Explico Inc.

9:15 AM **Compression Reduces Synaptic Density and Neuronal Activity Through Activation of Inflammatory and Hypoxia Response Pathways in Neurons and Glia**
Maksym Zarodniuk[1], Anna Wenninger[1], Jihaeng Lee[1], Julian Najera[1], Jack Markillie[1], Bianca Batista[1], Christopher Patzke[1], Meenal Datta[1]
[1]University of Notre Dame

Tuesday, June 24	Tamaya A	11:00 AM - 12:30 PM

PHD SPC: Reproductive Tissue Mechanics, Hormone Regulation of Biomechanical Feature

Session Chairs: ***Jacopo Ferruzzi,*** *The University of Texas at Dallas*
Megan Routzong, *University of California, San Diego*

11:00 AM **Lower Urinary Tract Symptoms: The Prostate or the Bladder?**
Juan Pablo Gonzalez-Pereira [1], Evan Turner[1], Helen Sargeant[1], Wade Bushman[1], Alejandro Roldan-Alzate[1]
[1]University of Wisconsin-Madison

11:15 AM **High-Fat Diet Induces Opposite Myogenic Tone Responses in Female and Male Dahl-Ss Rats**
Dillon Mcclintock[1], Osvaldo J. Vego Rodríguez[2], Lisa Sather[2], Adam Lauver[2], Nathan Tykocki[2], Sara Roccabianca[1]
[1]Washington University in St. Louis, [2]Michigan State University

11:30 AM **Impact of Sex Hormones on Size, Organization, and Mechanics of the Adolescent Porcine Anterior Cruciate Ligament and Potential Mechanisms Through Estrogen Receptors**
Jacob D. Thompson[1,2], Matthew B. Fisher[1,2]
[1]North Carolina State University, [2]University of North Carolina at Chapel Hill

11:45 AM **Postpartum Involution Induces Dynamic Changes in Uterine Biomechanics and Extracellular Matrix Remodeling**
Abigail Fisk[1], Savannah Chatman[1], Niyousha Karbasion[1], John Engelbach[1], Tal Raz[2], Jeffrey Neil[1], Joel Garbow[1], Matthew Bersi[1]
[1]Washington University in St. Louis, [2]The Hebrew University of Jerusalem

12:00 PM **Tensile Properties of Human Uterine Fibroid and Myometrium Tissues**
Daniella Fodera[1], Camilo Duarte-Cordon[1], Arnold Advincula[1], Christine Hendon[1], Kristin Myers[1]
[1]Columbia University

12:15 PM **Multi-Scale, Multi-Modal Analysis of Paraben's Fibrotic Effects on the Murine Uterus**
Mahmuda Arshee[1], Ritwik Shukla[1], Jie Li[1], Umnia Doha[1], Indrani Bagchi[1], Ayelet Ziv-Gal[1], Amy Wagoner Johnson[1]
[1]University of Illinois at Urbana-Champaign

Tuesday, June 24	Tamaya B	11:00 AM - 12:30 PM

PHD SPC: Cardiovascular Mechanics and Mechanobiology

Session Chairs: ***Ana Estrada,*** *Yale University*
Hoda Hatoum, *Michigan Technological University*

11:00 AM **Physiologic Biomechanical Metrics of Mouse Aorta Correlate with Aneurysm Growth in a Mouse Model of Severe Marfan Syndrome**
Yufan Wu[1], Krashn Dwivedi[1], Jacob Rother[1], Jessica Wagenseil[1]
[1]Washington University in St. Louis

11:15 AM **Damage Progression in Cerebral Arteries with Repeated Loading**
Farshid Shojaeianforoud[1], Leonardo Marin[1], Michele Marino[2], Brittany Coats[1], Kenneth Monson[1]
[1]University of Utah, [2]University of Rome Tor Vergata

11:30 AM **Examination of the Focal Association Between ^{3}d Plaque Stress and Coronary Artery Disease Progression in the Clinical Setting**
Caleb Berggren[1], Yasmine Abuelhija[1], David Molony[2], Habib Samady[2], Lucas Timmins[3]
[1]University of Utah, [2]Covanos Inc., [3]Texas A&M University

11:45 AM **From Myocardial Infarction to Heart Failure: Role of Tissue Anisotropy and Its Prediction Through Probabilistic Neural Network**
Sunder Neelakantan[1], Rana Raza Mehdi[1], Qian Xiang[2], Kyle Myers[1], Peter Vanderslice[2], Reza Avazmohammadi[1]
[1]Texas A&M University, [2]Texas Heart Institute

12:00 PM **Reverse Murine Cardiac Remodeling in a Minimally Invasive Model of Pressure Overload Reveals Functional Recovery**
Elnaz Ghajar-Rahimi[1], Thomas Moore-Morris[2], Pierre Sicard[3], Craig Goergen[1]
[1]Purdue University, [2]Institut de Genomique Fonctionnelle, [3]Institut National de la Sante et de la Recherche Medicale

12:15 PM **Ex-Vivo Human Donor Lung Mechanics Are Ventilation Mode Dependent: Positive- Versus Negative-Pressure Ventilation**
Kathrine Quiros[1], Crystal Mariano[1], Matthew Shankel[1], Mona Eskandari[1]
[1]University of California, Riverside

Tuesday, June 24	Tamaya C	11:00 AM - 12:30 PM

PHD SPC: Tissue Engineered In Vitro Models and Cellular Mechanobiology

Session Chairs: ***Alix Deymier,*** *University of Connecticut*
Jill Middendorf, *Johns Hopkins University*

11:00 AM **Lamin Kinetics Govern Macrophage Function in the Tumor Microenvironment**
Yuxuan Huang[1], Alişya Anlaş[2], Michael Tobin[2], Dennis Discher[2]
[1]Washington University in St. Louis, [2]University of Pennsylvania

11:15 AM **Bioenergetic Pathways Regulate Distinct Patterns of Invasion and Extracellular Matrix** Remodeling in Breast Cancer Cells Upon Yap-Taz Activation
Adil Khan[1], Haider Ali[1], Bishant Karki[1], Jacopo Ferruzzi[1]
[1]The University of Texas at Dallas

11:30 AM **Development of a Cerebral Organ-on-a-Chip Model for Identifying Injury Thresholds in Traumatic Brain Injury**
Anthony Baker[1], Natalie Smith[2], Tony Yuan[3], Zane Lybrand[2], Michaelann Tartis[1]
[1]New Mexico Institute of Mining and Technology, [2]Texas Woman's University, [3]Uniformed Services University of the Health Sciences

11:45 AM **3D-Printed Scaffolds with Microtopography Guides Vascular Tissue Organization and Regeneration**
Rao Fu[1], Evan Jones[2], Boyuan Sun[2], Guillermo Ameer[2], Cheng Sun[2], Yonghui Ding[1]
[1]Worcester Polytechnic Institute, [2]Northwestern University

12:00 PM **Spontaneous Calcium Signaling and Cell-Cell Communication in Human Articular Cartilage**
Ying Peng[1], Annie Porter[1], Michael Axe[1], X. Lucas Lu[1]
[1]University of Delaware

12:15 PM **Breaking Down Glycated Collagen Reverses Pulmonary Fibrosis**
Wenyu Kong[1], Meiyue Song[2], Xiangjun Peng[1], Lu Bai[2], Jia'nan Zeng[1], Kaini Liang[1], Yuhong Jin[1], Jiaxin Wang[2], Xue Wang[2], Yuxuan Huang[3], Lyu Zhou[1], Hanxun Jin[3], Yudi Niu[1], Xi-Qiao Feng[1], Chen Wang[2], Guy M. Genin[3], Jing Wang[2], Yanan Du[1]
[1]Tsinghua University, [2]Institute of Basic Medical Sciences Chinese Academy of Medical Sciences, School of Basic Medicine Peking Union Medical College, [3]Washington University in St. Louis

Tuesday, June 24	Puma AB	11:00 AM - 12:30 PM

PHD SPC: Biomechanical Investigations of Tissue Remodeling

Session Chairs: ***Callan Luetkemeyer,*** *University of Illinois Urbana Champaign*
Erin Berlew, *University of Pennsylvania*

11:00 AM **Characterizing Amplified Femtosecond Laser Ablation Within Tendon Extracellular Matrix**
Diane Stonestreet[1], Nelly Andarawis-Puri[1]
[1]*Cornell University*

11:15 AM **Toroidal Indentation for Measuring Cell Mechanical Anisotropy**
Juanyong Li[1], Chaokai Zhang[1], Songbai Ji[1], Kristen Billiar[1]
[1]*Worcester Polytechnic Institute*

11:30 AM **Effect of Microgravity and Mechanical Unloading on Chromatin, Epigenetics, and Tissue Biomechanics**
Kanita Hrustanovic[1], Katie J Sikes[1], Benjamin C Gadomski[1], Susan Bailey[1], Soham Ghosh[1]
[1]*Colorado State University*

11:45 AM **Distortion Energy as a Mechanobiological Driver for Fibroblast Activity and Matrix Remodeling**
Amevi Semodji[1], Dalia Delacruz[1], Samantha Jamison[1], Anamaria Zavala[1], Sean Howard[1], Shaughnessy Murphy[1], Gunes Uzer[1], Trevor Lujan[1]
[1]*Boise State University*

12:00 PM **Mechanosensing in Adipose Stromal Cells Is Dependent Upon Adipose Tissue Origin**
Dakota Kamm[1], Akash Shaji[1], Kathryn Bohnert[1], Jay Keener[1], Amit Pathak[1], Gretchen Meyer[1]
[1]*Washington University in St. Louis*

12:15 PM **Collagen Fiber Micromechanical Properties in Tendon Are Modulated by Hyaluronic Acid**
Hannah Larson[1], Natalie Hawley[1], Olivia Ward[1], Alysse Defoe[1], Jason Burdick[1], Sarah Calve[1]
[1]*University of Colorado Boulder*

Tuesday, June 24	Wolf AB	11:00 AM - 12:30 PM

PHD SPC: Musculoskeletal Biomechanics

Session Chairs: ***Mariana Kersh,*** *University of Illinois Urbana-Champaign*
Nathaniel Dyment, *University of Pennsylvania*

11:00 AM **Evaluation of a Simplified Modeling Approach to Predict Strain in the Cartilage and Labrum of the Hip with Application to Femoroacetabular Impingement Syndrome**
Luke Hudson[1], Lindsay Schuring[1], Brooklyn Vargas[1], Jeffrey Weiss[1], Andrew Anderson[1]
[1]University of Utah

11:15 AM **Adaptive vs Degenerative Tendon Response to Overload Is Duration and Age Dependent**
Lily Lin[1], Rita Marqueti[2], Hailey Bonelli[1], Justin Parreno[1], Karin Silbernagel[1], Dawn Elliott[1]
[1]University of Delaware, [2]University of Brasilia

11:30 AM **Advancing Healing Assessments of Femoral Fractures Through a Subject-Specific Finite Element Approach**
Farhan Muhib[1], Kylie Williams[2], Robert Guldberg[3], Jeffrey Weiss[1]
[1]University of Utah, [2]Penderia Technologies, [3]University of Oregon

11:45 AM **Characterizing Meniscal Wear Behavior: Influence of Cross-Shear and Loading Magnitude**
Kate Benfield[1], Katherine Fors[1], Trevor Black[1], Gigi Brandes[1], Karlee Macaw[1], Trevor Lujan[1]
[1]Boise State University

12:00 PM **Mechanical Hyperalgesia Threshold Changes Over Time in a Rat Model of Post Traumatic Elbow Contracture**
Rebecca Reals[1], Ryan Castile[1], Alexander Gadin[1], Benjamin Zmistowski[1], Spencer Lake[1]
[1]Washington University in St. Louis

12:15 PM **Passive Autoregulation of Blood Flow in the Lamina Cribrosa**
Qi Tian[1], Yuankai Lu[1], Bingrui Wang[1], Susannah Waxman[1], Ian Sigal[1]
[1]University of Pittsburgh

Tuesday, June 24	Eagle A	11:00 AM - 12:30 PM

PHD SPC: Biotransport and Modeling Systems

Session Chairs: ***Debanjan Mukherjee,*** *University of Colorado Boulder*
Fatemeh Esmailie, *University of North Texas*

11:00 AM **Mechano-Lysis in Whole Blood Clots: On How Mechanics Affect Clot Lysis, and How Lysis Affects Clot Mechanics**
Grace Bechtel[1], Gabriella Sugerman[1], Tatum Eades[1], Sapun Parekh[1], Manuel Rausch[1]
[1]The University of Texas at Austin

11:15 AM **Voltage-Controlled Electroporation Enhances Drug Uptake in Vascular Tissue and Smooth Muscle Cells**
Devaughn Rucker[1], John Cashin[1], Sophia Pyeatte[1], Maxwell Braasch[1], Christian Zemlin[1], Guy Genin[1], Mohamed Zayed[1]
[1]Washington University in St. Louis

11:30 AM **Experimental Stent Retriever Forces in a Tortuous Model of Acute Ischemic Stroke**
Demitria Poulos[1], Michael Froehler[2], Bryan Good[1]
[1]University of Tennessee, [2]Vanderbilt University Medical Center

11:45 AM **Advancing Shape Memory Polymer Metamaterials for the Effective Treatment of Complex, Irregular Intracranial Aneurysms**
Tanner Cabaniss[1], Yingtao Liu[1], Bradley Bohnstedt[2], Chung-Hao Lee[3]
[1]The University of Oklahoma, [2]Indiana University School of Medicine, The University of California, Riverside

12:00 PM **Is Frequency Analysis the Key to Untangling Ascending Thoracic Aortic Aneurysm Growth and Stiffening with 0D Modeling?**
Lily Watkins[1], Victor Barocas[1]
[1]University of Minnesota

12:15 PM **The Impact of Proteoglycan Degradation and Fragmentation on T1rho Relaxation Times**
Joanna Veres[1], Noah Bonnheim[2], Aaron Fields[2]
[1]University of California, Berkeley, [2]University of California, San Francisco

Wednesday, June 25	Eagle A	10:00 AM – 11:30 AM

Undergraduate Design Competition

Session Chairs: ***Anita Singh,*** *Temple University*

10:00 AM **Manufacturing Rigidity Controlled Catheters for Endovascular Procedures**
Sheridan Lee[1], Michael Y. Qiu[1], Juan Becerra-Garcia[1], DeVaughn B. Rucker[1], Joshua Osbun[1], Mohammed A. Zayed[1], Guy M. Genin[1]
[1]Washington University in St. Louis

10:15 AM **Kneefit: Smart Adaptive Compression Technology and Companion App for Enhanced Knee Rehabilitation and Support**
Alina Gammage[1], Kathleen Dyment[1], Christopher Chong[1], Clea Baylis[1], Daniel Mason[1], Natasha Anderson[1]
[1]Queen's Biomedical Innovation Team

10:30 AM **Thermal and Moisture Management in Prosthetic Limb Sockets**
Ronald Fulton[1], Walker Barrick[1], Daniel Ehresman[1]
[1]Pennsylvania State University

10:45 AM **A Serious Gaming Platform for the Nintendo Switch**
Isaac Rutter[1], Daniel Cantu[1], Hayley Durant[1], Nicolas Brodsky[1]
[1]Ohio Northern University

11:00 AM **Assistive Reach Mechanism: Advancing Above-Elbow Prosthetics with Patient-Centric and Open-Source Designs**
Emese Elkind[1], Noah Learned[1], Lauren Windover[1], Alina Gammage[1], Cole Mccauley[1], Kyla Wisener[1], Max Wolkoff[1]
[1]*Queen's Biomedical Innovation Team*

11:15 AM **Breasy: A Low-Cost Oscillating Vest for Accessible Respiratory Care**
Lauren Windover[1], Amna Hasnain[1], Bianca Wilks[1], Anastasia Tumanov[1], Brooke Macneil[1], Nadia Bastasic[1]
[1]Queen's Biomedical Innovation Team

Wednesday, June 25	Tamaya A	2:15 PM - 3:45 PM

Multiscale Mechanics I: Nano to Tissue

Session Chairs: ***Matthew Bersi,*** *Washington University in St. Louis*
Arina Korneva, *Virginia Tech*

2:15 PM **Establishing Methods for Analyzing 3D Reconstruction, Geometry and Structure of Tendon Fibrils**
Jamie Benson[1]
[1]*University of Delaware*

2:30 PM **Multiscale Biomechanical Properties of Murine Intervertebral Discs Are Altered with Aging**
Leonardo Campos[1], Mark Kim[1], Hagar Kenawy[1], Clark Hung[1], Nadeen Chahine[1]
[1]*Columbia University*

2:45 PM **3D Micromechanical Simulations of Electrospun Meshes for Organ Replacement**
Evan He[1], Shruti Motiwale[1], Elizabeth Cosgriff- Hernandez[1], Michael Sacks[1]
[1]*The University of Texas at Austin*

3:00 PM **Cell-ECM Feedback Results in Spontaneous Cell Polarization and ECM Alignment in 3D Discrete-Fiber Models of Cell Remodeling**
Adam Ley[1], Sabin Adhikari[1], Kevin Dorfman[1], Victor Barocas[1]
[1]*University of Minnesota*

3:15 PM **Biphasic Mechanoregulation of Cell-ECM Interactions in 3D Nanoarchitectures**
Kailin Chen[1], Alexander Bolanos Campos[1], Mistica Lozano Perez[1], Erin Berlew[1], Ran Tao[1], Arnold Mathijssen[1], Julia Greer[2], Joel Boerckel[1], Alessandro Maggi[2], Ottman Tertuliano[1]
[1]*University of Pennsylvania,* [2]*California Institute of Technology*

3:30 PM **Ventilator-Induced Lung Injury in Rats Using Multiscale Characterization**
Matthew Shankel[1], Mona Eskandari[1]
[1]*University of California, Riverside*

Wednesday, June 25	Tamaya B	2:15 PM - 3:45 PM

Heart Valve Biomechanics

Session Chairs: ***Gediminas Gaidulis,*** *The University of Memphis*
Michael Sacks, *The University of Texas at Austin*

2:15 PM **Comparison Between Pre-Transcatheter Aortic Valve Replacement Computational Modeling Derived Geometric Predictors of Leaflet Thrombosis in Balloon and Self-Expandable Valves**
Aniket Venkatesh[1], Noah Tregobov[2], Marco Moscarelli[3], Katelynne Berland[1], Breandan Yeats[1], Khalil Fattouch[3], Stephanie Sellers[2], Lakshmi Dasi[1]
[1]Georgia Institute of Technology, [2]St. Paul's Hospital, [3]Maria Eleonora Hospital

2:30 PM **Transcatheter Tricuspid Repair Simulations Are Highly Sensitive to Boundary Conditions**
Collin Haese[1], Vijay Dubey[1], Mrudang Mathur[1], Alison Pouch[2], Tomasz Timek[3], Manuel Rausch[1]
[1]The University of Texas at Austin, [2]University of Pennsylvania, [3]Corewell Health

2:45 PM **Functional Chordal Structure Optimization for Predictive Leaflet Biomechanics in Image-Derived Heart Valve Simulations**
Justin Unger[1], Devin Laurence[1], Nicolas Mangine[1], Wensi Wu[2], Steve Maas[3], Jeffrey Weiss[3], Matthew Jolley[1]
[1]Children's Hospital of Philadelphia, [2]University of Pennsylvania, [3]University of Utah

3:00 PM **Evaluating the Pinwheeling Index as a Surrogate for Accelerated Leaflet Degeneration in Transcatheter Heart Valves**
Dong Qiu[1], Ali Azadani[1]
[1]University of Denver

3:15 PM **First Evidence of Mitral Valve Leaflet Tissue Plasticity Following Transcatheter Edge-to-Edge Repair in Humans**
Natalie Simonian[1], Carina Gipson[1], Neha Palsikar[1], Nivin Sunesh[1], Sneha Vakamudi[2], Mark Pirwitz[2], Robert Gorman[3], Michael Sacks[1]
[1]The University of Texas at Austin, [2]Ascension Texas Cardiovascular, [3]Gorman-Gillespe Structural Heart

3:30 PM **In Vitro Biomechanical Examination of Excised Calcified Aortic Leaflet Tissue for Material Property Assessment and Improved in Silico Tavr Modeling**
Kyle Baylous[1], Salwa Anam[1], Brandon Kovarovic[1], Marvin Slepian[2], Danny Bluestein[1]
[1]Stony Brook University, [2]The University of Arizona

Wednesday, June 25	Tamaya C	2:15 PM - 3:45 PM

Tissue Regeneration, Engineered Replacements, and Emerging Topics in TCE

Session Chairs: ***Jacopo Ferruzzi,*** *The University of Texas at Dallas*
Matthew Fisher, *North Carolina State University & University of North Carolina at Chapel Hill*

2:15 PM **Biofunctionalized Vascular Access Graft Improves Patency and Endothelialization in a Porcine Arteriovenous Model**
Aurora Battistella[1], Morgan Linger[1], Uni Uriyanghai[2], Gang Xi[2], Christine Wai[2], Prabir Roy Chaudhury[2], Wei Tan[1]
[1]University of Colorado at Boulder, [2]University of North Carolina at Chapel Hill

2:30 PM **3D Regeneration of Functional Lung Airway Epithelium: A Platform for Monitoring Mucociliary Clearance and Drug Responses**
Hoyeol Kim[1], Makayla Roberts[1], Sujung Yi[1], Kathryn A. Wikenheiser-Brokamp[2], Anjaparavanda P. Naren[1], Kyu Shik Mun[1]
[1]Cedars-Sinai Medical Center, [2]Cincinnati Children's Hospital Medical Center

2:45 PM **A High Strength Composite Hydrogel for TMJ Disc Replacement**
Hassan Mahmoud[1], Anton Pavlov[1], Christian Puttlitz[1], Kevin Labus[1]
[1]Colorado State University

3:00 PM **Extracellular Matrix-Derived Flowable Biomaterials for Tissue Augmentation**
Olivia Tonti[1], Corey Neu[1]
[1]University of Colorado Boulder

3:15 PM **Mutlicell-Fold: Folding Multicellular Life with Geometric Deep Learning**
Markus Buehler[1], Ming Guo[1]
[1]Massachusetts Institute of Technology

3:30 PM **Soluble Inflammatory Factor Transport Drives Inflammatory Aggregation in an in Silico Model of Cerebral Aneurysm**
Ruskin Shi[1], Hadi Wiputra[1], Jesse Williams[1], Victor Barocas[1]
[1]University of Minnesota

Wednesday, June 25	Puma AB	2:15 PM - 3:45 PM

Cutting-Edge Approaches in Cardiovascular Biofluid Mechanics

Session Chairs: ***Hannah Cebull,*** *Emory University*
Karthik Menon, *Georgia Institute of Technology*

2:15 PM **Multi-Patient Computational Analysis of Type B Aortic Dissections**
Jiaqi Yang[1]
[1]Emory University

2:30 PM **Non-Invasive Measurement of Microcirculatory Resistance (Imr) Using Fractional Myocardial Blood Volume in Ischemic Heart Disease**
Arutyun Pogosyan[1], Jesse Currier[1], Amirhossein Arzani[2], Kim- Lien Nguyen[1]
[1]University of California, Los Angeles, [2]University of Utah

2:45 PM **Optimization of Pre-Operative Transposition of the Great Arteries Care Strategies Utilizing Mathematical Modeling**
Madisyn Messmore[1], Alain Kassab[1], William Decampli[2]
[1]University of Central Florida, [2]Orlando Health Arnold Palmer Hospital for Children

3:00 PM **Temporal Deconvolution of 4D Flow MRI Velocity Field**
Mohammadreza Balouchestani[1], Sean Rothenberger[1], Vitaliy Rayz[1]
[1]Purdue University

3:15 PM **A Machine Learning Framework for Coronary Microvascular Health Assessment**
Haizhou Yang[1], Jiyang Zhang[2], Ismael Assi[3], Brahmajee Nallamothu[1], Krishna Garikipati[4], C. Alberto Figueroa[1]
[1]University of Michigan, [2]Sichuan University, [3]University of Cincinnati, [4]University of Southern California

3:30 PM **Association of Hemodynamics and Plaque Morphology with Decision for Surgical Repair of Internal Carotid Artery Stenosis**
Drew Braet[1], Meng Lu[2], Vivek Dandu[1], Siddhant Ranjane[1], Hsu- Lei Lee[2], Yibin Xie[2], C. Alberto Figueroa[1]
[1]University of Michigan, [2]Cedars-Sinai Medical Center

Wednesday, June 25	Wolf AB	2:15 PM - 3:45 PM

Soft Tissue Mechanics

Session Chairs: ***Soham Ghosh,*** *Colorado State University*
David Pierce, *University of Connecticut*

2:15 PM **Regional Changes to the Knee Meniscus Occur Earlier Than Whole Tissue Changes After Anterior Cruciate Ligament Injury in a Juvenile Porcine Model**
Margaret Elizabeth Easson[1,2], Jacob Thompson[1,2], Danielle Howe[1,2], Rachel Morris[1,2], Elizabeth Keeley[1,2], Lauren Schnabel[1], Jeffrey Spang[2], Matthew Fisher[1,2]
[1]North Carolina State University, [2]University of North Carolina at Chapel Hill

2:30 PM **Emergent Cell Subpopulations and Time-Evolving Biophysical Cues in the Developing Porcine Meniscus**
Meghan Kupratis[1], Jiaqi Xiang[2], Kevin Burt[1], Yuqi Zhang[1], Bryan Kwok[2], Sara Tufa[3], Douglas Keene[3], Nathaniel Dyment[1], Lin Han[2], Eiki Koyama[4], Robert Mauck[1]
[1]University of Pennsylvania, [2]Drexel University, [3]Shriners Children's Portland, [4]The Children's Hospital of Philadelphia

2:45 PM **Comparative Analysis of Magnetic Force to Design Fiber Alignment in Neuron-Collagen Constructs: Mechanical Properties & Neuronal Responses to Failure Loading**
Chang Wang[1], Prabesh Ghimire[1], Esther Appiah[1], Beth A. Winkelstein[1]
[1]University of Pennsylvania

3:00 PM **Determining the Changes in Gluteal Muscle Force Requirements After Gluteus Maximus Tendon Transfer for Hip Abductor Insufficiency**
Madison Wissman[1], Cecilia Pascual Garrido[1], Michael Harris[1]
[1]Washington University in St. Louis

3:15 PM **Elastohydrodynamic Lubrication at Last - Modulation of Cartilage Superlubricity by Tissue Properties**
Emily Lambeth[1], Tanmayee Joshi[1], Kayla Siciliano[1], Elise Corbin[1], David Burris[1], Christopher Price[1]
[1]University of Delaware

3:30 PM **Function-Structure Correlation of Temporomandibular Joint Cartilage**
Annie Porter[1], Ying Peng[1], Michael Santare[1], Lin Han[2], John Peloquin[1], X. Lucas Lu[1]
[1]University of Delaware, [2]Drexel University

Wednesday, June 25	Eagle A	2:15 PM - 3:45 PM

Cancer Mechanics and Microfluidics

Session Chairs: ***Maria Holland,*** *University of Notre Dame*
Donny Hanjaya-Putra, *University of Notre Dame*

2:15 PM **DNA Origami-Cyanine Nanocomplex for Precision Imaging of Kras-Mutant Pancreatic Cancer Cells**
Hye- Ran Moon[1], Sae Rome Choi[2], Seongmin Seo[1], Jong Hyun Choi[1], Bumsoo Han[1]
[1]Purdue University, [2] University of Illinois at Urbana-Champaign

2:30 PM **A Microfluidic Device to Assess Endothelial Cell Stimulus-Specific Response to Multidirectional Wall Shear Stress**
Kevin Moore[1], Yuki Bao[1], David Holdsworth[1], Geoffrey Pickering[1], Tamie Poepping[1]
[1]Western University

2:45 PM **A Novel Microfluidic-Based Lateral Diffusion Assay for Quantifying Intracellular Kinase Activity in Metastatic Breast Cancer Cells in Response to Spatial Growth Factor Gradients**
Brendan Fuller[1], Travis Jones[1], Jonathan Song[1]
[1]The Ohio State University

3:00 PM **A Novel Diffusion Tensor Based Three-Dimensional Constitutive Model for Human Breast Tissue**
Michael Sacks[1], Benjamin Thomas[1]
[1]The University of Texas At Austin

3:15 PM **Heparan Sulfate on Vascular Endothelial Cells Collaborates with Endothelin B Receptor to Enhance Endothelin-1 Synthesis**
Camden Holm[1], Son Nguyen[1], Solomon Mensah[1]
[1]Worcester Polytechnic Institute

3:30 PM **Mechanical- and Microgravity-Based Approaches to Better Model Immunomechanics and Mechano-Immunology in the Glioblastoma Microenvironment**
Alice Burchett[1], Hao Chen[1], Maksym Zarodniuk[1], Fionn Lay[1], Ina Satpathy[1], Anya Zhao[2], Karyme Hernández Torrens[3], Haley Marco[1], Maria Mendes[1], Julian Najera[1], Shelby Giza[4], Jason Rexroat[4], Paul Kuehl[4], Twyman Clements[4], Scott Howard[1], Meenal Datta[1]
[1]University of Notre Dame, [2]Smith College, [3]University of Puerto Rico at Mayagüez, [4]Space Tango

Wednesday, June 25	Eagle B	2:15 PM - 3:45 PM

Biotransport: Computational Modeling

Session Chairs: ***Christopher Rylander,*** *The University of Texas at Austin*
Fateme Esmailie, *University of North Texas*

2:15 PM **Computational Modeling of Pulsed Field Ablation for Pulmonary Vein Isolation**
Ashkan Bagherzadeh[1], Tony Gao[1], Lik-Chuan Lee[1]
[1]Michigan State University

2:30 PM **Model Predictive Control to Minimize Eddy Current Heating for Magnetic Nanoparticle Hyperthermia**
Anilcahndra Attaluri[1], Shreeniket Pawar[1], Ma'moun Abu-Ayyad[1], Herschel Pangborn[2]
[1]Penn State Harrisburg, [2]Penn State University

2:45 PM **Towards the Determination of the Impacts of the Geometric Parameters of a Stepped Catheter on Backflow During Infusion into an Agarose Gel**
William Gallie[1], Joshua Smith[1]
[1]Lafayette College

3:00 PM **An Image-Based 3D Biphasic Computational Model of the Human Brain**
Isabel Rivera Santiago[1], Prabhu Acharya[2], James R. Ewing[3], Hassan Bagher-Ebadian[3], Malisa Sarntinoranont[1]
[1]University of Florida, [2]Oakland University, [3]Henry Ford Hospital

3:15 PM **Advanced Computational Models for Nanoparticles Targeting Bacterial Membranes**
Danh Nguyen[1], Swagata Bhattacharya[2], Yan Yu[2], Ying Li[1]
[1]University of Wisconsin-Madison
[2]Indiana University, Bloomington

3:30 PM **Combined Laser Interstitial Thermal Therapy and Interstitial-Photodynamic Therapy for Enhanced Tumor Ablation**
Anilchandra Attaluri[1], Yash Lad[1], Emily Gawrys[2], Gal Shafirstein[2]
[1]Pennsylvania State University, [2]Roswell Park Comprehensive Cancer Center

Wednesday, June 25	Tamaya A	4:00 PM - 5:30 PM

Multiscale Mechanics II: Nano to Tissue

Session Chairs: ***Daniel Cortes,*** *Pennsylvania State University*
Natasha Case, *St. Louis University*

4:00 PM **Using Gravitational Permeation to Measure Tissue Hydraulic Permeability at Low Pressures and High Fluid Fluxes**
Kimberly Kroupa[1], Raphael Kepecs[1], Haoyu Zhang[1], Clark Hung[1], Gerard Ateshian[1]
[1]Columbia University

4:15 PM **Mesoscale Brain Model Mesh Convergence and Impact on Axonal Strain at the Gray-White Matter Interface**
Nan Lin[1], Wei Zhao[1], Songbai Ji[1]
[1]Worcester Polytechnic Institute

4:30 PM **The Breathing Strains of Artificially and Physiologically Ventilated Human Cadaveric Lungs**
Crystal Mariano[1], Kathrine Quiros[1], Mona Eskandari[1]
[1]University of California, Riverside

4:45 PM **Isolated Effects of Loading Conditions on Left Ventricular and Aortic Functions: Insights from Ex-Vivo Beating Heart Experiments**
Chenghan Cai[1,2], Lei Fan[1,2]
[1]Marquette University, [2]Medical College of Wisconsin

5:00 PM **Prediction of Aneurysm Rupture Location Using a Multiscale Discrete Fiber Model Incorporating Microstructural Data**
Yashar Ebadi[1], Sergio Pineda-Castillo[1], Elizabeth Shih[1], Ryan Mahutga[1], Victor Barocas[1], Andrew Grande[1], Patrick Alford[1]
[1]University of Minnesota

5:15 PM **In Search of Pulse-Induced Peristaltic Strains Along Axons Within the Optic Nerve Head**
Adam Galloy[1], Emmanuelle Richer-Maisonneuve[2], Mark Lesk[2], Santiago Costantino[2], Ian Sigal[1]
[1]University of Pittsburgh, [2]Rosemont Hospital Research Center

Wednesday, June 25	Tamaya B	4:00 PM - 5:30 PM

Vascular Hemodynamics and Mechanobiology: Implications for Thrombosis

Session Chairs: ***Noelia Grande Gutierrez,*** *Carnegie Mellon University*
Bryan Good, *University of Tennessee*

4:00 PM **Heterogeneity in Red Blood Cell Properties Drives Patient Variability in Sickle Cell Disease**
Hannah Szafraniec[1], David Wood[1], Philip Pearce[2]
[1]University of Minnesota, [2]University College London

4:15 PM **Patient-Specific Intraluminal Thrombus Formation Potential and Hemodynamics Modeling of Abdominal Aortic Aneurysm Growth**
Pratik Mitra[1], Satish C Muluk[2], Mark K Eskandari[3], Seungik Baek[4], Ender Finol[1]
[1]The University of Texas at San Antonio, [2]Allegheny General Hospital, [3]Northwestern University School of Medicine, [4]Michigan State University

4:30 PM **Quantitative Assessment of Compensatory and Decompensatory Mechanisms During Hemorrhage Through a Closed Loop Mathematical Modeling of Acute Hemodynamics**
Sadman Sadid[1], Matthew Eden[1], Fahim Mobin[2], Micaela Gomez[2], Sandra Januszko[2], Heather Burkart[2], James Jordan[2], Lucas Neff[2], Timothy Williams[2], Elaheh Rahbar[3], C. Alberto Figueroa[1]
[1]University of Michigan - Ann Arbor, [2]Wake Forest University, [3]Texas A&M University

4:45 PM **Role of Spiral Artery Remodeling in Modulating Shear Stresses on the Placental Villi**
Armita Najmi[1], Noelia Grande Gutiérrez[1]
[1]Carnegie Mellon University

5:00 PM **Trpv4 and Piezo1 Coordinate Endothelial Mechanotransduction: A Dominant Role for Trpv4**
Sangyoon Han[1], Mohanish Chandurkar[1]
[1]Michigan Technological University

5:15 PM **Investigating Von Willebrand Factor and Extracellular Vesicle Interactions Under Shear Flow**
Sruthi Chengalrayan[1], Mustafa Usta[1]
[1]Cleveland State University

Wednesday, June 25	Tamaya C	4:00 PM - 5:30 PM

Microenvironment Stiffness and Physical Effects on Cells

Session Chairs: ***Stavros Thompoulos,*** *Columbia University*
Gurneet Singh Sangha, *University of California*, Irvine

4:00 PM **Altered Luminal Fluid Pressure Differentially Regulates Individual Branching Modes During Lung Morphogenesis**
Shelby Mohr-Allen[1,2], Victor Varner[1,2]
[1]The University of Texas at Dallas, [2]UT Southwestern Medical Center

4:15 PM **Biosourced Photoinitiators in High Resolution Additive Manufacturing of Tunable Biomaterial Structures**
Hailey Mccoy-Munger[1], Andre James[1], Kristan Worthington[1]
[1]University of Iowa

4:30 PM **Role of Basal Hyaluronic Acid and Fluid Shear Stress Instigated Endothelial-Cell Remodeling**
Zoe Vittum[1], Udaya Rattan[1], Jacqueline O'donnell[1], Solomon Mensah[1]
[1]Worcester Polytechnic Institute

4:45 PM **Microfluidic Intubation of the Embryonic Eye Alters Intraocular Pressure and Disrupts Corneal Morphogenesis**
Zaina Rida[1], Matthew Petroll[2], Victor Varner[1]
[1]The University of Texas at Dallas, [2]UT Southwestern Medical Center

5:00 PM **The Pro-Malignant Effect of Compressive Stress in Glioblastoma**
Allison Johnson[1], Lylah Cox[1], Scarlett Compton[1], Joseph Chen[1]
[1]University of Louisville

5:15 PM **Understanding Maturation of Stem Cell-Derived Endothelial Cells: The Role of Gel Stiffness and Cell Cooperativity on Basal Contractility**
Toni West[1], Jiwan Han[1], Gabriel Peery[1], Janet Zoldan[1], Michael Sacks[1]
[1]The University of Texas at Austin

Wednesday, June 25	Puma AB	4:00 PM - 5:30 PM

AI and Machine Learning in Biofluids Modeling

Session Chairs: ***Maria Holland,*** *University of Notre Dame*
Reza Avaz, *Texas A&M University*

4:00 PM **Extracting Coronary Microvascular Geometry from Swine Hearts Using Microscopy and Deep Learning**
Domingo Uceda[1], Victoria Sturgess[1], Nadia Korovesis[1], Ali Citalan Madrid[1], Katherine Stangis[1], Sal Essajee[2], Vibujithan Vigneshwaran[3], Gregory Sands[3], Daniel Lawrence[1], Geoffrey Murphy[1], Daniel Beard[1], Johnathan Tune[2], C Alberto Figueroa[1]
[1]University of Michigan, [2]University of North Texas Health Science Center at Forth Worth, [3]University of Auckland

4:15 PM **Non-Invasive Estimation of Pulmonary Vasculature Pressure via 1D FSI and Transformer Mod**el
Rana Raza Mehdi[1], Sunder Neelakantan[1], Sukanya Sahoo[1], Kyle Myers[1], Gaurav Choudhary[2], Reza Avazmohammadi[1]
[1]Texas A&M University, [2]Brown University

4:30 PM **A Modular Multi-Physics and Multi-Scale In-Silico Model of Coronary Artery Disease Progression with Tetrahedral Mesh Integration**
Jeremy Warren[1], Anna Corti[2], Clark Meyer[1], Heather Hayenga[1]
[1]The University of Texas at Dallas, [2]Politecnico di Milano

4:45 PM **Deep Learning Generation of Realistic Intracranial Aneurysms Geometries to Specific Morphometric Parameters, for Fluid Dynamics Investigations**
Wenhao Ding[1], Kangjun Ji[1], Simão Castro[2], Yihao Luo[1], Choon Hwai Yap[1]
[1]Imperial College London, [2]Instituto Superior Técnico

5:00 PM **ILPN-GANET: A Deep Learning Framework for Inverse Modeling of Lumped-Parameter Cardiovascular Networks**
Yue li[1], Lei Shi[1]
[1]Kennesaw State University

5:15 PM **Discovering the Reaction-Diffusion Equation of Neutrophil Swarming Using Physics-Informed Machine Learning**
Xincheng Wang[1], Maria Holland[1]
[1]University of Notre Dame

Wednesday, June 25	Wolf AB	4:00 PM - 5:30 PM

Topics in Bone & Joint Mechanics

Session Chairs: ***Deva Chan,*** *Purdue University*
Corey P. Neu, *University of Colorado Boulder*

4:00 PM **Intra-Articular Delivery of Recombinant Interleukin-1 Receptor Antagonist (Anakinra) Enhances Graft Function in a Porcine Model of Osteochondral Repair**
Brendan Stoeckl[1], Rachel Flaugh[1], Akbar Syed[1], Elisabeth Lemmon[1], Kendall Masada[1], Elizabeth Bernstein[1], Austin Jenk[1], Lorielle Laforest[1], Natalie Fogarty[1], Bijan Dehghani[1], Robert Mauck[1], David Steinberg[1]
[1]University of Pennsylvania

4:15 PM **Continuous Stiffness of the Knee Complex in Isolated Mcl and Combined Mcl + Acl Injuries: Application to Knee Bracing**
Luke Mattar[1], Tianyu Chen[1], Jumpei Inoue[1], Martin Fagerström[2], Volker Musahl[1], Richard Debski[1]
[1]University of Pittsburgh, [2]Chalmers University of Technology

4:30 PM **Development of an Ovine Critical-Sized Defect Bone Transport Model**
Chloe Brekhus[1], Christian Puttlitz[1], Kirk Mcgilvray[1], Jeremiah Easley[1], Drew Koch[1], Yunzhi Peter Yang[2], Benjamin Gadomski[1]
[1]Colorado State University, [2]Stanford University

4:45 PM **A Chemo-Mechano-Biological Framework for Evolving Cartilage: Predicting Heterogeneous Degeneration Using 3-D Biphasic Finite Elements**
Muhammed Rahman[1], Paul Watton[2], Corey Neu[3], David Pierce[1]
[1]University of Connecticut, [2]The University of Sheffield, [3]University of Colorado Boulder

5:00 PM **Novel Application of Bendable Osteochondral Allografts in Carpometacarpal Osteoarthritis Treatment**
Sarah Deiters[1], Katherine Spack[1], Clark Hung[1], Melvin Rosenwasser[1], Gerard Ateshian[1]
[1]Columbia University

5:15 PM **Statistical Shape Modeling of Carpal Tunnel Cross Section**
David Jordan[1], Mary Henderson[1], Zong-Ming Li[1]
[1]University of Arizona

Wednesday, June 25	Eagle A	4:00 PM - 5:30 PM

Cardiovascular Mechanics & Mechanobiology

Session Chairs: ***Abhay Ramachandra,*** *Iowa State University*
Ana Estrada, *Yale University*

4:00 PM **Epigallocatechin Gallate Partially Prevents Elastase-Induced Mechanical and Microstructural Changes in the Mouse Ascending Aorta in Vitro**
Luis Castro[1], Dongfang Chen[1], Aidan Scannlain[1], Krashn Dwivedi[1], Keshav Kailash[1], Jacob Rother[1], Christie Crandall[1], Robyn Roth[1], Carmen Halabi[1], Jessica Wagenseil[1]
[1]Washington University in St. Louis

4:15 PM **Effects of Mitraclip Sizes on Functional Mitral Regurgitation Repair During the Full Cardiac Cycle**
Gediminas Gaidulis[1], Muralidhar Padala[2]
[1]University of Memphis, [2]Nyra Medical Inc.

4:30 PM **Identification of in Vivo Constitutive Parameters of Thoracic Aortic Aneurysms Based on the Unified-Fiber-Distribution (UFD) Model**
Xue Liang[1], Wenbin Mao[2], Rudolph Gleason[3], Bradley Leshnower[1], Hai Dong[1]
[1]Emory University, [2]University of South Florida, [3]Georgia Institute of Technology

4:45 PM **A Multi-Center Comparison of Three Computed Tomography Image Segmentation Methods for Abdominal Aortic Aneurysm**
Katherine Kerr[1], Pete Gueldner[1], Indrani Sen[2], Tiziano Tallarita[2], Joseph Wildenberg[2], Nathan Liang[2], David Vorp[1], Timothy Chung[1]
[1]University of Pittsburgh, [2]Mayo Clinic

5:00 PM **A Microvascular Transport Framework to Study Spatial and Temporal Heterogeneities in Myocardial Tissue PO_2**
Victoria Sturgess[1], Domingo Uceda[1], Daniel Beard[1], C. Alberto Figueroa[1]
[1]University of Michigan

5:15 PM **Multi-Cell, Multiscale Model of Inflammation-Driven Aortic Growth and Remodeling**
Ana C. Estrada[1], Jay Humphrey[2]
[1]Fairfield University, [2]Yale University

Wednesday, June 25	Eagle B	4:00 PM - 5:30 PM

Extracellular Matrix Dynamics & Remodeling

Session Chairs: ***Xun Wang,*** *Massachusetts Institute of Technology*
Kevin Labus, *Colorado State University*

4:00 PM **Autonomous Cryoprotectant Loading of the Oocyte Using Microfluidics Transistors**
Li Zhan[1,2,3], Hunter Hinnen[2,4], Kaustav A. Gopinathan[2,3], Mehmet Toner[2,3,5]
[1]Purdue University, [2]Massachusetts General Hospital, [3]Harvard medical School, [4]Massachusetts Institute of Technology, [5]Shriners Children's Hospital

4:15 PM **Engineering the Tumor Microenvironment with Cold-Responsive Nanotechnology for Cancer Cryoimmunotherapy**
Wenquan Ou[1], Xiaoming He[1]
[1]University of Maryland

4:30 PM **Microtubule Stability Modulates Schlemm's Canal Cell Mechanobiology and Pore Formation**
Haiyan Li[1], Kristin Perkumas[2], Todd Sulchek[1], W. Daniel Stamer[2], C. Ross Ethier[1]
[1]Georgia Tech, [2]Duke University

4:45 PM **The Direct Impact by Age Adducts on Mechanical and Conformational Properties of Tropocollagen Molecules**
Yu-Bai Xiao[1], Anna Tarakanova[1]
[1]University of Connecticut

5:00 PM **Detecting Microstructural Changes in Damaged Blood Vessel Wall Collagen Using Raman Microscopy**
William Anderl[1], Kenneth Monson[1]
[1]University of Utah

5:15 PM **Exploring the Role of Collagen Fiber Networks During in Situ Cutting of Collagenous Membranes**
Shaobo Zhan[1], Shelby Hutchens[1], Amy Wagoner Johnson[1]
[1]University of Illinois at Urbana-Champaign

Poster Sessions

Posters will be presented in two sessions as listed below. See the Instructions for Poster Presenters section on page 10 for additional information. All poster sessions will take place in the Forum exhibition hall. BS and MS Level posters will be on display for both sessions. Future faculty posters will be held during the Poster Session I.

Poster Session I	Monday, June 23, 1:00 – 2:30 PM, Tamaya EFGH Ballroom
Poster Session II	Tuesday, June 24, 12:30 – 2:00 PM, Tamaya EFGH Ballroom

BS Level Competition Posters

PA 1. Parametric Finite Element Analysis of Protective Padding for Pediatric Commotio Cordis Mitigation
Ciara Woellhof[1], Chaudry Hassan[1], Yi Xian Qin[1]
[1]Stony Brook University

PA 2. Computational Modeling of Hemodynamics Following Left Ventricular Assist Device Implantation
Michael Ferguson[1], Mia Bonini[1], Marc Hirshvogel[2], Frank Pagani[1], David Nordsletten[1]
[1]University of Michigan, [2]Politecnico di Milano

PA 3. An in Vitro Benchtop Model for Cerebral Circulation and Drug Transport
Alena Tucker[1], Adiba Ashrafee[1], Debanjan Mukherjee[1]
[1]University of Colorado Boulder

PA 4. Computational Hemodynamic Analysis of Left Ventricle Segmentation in Bicuspid Aortic Valve Patients: A Comparison with Hypoattenuated Leaflet Thickening Morphology
Malvika Sawant[1], Aniket Venkatesh[1], Lakshmi Dasi[1]
[1]Georgia Institute of Technology

PA 5. Reducing Measurement Error in Three-Point Bend Test: A Linear Gradient Correction Model for Catheter Flexural Rigidity
Juan Becerra-Garcia[1], Charlie Suskin[1], Michael Qiu[1], Guy Genin[1]
[1]Washington University in St. Louis

PA 6. Semi-Automated Trabecular Tracking During Cyclic Inflation
James Utton[1], Leonardo Marin[1], Brittany Coats[1]
[1]University of Utah

PA 7. Characterization of Mechanosensitive Ion Channels in Limb Regeneration
Maren Ritterbuck[1], Vineel Kondiboyina[1], Tim Duerr[1], Melissa Miller[1], James Monaghan[1], Sandra Shefelbine[1]

[1]Northeastern University

PA 8. Biophysical Characterization of Placental Tissue to Inform Oxygen Transport
Sudha Anilkumar[1], Samyuktha Kolluru[2], Patrick Yang[2], Adrienne Scott[2], Michelle Oyen[3]
[1]University of Delaware, [2]Washington University in St. Louis, [3]Wayne State University

PA 9. Investigation of Retractor Blade Geometry on Esophageal Stress and Deformation During Anterior Cervical Discectomy and Fusion
Chihtong Lee[1], Alex Flores[2], Arman Kavoussi[2], Eddie Liou[2], Alexander Ropper[2], Raudel Avila[1]
[1]Rice University, [2]Baylor College of Medicine

PA 10. Development and Validation of a Test Device to Quantify in Vivo Rat Elbow Joint Mechanics
Alexander Gadin[1], Rebecca Reals[1], Genevieve Jarrell[1], Ryan Castile[1], Spencer Lake[1]
[1]Washington University in St. Louis

PA 11. Development of a Novel Animal Model of Elbow Instability
Genevieve Jarrell[1], Rebecca Reals[1], Ryan Castile[1], Alexander Gadin[1], Benjamin Zmistowski[1], Spencer Lake[1]
[1]Washington University in St. Louis

PA 12. Lim-Nebulette Regulates Podocyte Mechanoresponse
Cristopher S. Guaman[1,2], Jacob M. Wright[1], Evren U. Azeloglu[1]
[1]Icahn School of Medicine at Mount Sinai
[2]New Jersey Institute of Technology

PA 13. Finite Element Model to Measure Softening of Cerebral Blood Vessels with Magnetic Resonance Elastography
Lucas Bolster[1], Brittany Coats[1], Henrik Odeen[1], Allison Payne[1], Ken Monson[1]
[1]University of Utah

PA 14. Analysis of Generated Cortical Bone Samples via Finite Element Simulation
Zachary Toth[1], Joshua Gargac[1]
[1]Ohio Northern University

PA 15. Protecting Ligaments from Overuse Injuries with Periodic Rest and Recovery
Karlee Macaw[1], Katherine Fors[1], Trevor Lujan[1], Amevi Semodji[1]
[1]Boise State University

PA 16. Development and Calibration of Digital Twins for Human Skin Growth in Tissue Expansion
Joel Laudo[1], Tianhong Han[1], Ariel Figueroa[2], Arun Gosain[2], Taeksang Lee[3], Adrian Buganza Tepole[1]
[1]Purdue University, [2]Northwestern University, [3]Myongji University

PA 17. The Effect of Lung Tumor Outgrowth on Strain Distributions in the Nearby Alveolar Walls
Sylvia Pack[1]
[1]*University of Utah*

PA 18. Viscoelastic Analysis of Intermediate Catheters Based on Tikhonov Regularization
Helen Long[1]
[1]*Washington University in St. Louis*

PA 19. A Viscoelastic Shear Lag Model of Podocyte Foot Process in Glomerular Filtration
Mingxuan Bi[1], Hanxun Jin[1], Pongpratch Puapatanakul[1], Yuxuan Huang[1], Chengging Qu[1], Jeffrey H. Miner[1], Hani Y. Sulelman[1], Guy. M. Genin[1]
[1]*Washington University in St. Louis*

PA 20. A Quantitative Study of the Human Brain Entry-Exit Vascular System
Annabel Tiong[1], Seunggyu Kim[1], Zhengyu Zhang[1], Se Hoon Choi[2,3], Roger Kamm[1], Xun Wang[1,3]
[1]*Massachusetts Institute of Technology,* [2]*Harvard Medical School,* [3]*Massachusetts General Hospital*

PA 21. Decoding Fractional Killing: The Role of Substrate Stiffness and Cell Morphology in Predicting Cancer Cell Death
Natalie Calahan[1], Renzo Spagnuolo[1], Soumik Ghosh[1], Ashok Prasad[1], Soham Ghosh[1]
[1]*Colorado State University*

PA 22. A High Throughput Leukemia-on-a-Chip for Modeling and Therapy Screening
Mahan Gillin[1], Jingwei Liu[1], Akinori Yamazaki[1], Lunan Liu[1]
[1]*New York University*

PA 23. Synergistic Impact of Mechanical Strain and Hyaluronic Acid on Ovarian Cancer Progression in Ovcar-8 Variant
Emerson Cutcliffe[1], Maranda Kramer[1], Kamari Marzette[1], Mary Kathryn Sewell-Loftin[1]
[1]*University of Alabama at Birmingham*

MS Level Competition Posters

PA 24. Thermal Effects of Fab-Functionalized Gold Nanoparticles During High Intensity Focused Ultrasound (HIFU) Ablation in Mice
Nabin Khanal[1], Michael Marciniak[2], Marie-Christine Daniel[2], Liang Zhu[2], Keith Stringer[1], Charles Dumoulin[3], Rupak K Banerjee[1]
[1]*University of Cincinnati,* [2]*University of Maryland Baltimore County,* [3]*Cincinnati Children's Hospital Medical Center*

PA 25. Determining a Model to Predict Fluid Flow Through a Polymeric Membrane

Sidharth Enagala[1], Ryan Smolchek[2], Jack Famiglietti[2], Briony Weragoda[1], Malisa Sarntinoranont[1]
[1]University of Florida, [2]Aurita Bio

PA 26. Understanding Arterial Pressure Crossover in Peripheral Venous Pressure Signals: A Benchtop Study on Vessel Parameters
Bree Scott[1], Cassidy Caffin[1], Sam Stephens[1], Robert Saunders[1], Jingxian Wu[1], Hannah Jensen[1], Kevin Sexton[2], Morten Jensen[1]
[1]University of Arkansas, [2]Vanderbilt University

PA 27. Low Impedance, Durable, Self-Adhesive Hydrogel Epidermal Electrodes for Electrophysiology Recording
Naiyan Wu[1]
[1]Washington University in St. Louis

PA 28. Developing a Noninvasive Foot Controller for a Multi-Degree-of-Freedom Below-the-Shoulder Prosthetic Arm
Gerbert Funes Alfaro[1], Peter Bishay[1]
[1]California State University, Northridge

PA 29. Impact of Extracorporeal Membrane Oxygenation Design on Blood Flow Topology
Bray Moll[1], Farhad Nezami[2], Zhongwang Dou[1], Amirhossein Arzani[3]
[1]Northern Arizona University, [2]Brigham and Women's Hospital, [3]University of Utah

PA 30. Temporal Trends of Lumped Hemodynamic Parameters in a Rat Model of Pulmonary Arterial Hypertension
Ahmad Shaikh[1], Daniela Valdez-Jasso[1]
[1]University of California, San Diego

PA 31. Computational Fluid Dynamics Analysis of Peak Systolic Hemodynamics in Healthy and Stenotic Aortic Valves
Mashrur Muntasir Nuhash[1], Ruihang Zhang[1], Victor K Lai[1], Abm Nazmus Salehin Nahid[1]
[1]University of Minnesota Duluth

PA 32. Wall Shear Stress Based Differentiation of Pre-Eclampsia from Hypertension Using Ultrasound-Based CFD
Evan Turner[1], Juan Pablo Gonzalez-Pereira[1], Jenna Racine[1], Igor Iruretagoyena[1], Alejandro Roldan- Alzate[1]
[1]University of Wisconsin - Madison

PA 33. Microvascular Resistance Influence on Diagnostic Indices of Coronary Hemodynamics
Tej Jolly[1], Arnav Garcha[1], Noelia Grande Gutiérrez[1]
[1]Carnegie Mellon University

PA 34. Characterization of Cerebrospinal Fluid Flow Dynamics in the Spinal Subarachnoid Space with 2D Phase Contrast MRI
Sergio Martin-Moreno Nsue[1], Vitaliy Rayz[1]
[1]*Purdue University*

PA 35. Machine Learning Approach to Train a Surrogate Model for Predicting Core Body Temperature in Frontline Workers
Sai Yeshwanth Vejendla[1], Israel Ajiboye[1], Rao Marepalli[1], Amit Bhattacharya[1], Rupak Banerjee[1]
[1]*University of Cincinnati*

PA 36. Enhancing Wall Shear Stress Estimation From 4D Flow MRI Using Physics-Guided Neural Networks Trained on Idealized Vascular Geometries
Moses Hamm[1], Farshid Goudarzian[1], Neal Patel[1], Vitaliy Rayz[1]
[1]*Purdue University*

PA 37. Development of Simulated Osseointegration to Reduce Age and Sex-Based Disparities with In Vitro Orthopedic Biomechanics Research
Logan Shannon[1], Robb Colbrunn[1], Tara Nagle[1]
[1]*Cleveland Clinic Lerner Research Institute*

PA 38. Full-Field Indentation Microscopy (FIM) Recovers Anisotropic Properties via Indentation
Yuvam Kulkarni[1], Jose Rosa[1], Callan Luetkemeyer[1]
[1]*University of Illinois Urbana-Champaign*

PA 39. Development of a Small Animal Device for Measuring in Vivo Muscle-Tendon Loading After Traumatic Injury
Patrick Hinkle[1], Fuad Al Hasan Bin Enam[1], Koyal Garg[1], Alex Reiter[1]
[1]*Saint Louis University*

PA 40. The Role of Ion Currents and Gap Junctions in Regulating the Contractility of the Murine Uterus During Pregnancy
Parker R Mixon[1], Vijay Vedula[1]
[1]*Columbia University*

PA 41. Design and Validation of a Bulge-Inflation Apparatus for Aortic Aneurysm Biomechanical Characterization
Hayley Yap[1], Antonio Cillero Rodrigo[2], Daniella Eliathamby[1], Jennifer Chung[2], Craig Simmons[1]
[1]*University of Toronto,* [2]*University Health Network*

PA 42. In-Vitro Stress Relaxation Response of Human Neonatal Peripheral Nerves
Kalyani Ghuge[1], Sriram Balasubramanian[2], Anita Singh[1]
[1]*Temple University,* [2]*Drexel University*

PA 43. The Significance of Overstretch Direction in Cerebral Artery Softening

Kerrigan Denham[1], Joseph Bail[1], Kenneth Monson[1]
[1]*University of Utah*

PA 44. Constitutive Modeling of Uterine Wound Healing: Applications to Surgical Scarring and Postpartum Involution
Abir Hamdaoui[1], Savannah Chapman[1], Abigail Fisk[1], Matthew Bersi[1]
[1]*Washington University in St. Louis*

PA 45. Characterizing the Effect of Mechanical Wear on Meniscal Fiber Fraying
Katherine Fors[1], Kate Benfield[1], Gigi Brandes[1], Vanessa Bowman[1], Cindy Keller-Peck[1], Trevor Black[1], Karlee Macaw[1], Trevor Lujan[1]
[1]*Boise State University*

PA 46. Using Finite Element Modeling to Predict Impact of Vertebral Body Tethering Treatment for Scoliosis
Yousuf Abubakr[1], Matthew Halanski[2], Grace O'connell[1]
[1]*University of California, Berkeley,* [2]*Phoenix Children's Hospital*

PA 47. In House vs Commercial Human Adipose Derived Mesenchymal Stem Cell Extracellular Vesicle and Their Effect on Vascular Cells
Amanda Pellegrino[1], Ande Marini[2], Justin Weinbaum[1], David Vorp[1]
[1]*University of Pittsburgh,* [2]*Standford University*

PA 48. Dynamic and Reversible Boundary Constraints to Guide Engineered Meniscus Tissue Formation
Darcy Huang[1], Yuqi Zhang[1], Meghan Kupratis[1], Elizabeth Bernstein[1], Georgios Kotsaris[1], Robert Mauck[1]
[1]*University of Pennsylvania*

PA 49. Evaluating User Variability and Slicing Plane Influence on 3D Morphological Measurements of Multicellular Tumor Spheroids Using Oct and Imaris
Kaiya Gants[1], Elizabeth Mcdonough[1], Percy Smith[1], Garret Cahill[1], David Corr[1]
[1]*Rensselaer Polytechnic Institute*

Poster Session I

Biotransport

PA 50. Dynamics of Red Blood Cell Desaturation and Sickling in Sickle Cell Disease
Dillon Williams[1], David Wood[1]
[1]*University of Minnesota*

PA 51. Comsol Multiphysics Modeling and Simulation of Dielectrophoretic Biotransport for High-Throughput Sorting of Tenogenically Differentiating Mesenchymal Stem Cells
Raphael Oladokun[1], N Schiele[1], M Pei[1], S K Srivastava[1]
[1]*West Virginia University*

PA 52. Inverse Heat Transfer for Sensor Position Correction in Magnetic Nanoparticle Hyperthermia
Anilchandra Attaluri[1], Shreeniket Pawar[1]
[1]*Penn State Harrisburg*

PA 53. Market Review of Heatstroke Cooling Devices for Prehospital Care
Maria J. Londono[1], Anjelyka Fasci[1], Nicholas Gualtieri[1], Isaac Alvarez[1], Nicholas Forche[1], Connor J. Evans[1], R. Lyle Hood[1], Robert A. De Lorenzo[1]
[1]*The University of Texas at San Antonio*

PA 54. A Study of Potential Anti-Metastasis Compounds for Colorectal Cancer via PTEN Signaling Pathways Using an Optimized Microfluidic 3D Culture System
Ajeyo Yusuf[1], Sara Grace Chapala[1], Sihong Wang[1]
[1]*City College of New York*

PA 55. Computational Modeling of Pulsed Field Ablation with Sub-Microsecond Pulses
Indra Vandenbussche[1], Bailey Mccorkendale[1], Leila Seidabadi[1], Rowan Fink[1], Roya Kamali[2], Fateme Esmailie[1]
[1]*University of North Texas,* [2]*Field Medical, Inc.*

Dynamics, Dynamics and Rehabilitation

PA 56. Influence of Vacuum Pressure Dynamics and Pipe Geometry on Suction Flow: Experimental and Computational Insights for Medical Device Design
Rakib Hasan[1], Pratik Mitra[1], Joby Job[1], Saketh Ram Peri[1], Connor J Evans[1], Robert A Delorenzo[1], R. Lyle Hood[1]
[1]*The University of Texas at San Antonio*

PA 57. A Test Setup for Assessing the Effect of Virtual Reality Training on the Proficiency of Controlling a Transradial Prosthetic Arm Using a Foot Controller
Peter Bishay[1], Jacob Hinkel- Lipsker[1], Stefanie Drew[1], Don Shin[3], Yash Bangera[2], Gerbert Funes Alfaro[1], Ian Sherrill[1], Thomas Chan[1]
[1]*California State University, Northridge,* [2]*CrossComm, Inc.*

PA 58. An Autonomous / Remote Control Operating Light for Optimized Surgical Illumination
Carson Benner[1], Connor Gilliland[1], Anthony Salazar[1], Jack Wingard[1], Rawan Al-Jubory[1], Zachary Butterfield[1]
[1]*Texas A&M University*

PA 59. An Integrated Workflow for Lumbar Spine Modeling for Postural Angular Measurements: From Statistical Shape to Finite Element Model of Lumbar Segments
Faris Almalki[1], Daniel Cortes[1]
[1]*Pennsylvania State University*

PA 60. Validation of a Dynamic Ankle Orthosis to Reduce Tibial Bone Strain Compared to a Standard of Care Walking Boot
Denis Diangelo[1], Perri Johnson[1]
[1]*The University of Tennessee Health Science Center*

PA 61. Knee Artificial Intelligence Sleeve (Kairs)
Chinmay Singh[1], Samanyu Dixit[1], Sahaj Sapovadia[1], Hieu Doan[1]
[1]*University of North Carolina at Chapel Hill*

PA 62. Origami-Inspired Soft Pneumatic Inchworm Double Balloon for Robotic Colonoscopy
Allison Cheng[1], Amber Kashay[1], Ian Morales[1], Hannah Yared[1], Nadine Hassanieh[1], Hannah Jin[1], Meena Annamalai[1], Fiona Wong[1], Isaac Rodney[1], Anirudh Kannan[1], Caleb Liow[1], Benjamin Flom[1], Melanie Quintana[1], Emilie Liao[1]
[1]*University of California, Los Angeles*

PA 63. Musculoskeletal Modelling and Predictive Simulation of Elite Baseball Pitching to Maximize Performance and Mitigate Injury Using Forward Dynamic and Optimal Control Techniques
Cedric E. Attias[1], Thomas K. Uchida[2], John Mcphee[1]
[1]*University of Waterloo,* [2]*University of Ottawa*

Education

PA 64. Optimizing Squeaking Ceramic-on-Ceramic Hip Arthroplasty Design Using Triz Methodology
Manish Paliwal[1]
[1]*The College of New Jersey*

PA 65. Code, Create, Collaborate: Arduino Learning Through the Lens of Generative AI
Nafiseh Mohammadianaftah[1], Sara Wilson[1]
[1]*University of Kansas*

Fluid Mechanics

PA 66. Automatic Construction of Patient-Specific Vascular Models of Diverse Anatomy: From Medical Image to Application
Númi Sveinsson Cepero[1], Shawn Shadden[1]
[1]*University of California, Berkeley*

PA 67. An in Silico Methodology for Discerning Etiology of Embolic Stroke of Undetermined Source
Ricardo Roopnarinesingh[1], Sreeparna Majee[1], Leon Rinkel[2], Jonathan Coutinho[2], Kelly Cao[1], Debanjan Mukherjee[1]
[1]*University of Colorado - Boulder,* [2]*Amsterdam University Medical Center*

PA 68. Impact of Stent Strut Malapposition on Coronary Hemodynamics: A Patient-Specific CFD Analysis
Wei Wu[1], Sartaj Tanweer[1], Ruben Tapia- Orihuela[1], Parth Munjal[1], Yash Trivedi[1], Shijia Zhao[1], Changkye Lee[1], Yiannis Chatzizisis[1]
[1]*Uinversity of Miami*

PA 69. Development of an Artificial Intelligence Model to Classify Severity of Hemorrhagic Shock Using Arterial Pressure Waveform Data
Fahim Mobin[1], Antonio Renaldo[1], Micaela Gomez[1], Sandra Januszko[1], Jacob Dooley[1], James Jordan[1], Oguz Akbilgic[1], Timothy Williams[1], C. Alberto Figueroa[2], Elaheh Rahbar[3]
[1]*Wake Forest School of Medicine,* [2]*University of Michigan,* [3]*Texas A & M University*

PA 70. Characterizing Mitochondrial Network Remodeling During Endothelialization Using Holotomographic Microscopy
Juliette Noyer[1], William Leineweber[2], Patrick Jurney[1]
[1]*San Jose State University,* [2]*Stanford University*

PA 71. Phenotyping Patients with Bronchopulmonary Dysplasia Using Cfd Derived Work of Breathing
Christopher Boles[1], Chamindu Gunatilaka[1], Qiwei Xaio[1], Jason Woods[1], Paul Kingma[1], Alister Bates[1]
[1]*Cincinnati Children's Hospital Medical Center*

PA 72. Unmasking Tavr Failure: Insights from Left Ventricular Pressure-Volume Loop Analysis
Zahra Keshavarz-Motamed[1]
[1]*McMaster University*

PA 73. Preliminary Strain-Based Hemolysis Modeling Framework Validated With in Vitro Erythrocyte Deformation Data
Hannah Palahnuk[1], Nicolas Tobin[1], Keefe Manning[1]
[1]*Pennsylvania State University*

PA 74. 3D Velocity and Pressure Field Reconstruction in the Cardiac Left Ventricle Using Physics Informed Neural Network and 3D Colour Doppler Guidance
Hong Sean Wong[1], Wei Xuan Chan[1], Wenbin Mao[2], Choon Hwai Yap[1]
[1]Imperial College London
[2]University of South Florida

PA 75. Detection of Vascular Obstruction Using Acoustic Signals
David Donahower[1], Karl Schwarz[2], Steven Day[1], Jason Kolodziej[1]
[1]Rochester Institute of Technology, [2]University of Rochester

PA 76. Effects of Microgravity on Predisposing Factors for Thrombosis in Atrial Fibrillation
Grace Hoeppner[1], Ahmad Bshennaty[1], Brennan Vogl[1], Ghasaq Saleh[2], Mohamad Alkhouli[2], Hoda Hatoum[1]
[1]Michigan Technological University, [2]Mayo Clinic

PA 77. A High-Efficiency Left Atrium Unloading Device: From Concept to Testing
Bryce Clinkenbeard[1], Hiroto Bauer[1], Ellen Corr[1], Dong Qiu[1], Victor Caicedo[2], Fernando Anzellini[2], Nicolas Anzellini[2], Ali Azadani[1]
[1]University of Denver, [2]Cardiost Inc.

PA 78. Investigating the Effect of Different Rheological Models on the Blood Flow in a Capillary Segment
Masah Abubaker[1], Sefik Evren Erdener[2], Ozgur Ekici[3]
[1]University of Notre Dame, [2]Institute of Neurological Sciences and Psychiatry, [3]Hacettepe University

PA 79. Computational Fluid Dynamics and Fluid Structure Interaction Modeling in Healthy Vertebral Arteries: A Comparative Study
Bryce Clinkenbeard[1], Ali Azadani[1]
[1]University of Denver

PA 80. Rethinking Stroke Risk: Beyond Stenosis to Hemodynamics
Ryan Gedney[1], Ravikumar Veeraswamy[1], Ethan Kung[2]
[1]Medical University of South Carolina, [2]Clemson University

Solid Mechanics

PA 81. A Comparative Analysis of Abdominal Aortic Aneurysm Classification Outcomes Using Ensemble Tree Models
Juan Restrepo[1], Satish Muluk[2], Mark Eskandari[3], Ender Finol[1]
[1]University of Texas at San Antonio, [2]Department of Thoracic and Cardiovascular Surgery, Allegheny Health Network, Allegheny General Hospital, [3]Northwestern University School of Medicine

PA 82. Surrogate Knee for Mechanical Testing of Patellafemoral Joint Interaction
Nathan Flath[1], Alexander Hooke[1], Joshua Bland[1], Mario Hevesi[1], Chunfeng Zhao[1]

[1]*Mayo Clinic*

PA 83. Time-Dependent Microstructural and Mechanical Properties of Murine Vaginal Tissue
Clara Gimenez[1], Raffaella De Vita[1]
[1]*Virginia Tech*

PA 84. Investigation of Bone Graft Choice for Pelvic Ring Reconstruction Following a Hemipelvectomy
Ritika Raj Menghani[1], Karthik Tappa[2], Alexander Mericli[2], Matthew Hanasono[2], Shalin Patel[2], Laurence Rhines[2], Patrick Lin[2], Valerae Lewis[2], Justin Bird[2], Raudel Avila[1]
[1]*Rice University,* [2]*MD Anderson Cancer Center*

PA 85. Ventilation-Induced Lung Injury in Alzheimer's Disease: Effects of Nlrp3 Deletion in Mice
Dessarae Lampkins[1], Smridhi Madan[1], Brunnet Makava[1], Dong Sun[1], Rebecca Heise[1]
[1]*Virginia Commonwealth University*

PA 86. Accurate 3-Dimensional Reconstruction of an Embryo From Histological Images
Kayla Whatley[1], An Tran[1], Brittany Hufft- Martinez[1], Irfan Saadi[1], Kenneth Fischer[1]
[1]*University of Kansas*

PA 87. Fracture Mechanics of Embedded Fiber Networks
Matthew Lohr[1], Sotirios Kakaletsis[1], Manuel Rausch[1]
[1]*The University of Texas at Austin*

PA 88. A Novel Statistical Shape Modeling Approach for Type B Aortic Dissection Using Voxel-Based Shape Representations
Zhuofan Li[1], John Oshinski[2], John Elefteriades[3], Rudolph L Gleason[4], Bradley G Leshnower[2], Minliang Liu[1]
[1]*Texas Tech University,* [2]*Emory University,* [3]*Yale University,* [4]*Georgia Institute of Technology*

PA 89. Head Kinematics and Injury Risks During Head Impacts with Vertical Polymer Panels
Daniel Mcfarland[1], Nicholas Yang[1], Alexander Horst[1], Garrett Porter[1], Lenka Stepan[1], Irving Scher[1]
[1]*Guidance Engineering and Applied Research*

PA 90. Age Effects on Mechanical Behavior and Collagen Fiber Engagement in Human Anterior Cerebral Arteries
Atiyeh Taheri[1], Samuel C. Halvorsen[1], Anastasia Gkousioudi[1], Thor D. Stein[1], Katherine Yanhang Zhang[1]
[1]*Boston University*

PA 91. Chromatin Remodeling Under Mechanical Stretching Is Determined by Epigenetic Modifiers
Addison Lambert[1], Scott Burlingham[1], Tim Stasevich[1], Soham Ghosh[1]
[1]*Colorado State University*

PA 92. Regional and Temporal Changes in Early Structural Remodeling Following Myocardial Infarction
Catherine Eberman[1], Yuming Liu[1], Kevin Eliceiri[1], Colleen Witzenburg[1]
[1]University of Wisconsin – Madison

PA 93. The Role of Load Direction in Vertebral Fracture Risk: A Computational and Experimental Study
Mehran Fereydoonpour[1], Asghar Rezaei[2], Areonna Schreiber[2], Lichun Lu[2], Mariusz Ziejewski[1], Ghodrat Karami[1]
[1]North Dakota State University, [2]Mayo Clinic

PA 94. Predictive Redo-Tavr Computational Modeling Assessment Using Post-Procedural CT Reconstruction
Courtney Ream[1], Pradeep Yadav[2], Vinod Thourani[2], Lakshmi Dasi[1]
[1]Georgia Institute of Technology, [2]Piedmont Atlanta Hospital

PA 95. Personalized Intervention Cardiology for Transcatheter Aortic Valve Replacement with a Doppler-Exclusive Diagnostic Framework
N. Bahadormanesh[1], Zahra K. Motamed[1]
[1]McMaster University

PA 96. Human Lung Parenchymal Mechanics and Smoking Impacts
Talyah Nelson[1], Mona Eskandari[1]
[1]University of California Riverside

PA 97. Mechanical Heterogeneity of Phosphorylated Tau (P-Tau) in Alzheimer's Disease
Mohammad Tabatabaei[1], Lakiesha Williams[1]
[1]University of Florida

PA 98. Computational Study of Algebraic Inversion of the Differential Wave Equation in Heterogenous and Anisotropic Samples
Kayla Lehtola[1], Victor Barocas[1]
[1]University of Minnesota

PA 99. Comparative Analysis of Anatomic Models in Personalized Cardiac Electromechanics Simulations
Aaron Brown[1], Lei Shi[2], Matteo Salvador[3], Fanwei Kong[4], Ian Chen[1], Vijay Vedula[5], Alison Marsden[1]
[1]Stanford University, [2]Kennesaw State University, [3]Pasteur Labs & ISI, [4]Washington University in St. Louis, [5]Columbia University

PA 100. Using Mechanics to Better Understand Lamina Cribrosa Microstructure
Yingzhe Han[1], Xuehuan He[1], Qi Tian[1], Ian A. Sigal[1]
[1]University of Pittsburgh

PA 101. Regional and Level Differences in Human Cervical Disc Morphologies and Implications for Segmental Neck Loading

Karthik Banurekha Devaraj[1], Narayan Yoganandan[1], Brian Stemper[1], Peter Le[2]
[1]Medical College of Wisconsin, [2]Air Force Research Laboratory

PA 102. Tricuspid Valve Leaflet Strains in Whole Porcine Hearts Using Digital Image Correlation
Trace LaRue[1], Collin Haese[1], Diego Guajardo[1], Allison Pouch[2], Jan Fuhg[1], Tomasz Timek[3], Manuel Rausch[1]
[1]The University of Texas at Austin, [2]University of Pennsylvania, [3]Corewell Health

PA 103. Flexural Stiffness of 3D-Printed, Shape-Memory Orthodontic Aligners
David Nedrelow[1], Tong Liu[1], Brent Larson[1]
[1]University of Minnesota

PA 104. Frequency Response of Minipig Brain to Skull Vibration
Ruth Okamoto[1], Kevin Eckstein[1], Curtis Johnson[2], Philip Bayly[1]
[1]Washington University in St. Louis, [2]University of Delaware

PA 105. Total Knee Arthroplasty with Medial Collateral Ligament Repair: A Biomechanical Study
Leilani Baker[1], Natalia Mclver[1], Nicholas Brady[1], Devin Maez[1], Samer Kakish[1], Michael Decker[2], Christina Salas[1]
[1]University of New Mexico, [2]Medical College of Wisconsin

PA 106. Poroelastic Model of Stress and Flow Distribution in a Lymph Node
James Baish[1], Timothy Padera[2], Lance Munn[2]
[1]Bucknell University, [2]Massachusetts General Hospital

PA 107. Towards Developing a Multiphysics Digital Twin for Patient-Specific Esophagus Modeling
Lei Shi[1], Anand Jain[2]
[1]Kennesaw State University, [2]Emory University

PA 108. Biophysics-Informed Computational Platform of Shear Wave Elastography for Cervical Health Assessment
Camilo Duarte Cordon[1], Ivan Rosado- Mendez[2], Kristin Myers[1]
[1]Columbia University, [2]University of Wisconsin – Madison

PA 109. Comparison of 5th, 50th and 95th Percentile 75-Year-Old Occupants to Frontal Crash
Karthik Somasundaram[1], Balaji Harinathan[1], Narayan Yoganandan[1]
[1]Medical College of Wisconsin

PA 110. Effect of Enzymatic Digestion of Gags on Ex Vivo Shear Properties of Porcine Cornea
Hamed Hatami-Marbini[1], Md Emu[1]
[1]University of Illinois Chicago

PA 111. Comparison of Dynamic and Static Loading Responses of Anterior Cervical Discectomy and Fusion Using Finite Element Modeling
Balaji Harinathan[1], Narayan Yoganandan[1]
[1]Medical College of Wisconsin

PA 112. Contactless Mechanical Material Characterization of Hyperelstic Membranes Using Stereoscopic Depth Map
Rahul Maurya[1], Avinash Kumar[1], Samarth Raut[1]
[1]Indian Institute of Technology Dharwad

PA 113. Force-Deflection Corridors of the Human Thorax from Projectile Impacts and Their Use in Finite Element Modeling
Balaji Harinathan[1], Kalaimani Pugazhenthi[2], Alok Shah[1], Jared Koser[1], Narayan Yoganandan[1], Carol Chancey[3], Joseph Mcentire[3]
[1]Medical College of Wisconsin, [2]Vellore Institute of Technology, Chennai, India, [4]U.S. Army Aeromedical Research Laboratory, Fort Novosel

PA 114. Enzymatic Tunability of Collagen Microstructure and Mechanics in Hydrogels
Nicholas Gigliotti[1], Vivian Su[1], Mitra Taheri[1]
[1]Johns Hopkins University

PA 115. Role of the Medial Collateral Ligament in Mid-Flexion Sagittal Stability in Posterior-Stabilized Total Knee Arthroplasty: A Computational-Experimental Study
Reza Pourmodheji[1], Cynthia Kahlenberg[1], Erin Berube[1], Eytan Debbi[1], Brian Chalmers[1], William Long[1], Timothy Wright[1], Geoffrey Westrich[1], David Mayman[1], Peter Sculco[1], Carl Imhauser[1]
[1]Hospital for Special Surgery

PA 116. When Is a Tortuous Path Better Than a Direct One? A Strategy for Overcoming Elevated Translaminar Pressure
Bingrui Wang[1], Yingzhe Han[1], Yuankai Lu[1], Ashley Linton[1], Susannah Waxman[1], Ian A. Sigal[1]
[1]University of Pittsburgh

PA 117. The PDMS Device Aging Mystery Solved: Storage and Mixing Ratios for Long-Lasting Hydrophobicity and Stiffness
Shuyu Zhang[1], Anne Staples[2]
[1]Virginia Tech-Wake Forest School of Biomedical Engineering and Sciences, [2]Virginia Tech

PA 118. Comparative Biomechanical Characterization of Porcine Atrial Septum and Ventricular Septum
Houjia Chen[1], Kasra Kolyaei[1], Brandon Wells[1], Yi Hong[1], Kyati T. Nguyen[1], Pietro Bajona[2], Matthias Peltz[2], Jun Liao[1]
[1]University of Texas at Arlington, [2]UT Southwestern Medical Center

PA 119. Development and Validation of a Mechanical Test Device to Simulate Breathing and Coughing on Intact Herniated, and Mesh-Repaired Cadaveric Abdominal Tissues
Alexander Gadin[1], Cole Hanan[1], Evan Maples[1], Spencer Lake[1]
[1]Washington University in St. Louis

Tissue and Cellular Engineering

PA 120. A Method for Creating a Pre-Vascularized Multi-Component Scaffold for Bone Tissue Engineering
Levi Olevsky[1], Lynne Li[1], Peter Bertone[1], Eric Holmgren[1], Katherine Hixon[1]
[1]Dartmouth College

PA 121. Cyclic Stretch Inhibits Invasion of Cells in 3D Collagen Gels
Rozanne Mungai[1], Grace Jolin[1], Kristen Billiar[1]
[1]Worcester Polytechnic Institute

PA 122. Non-Muscle Myosin Isoforms Differentially Regulate Deltoid Tuberosity Initiation and Maturation
Mary Kate Evans[1], Ngoc Hoang[2], Tonia Tsinnman[1], Xi Jiang[1], Ellie Fergurson[1], Joel Boerckel[1], Lin Han[2], Eiki Koyama[3], Robert Mauck[1], Nathaniel Dyment[1]
[1]University of Pennsylvania, [2]Drexel University, [3]Children's Hospital of Philadelphia

PA 123. Fluctuations in Skin Wound Perfusion Using Solid State On-Demand H_2S Gas Generation
Matt Justus[1], Pierce Massie[1], Deepali Kulkarni[1], Carolyn Pace[1], Jenna Marek[1], Bill Brooks[2], Debra Friedrichsen[2], Reza Shekarriz[2], Ross Clark[1]
[1]The University of New Mexico, [2]Exhalix LLC

PA 124. The Non-Linear Visco-Hyperelastic Damage Mechanics of Individual Electrospun PCL Fibers: Experiments and Modeling
Alberto Madariaga[1], Sascha L. Granhold[1], Matthew J. Lohr[1], Sarah Jones[1], Andrew J. Robinson[1], Elizabeth Cossgriff- Hernandez[1], Emma Lejeune[2], Berkin Dortdivanlioglu[1], Manuel K. Rausch[1]
[1]The University of Texas at Austin, [2]Boston University

PA 125. Limitations in Achieving Optical Transparency in Live Mice
Jenna Marek[1], Matt Justus[1], Pierce Massie[1], Deepali Kulkarni[1], Carolyn Pace[1], Ross Clark[1]
[1]The University of New Mexico

PA 126. Characterization of Collagen Network in Short Cervix Model
Vivian Su[1], Marina Better[1], Nicholas Gigliotti[1], Mitra Taheri[1]
[1]Johns Hopkins University

PA 127. Sulfide-Based, Pro-Regenerative, Anti-Inflammatory Vascular Grafts: Impregnation of Slow-Released Sulfide Signals into Graft Implants
Anh Thy Nguyen[1], Richard Johnson[1], Ansha Zhao[2], Michael Rafuse[1], David Madukwe[3], Aurora Battistella[1], Wei Tan[1]
[1]University of Colorado Boulder, [2]SouthWest Jiaotong University, [3]Clemson University

PA 128. Sex-Dependent Cardiovascular Biomechanical Changes in Hyperglycemic Mice with and without Sglt2 Inhibition

Shannon Flanary[1], Anh Nguyen[1], Seokwon Jo[1], Megan Beetch[1], Dewayne Townsend[1], Emilyn Alejandro[1], Victor Barocas[1]
[1]University of Minnesota

PA 129. Development of a Novel Tool to Measure Bending Moduli (κ) of Fibers Within a 3D Hydrogel
Sarah Eldeen[1], Bora Keresteci[1], Elliot Botvinick[1]
[1]University of California, Irvine

PA 130. Using a Fiber Skeletonization Approach Towards Extracellular Matrix FEA Modeling in Human Ascending Thoracic Aortic Aneurysm Media
Petros Kroustalias[1], Panagiotis Chatzisavvas[1], Nikolaos Ntinas[1], David Vorp[2], Alkiviadis Tsamis[1]
[1]University of Western Macedonia, [2]University of Pittsburgh

PA 131. Tendon-Mimetic Scaffold Microstructure Influences Mechanical Properties, Cellular Morphology, and Secretome
Harrison Broadaway[1], Kari Shama[1], Brittany Taylor[1]
[1]University of Florida

PA 132. Electrowriting of Cellulose-Based Materials for Biomedical Applications
Melissa Willis[1], Sam Winston[1], Kevin Labus[1]
[1]Colorado State University

PA 133. Enhanced Heat Transfer for Scalable Vitrification-Based Cryopreservation
Zongqi Guo[1]
[1]University of South Florida

Future Faculty Poster Session

PA 134. Hanxun Jin, Washington University in S. Louis

PA 135. Imtiaz Qavi, Texas Tech University

PA 136. Xun Wang, Massachusetts Institute of Technology

PA 137. Pete Gueldner, University of Pittsburgh

PA 138. Crystal Mariano, University of California, Riverside

PA 139. Hadi Wiputra, Universiy of Minnesota

PA 140. Sebastian Hendrickx-Rodriguez, Stanford University

PA 141. Kara Peak, University of Minnesota

PA 142. Redowan Ahmed Niloy, University of Notre Dame
Nan Lin, Worcester Polytechnic Institute

PA 143. Karan Taneja, University of Notre Dame

PA 144. Pan Du, University of Notre Dame

PA 145. Connor Evans, University of Texas Health Science Center

Poster Session II

Biotransport

PA 50. Featherweight, Insect-Inspired Microfluidic Infusion Pumps for Personalized, Needle-Free Drug Delivery: Comparative Benchtop and Human Subject Performance Analysis
Shuyu Zhang[1], Rafael Davalos[2], Anne Staples[3]
[1]Virginia Tech-Wake Forest School of Biomedical Engineering and Sciences, [2]Wallace H. Coulter *Department of Biomedical Engineering, Georgia Tech-Emory University,* [3]*Department of Mechanical Engineering, Virginia Tech*

PA 51. Immune Cell Migration in Response to Interstitial Flow and Chemokine Gradients
Daniel Watson[1], Jennifer Frattolin[1], Francesca Masci[2], Robert Nibbs[2], Matthew Russell[3], Bindi Brook[3], James Moore[1]
[1]*Imperial College London,* [2]*University of Glasgow,* [3]*University of Nottingham*

PA 52. Diamond-P: Digital Plasmonic Nanobubble Detection for Enzyme- and Compartment-Free Single Protein Absolute Quantification
Tingting Zhang[1], Y Gao, Y Liu, Zhengpeng Qin[1,2]
[1]*University of Texas at Dallas*
[2]*University of Texas Southwestern Medical Center*

PA 53. Medical Provider Perspectives on Airway Management Tools and Techniques: A Survey Study
Jacob Provencio[1], Connor J. Evans[2], Don Petersen[1], Robert De Lorenzo[2], R. Lyle Hood[1]
[1]*University of Texas at San Antonio,* [2]*University of Texas Health Science Center at San Antonio*

PA 54. Double Integrating Sphere Optical Properties Measurements of Thermally-Damaged Porcine Dermis
Anjelyka Fasci[1], Maria Hoffman[2], Mark Keppler[2], Matthew Macasadia[2], Andrea Smith[2], Amanda Peterson[2], Amanda Tijerina[2], Michael Delisi[2], Joel Bixler[2], R. Lyle Hood[1]
[1]*University of Texas at San Antonio,* [2]*Air Force Research Lab*

PA 55. Morphometric Analysis of Pediatric Chiari Malformation: Age-Related Changes and Comparative Study with Adult Populations
Farnaz Feyli[1], M M Al Samman[1], M Karamzadeh[1], J R Bapuraj[2], P Allen[3], R A Bhadelia[4], D Loth[1], R Amini,[1] A Loth[1]
[1]*Northeastern University*
[2]*University of Michigan Ann Arbor*
[3]*University of Akron*
[4]*Harvard University*

Dynamics, Dynamics and Rehabilitation

PA 56. Modeling the Foreign Body Response and Its Long-Term Effects on Diffusive Transport in Medical Devices

Martin L Tanaka[1]
[1]*Western Carolina University*

PA 57. Detection of Error-Related Potentials Evoked by Haptic Feedback of Elbow Flexion and Extension
Dylan Page[1], Tori Scales[1], Miles Canino[1]
[1]*Rose-Hulman Institute of Technology*

PA 58. Effects of Nmes on Muscle Atrophy and Heel-Rise Test Performance 12-Week After Achilles Tendon Rupture
Shabnam Rahimnezhad Baghche Jooghi[1], Morgan Potter[2], Morgan Voulo[3], Brian Sonak[1], Dov Bader[1], Paul Sherbondy[3], Paul Herickhoff [3], Karin Grävare Silbernagel[2], Daniel Cortes[1]
[1]*Penn State University,* [2]*University of Delaware,* [3]*Penn State College of Medicine*

PA 59. Dielectric Elastic Actuators From "Everyday" Materials and Their Limits
Juan Heredia[1], Dayana Chavez[1]
[1]*Reedley College*

PA 60. Anchorcat: Intracardiac Echocardiography (Ice) Catheter Fixation Device
Sumin Jeong[1], Vivian Lang[1], Jonathan Makhoul[1], Alexi Pierre- Louis[1], Alice Tian[1], Sam Wu[1]
[1]*Rice University*

PA 61. A Novel Growth-Accommodating Pediatric Stent for Vascular Stenosis Applications
Niharika Narra[1], Dean Stornello[1], Osinanna Okonkwo[1], Abigail Russell[1], Gianna J. Stinsa[1], Sherry L. Harbin[1], Asem Aboelzahab[1], Aditya Shanghavi[1], Jeremy L. Herrmann[2]
[1]*Purdue University,* [2]*Indiana University School of Medicine*

PA 62. Pediatric Foley Catheter with Safety Release Mechanism
Hannah Lehrfeld[1], Isabelle O'grady[1], Julia Amato[1], Sean Runkle[1], Taylor Schreiber[1], Xochitl Triana[1]
[1]*The University of Arizona*

PA 63. Somniguard: A Smart Sleeping Mask for Personalized Sleep Therapy
Aaron Li[1], Asher Kim[1], Caden Davis[1], Madeleine Doi[1], Landon Hiley[1], Keira Hundhausen[1], Vyas Koduvayur[1], Abeni Liu[1], Jason Liu[1], Melissa Perez- Rodriguez [1], Kyra Sunil[1], Matthew Tsai[1], Shirley Xiang[1], Ellen Zulkarnain[1]
[1]*University of California, Los Angeles*

Education

PA 64. Assessing Conceptual Learning by Implementing Inquiry-Based and Video-Based Homework Modules in Undergraduate Heat Transfer Course
Liang Zhu[1], Shuyan Sun[1], Ronghui Ma[1]
[1]*University of Maryland Baltimore County*

Fluid Mechanics

PA 65. Modeling the Cerebrospinal Fluid Dynamics of Ventricular Shunt Failure
Bryan Good[1], Dylan Fuentala[1], Ashley Handy- Miner[1], Stephanie Termaath[1]
[1]University of Tennessee

PA 66. Discrete Platelet Wall Attraction Model for Arterial Scale Flows
Arnav Garcha[1], Noelia Grande Gutierrez[1]
[1]Carnegie Mellon University

PA 67. Computational Modeling of Catheter Flow Dynamics in Pediatric Hydrocephalus
Christopher Roberts[1], Brandon Rocque[2], Leopold Arko[3], Mino Zucchelli[4], Elliot Widd[1], Carolyn Harris[1]
[1]Wayne State University, [2]Children's of Alabama, [3]Children's of Michigan, [4]IRCCS Istituto Scienze Neurologiche di Bologna

PA 68. Predicting Alzheimer's Progression with a Coupled 0D-1D Glymphatic Flow Model Parameterized with 4D MRI
Daehyun Kim[1], Kaidi Hu[1], Mahsa Mirzaee[1], Jeffrey Tithof[1]
[1]University of Minnesota

PA 69. Effect of Myocardial Motion on Coronary Hemodynamics
Yurui Chen[1], Hannah Zhai[1], Ian Chen[2], Vijay Vedula[1]
[1]Columbia University, [2]Stanford Cardiovascular Institute

PA 70. Left Ventricular Hemodynamics Pre- and Post-Mitral Valve Repair: Relationship Between Intracardiac Vortices and Myocardial Motion
Tanmay Mukherjee[1], Babak Peighambari[1], Akila Bersali[2], Dipan Shah[2], Reza Avazmohammadi[1]
[1]Texas A&M University, [2]Houston Methodist DeBakey Heart & Vascular Center

PA 71. Automated Workflow for Atomic Force Microscopy Using Machine Learning Segmentation on DNA
Blythe Dumerer[1], Sita Sirisha Madugula[2], Ruben Millan-Solsona[2], Liam Collins[2], Rama Vasudevan[2]
[1]University of California, Berkeley, [2]Oak Ridge National Laboratory

PA 72. Patient-Specific FSI Analysis in Subjects with Sickle Cell Disease and Pulmonary Hypertension
Fatemeh Bahmani[1], Alex Vadati[1], Veeranna Maddipati[1], Stephanie George[1]
[1]East Carolina University

PA 73. Modeling Hypercoagulable States in Left Atrial Appendage Occlusion Patients
Ahmad Bshennaty[1], Brennan Vogl[1], Ghasaq Saleh[2], Alessandra Bavo[3], Matthieu De Beule[3], Jens Erik Nielsen-Kudsk[4], Ole De Backer[5], Mohamad Alkhouli[2], Hoda Hatoum[1]
[1]Michigan Technological University, [2]Mayo Clinic, [3]FEops, [4]Aarhus University Hospital, [5]Copenhagen University Hospital

PA 74. Temperature and Viscosity Effects on Nitinol-Framed Seld-Expanding Transcatheter Aortic Valve Performance in a Patient-Specific In-Vitro Model
Ahmad Bshennaty[1], Brennan Vogl[1], Zhongtian Zhang[1], Ghasaq Saleh[2], Bruce Lee[1], Mohamad Alkhouli[2], Hoda Hatoum[1]
[1]Michigan Technological University, [2]Mayo Clinic

PA 75. Precision Stroke Medicine: A Data-Driven Atlas of Cerebral Blood Flow Dynamics & Vascular Morphology
Aditi Deshpande[1], Laith Altaweel[2], Jing Wang[2], Seajin Yi[2], Pravin George[2], Pouya Fahadan[2], Kaveh Laksari[1]
[1]University of California, Riverside, [2]Inova Fairfax Medical Campus

PA 76. Advance in Predictive Modeling of Left Ventricular Assist Device Implantation Hemodynamics: Two Patient Specific Cases
Abraham Umo[1], Brett Welch[2], Steven Keller[3], Arman Kilic[2], Ethan Kung[1]
[1]Clemson University, [2]Medical University of South Carolina, [3]Johns Hopkins University

PA 77. Effects of Boundary Conditions on Temperature and Humidity Distribution in Cystic Fibrosis Airways
Hamideh Hayati[1], Qiwei Xiao[1], Chamindu Gunatilaka[1], Alister Bates[1]
[1]Cincinnati Children's Hospital Medical Center

PA 78. Shear-Mediated Platelet Adhesion Dynamics: Modeling the Effect of Von Willebrand Disease and Multi-Platelet Aggregates
Peineng Wang[1], Jawaad Sheriff[1], Peng Zhang[1], Yuefan Deng[1], Danny Bluestein[1]
[1]Stony Brook University

PA 79. A Multiplexed Microfluidic Device to Assess Blood Coagulation
Mohammad Nikmaneshi[1], James Baish[2], Noel-Adrian Hollosi[1], Gabriel Gruionu[3], Lance Munn[1]
[1]Massachusetts General Hospital, [2]Bucknell University, [3]Indiana University School of Medicine

PA 80. A Diffusion-Based Generative Model for Multi-Branch Aortic Vessels Using Nurbs Parameterization
Pan Du[1], Minqi Xu[2], Jian-Xun Wang[2]
[1]University of Notre Dame, [2]Cornell University

Solid Mechanics

PA 81. Effect of Residual Stresses on Network Reorganization in Composite Fiber Networks Driven by Cellular Interactions
Ashutosh Mishra[1], Hamed Hatami-Marbini[1]
[1]University of Illinois Chicago

PA 82. Fatigue Fracture of Mineralized Collagen Fibrils in 3D
Riti Sharma[1], Stephen Ching[1], Luc Capaldi[1], Kailin Chen[1], Xianghui Xiao[2], Ottman A. Tertuliano[1]
[1]University of Pennsylvania, [2]National Synchrotron Light Source II, Brookhaven National Laboratory

PA 83. Age Differences in Clitoral Anatomy Across the Adult Lifespan
Shaniel Bowen[1], Pamela Moalli[2], Arijit Dutta[3], Krystyna Rytel[4], Holly Richter[5], Mark Lockhart[5], Sara Perelmuter[6], Elazer Edelman[1], Steven Abramowitch[7]
[1]Massachusetts Institute of Technology, [2]Magee Womens Research Institute, [3]University of Maryland, [4]National Human Genome Research Institute, [5]University of Alabama at Birmingham, [6]Weill Cornell Medical College, [7]University of Pittsburgh

PA 84. Inversion in Shear Wave Elastography Using Traveling Wave Expansion
Shengyuan Ma[1], Guang-Zhong Yang[1], Yuan Feng[1]
[1]Shanghai Jiao Tong University

PA 85. Graph Neural Network for Soft-Body Contact Mechanics
Vijay Dubey[1], Collin E. Haese[1], Osman Gültekin[1], Jan Fuhg[1], Manuel K. Rausch[1]
[1]The University of Texas at Austin

PA 86. A Systems Mechanobiology Approach to Understanding Transgender Cardiac Remodeling
Christian Andrade Herrera[1], Adhithi Lakshmikanthan[1], Pim Oomen[1]
[1]University of California, Irvine

PA 87. Mechanical and Microstructural Markers of Healthy Uterine Decidualization and Pregnancy
Catalina Bastias[1], Arpna Sharma[1], Anuurag Aravindan[1], Matt Dean[1], Callan Luetkemeyer[1]
[1]University of Illinois Urbana-Champaign

PA 88. A 3D Analysis of the Intervertebral Disc in Adolescent Idiopathic Scoliosis
Anna Iacocca[1], Jacob Jordan[2], Thomas Coleman[3], Patrick Cahill[3], Axel Moore[1]
[1]Carnegie Mellon University, [2]University of Pennsylvania Perelman School of Medicine, [3]Children's Hospital of Pennsylvania

PA 89. Multicomponent Mechanical Characterization of Diseased Human Coronary Artery with an Image-Based Computational Framework
Yifan Wang[1], Caleb Berggren[2], Stewart Yeoh[2], Steve Maas[2], Jeffrey Weiss[2], Edward Hsu[2], Lucas Timmins[1]
[1]Texas A&M University, [2]University of Utah

PA 90. Functions of Prolyl Hydroxylation in Elastin
Chengeng Yang[1], Christian Schmelzer[2], Anna Tarakanova[1]
[1]University of Connecticut, [2]Department of Biological and Macromolecular Materials, Fraunhofer Institute for Microstructure of Materials and Systems IMWS

PA 91. Creep Response of the Pig and Cow Optic Nerves Under Compression
Katherine Kauffman[1], Katie Metrey[1], Arina Korneva[1]
[1]Virginia Tech

PA 92. Tricuspid Valve Leaflet Remodeling in Sheep with Biventricular Heart Failure: A Comparison Between Leaflets

Colton Kostelnik[1], Shreya Sreedhar[1], William Meador[1], Chien-Yu Lin[1], Mrudang Mathur[1], Marcin Malinowski[2], Tomasz Jazwiec[2], Zuzanna Malinowska[1], Magda Piekarska[2], Boguslaw Gaweda[2], Tomasz Timek[2], Manuel Rausch[1]
[1]The University of Texas at Austin, [2]Corewell Health

PA 93. Mouse Specific Fluid-Structure Interaction Simulation for Investigating the Role of Aortic Hemodynamics in Age- and Sex- Specific Aneurysm Progression in Marfan Syndrome
Krashn K Dwivedi[1], Yufan Wu[1], James D Quirk[1], Marisa Bazzi[2], Hadi Wiputra[2], Victor H Barocas[2], Jessica E Wagenseil[1]
[1]Washington University in St. Louis, [2]Washington University in Saint Louis

PA 94. Computational Poroelastic Framework Coupling Left Ventricular Mechanics with Myocardial Perfusion
Haowei An[1], Vahid Ziaei-Rad[1], Lik Chuan Lee[1]
[1]Michigan State University

PA 95. Rapid Cardiac Functional Simulation Using the Jax Numerical Framework
Benjamin Thomas[1], Kenneth Meyer[1], Ulas Akyuz[1], Christian Goodbrake[1], Michael Sacks[1]
[1]The University of Texas at Austin

PA 96. Hydraulically Actuated Asymmetric Flexible Hinge: A Bio-Inspired Design Principle
Eugene Starostin[1], Geoff Goss[1]
[1]London South Bank University

PA 97. An Ex Vivo Mastication Simulator for Wear Testing of Temporomandibular Joint Implants
Anton Pavlov[1], Hassan Mahmoud[1], Ben Gadomski[1], Kevin Labus[1]
[1]Colorado State University

PA 98. Prediction of Mechanical Response and Tear Development in Vaginal Tissue Using Machine Learning
Mostafa Zakeri[1], Justin Krometis[1], Traian Iliescu[1], Raffaella De Vita[1]
[1]Virginia Tech

PA 99. Patient-Specific Simulation of Stent Graft Deployment for Risk Assessment in Thoracic Endovascular Aortic Repair
Zhongxi Zhou[1], Zhaoming He[1], Bradley G Leshnower[2], Minliang Liu[1]
[1]Texas Tech University, [2]Emory University School of Medicine

PA 100. Alveolar Microdynamics from 4D Micro CT Image Registration
Daniel Meggo[1], Sarah Gerard[1], Jacob Herrmann[1]
[1]University of Iowa

PA 101. Classification of Abdominal Aortic Aneurysms Using Graph Neural Networks
Julian Carvajal Rico[1], Juan C. Restrepo[1], Satish C. Muluk[2], Mark K. Eskandari[3], Ender A. Finol[1]

[1]The University of Texas at San Antonio, [2]Department of Cardiothoracic Surgery, Allegheny Health Network, [3]Division of Vascular Surgery, Northwestern University School of Medicine

PA 102. The Use of Region-Dependent Material Parameters in Simulating Cerebral Atrophy
Nicole Tueni[1], Emma Griffiths[1], Silvia Budday[1]
[1]Friedrich-Alexander-Universität Erlangen-Nürnberg

PA 103. Porcine Vertebral Endplate Biomechanical Analysis Under Four-Point Bending
Verushca Gasiorowski[1], Jack Seifert[1], William Curry[1], Lance Frazer[2], Timothy Bentley[3], Daniel Nicolella[2], Narayan Yoganandan[1], Frank Pintar[1], Brian Stemper[1]
[1]Medical College of Wisconsin, [2]Southwest Research Institute, [3]Office of Naval Research

PA 104. Zero-Shot Deep Learning-Based Strain Calculation Framework Using Cotracker 3 Model: An Application in Active Contraction of the Bladder Tissue
Alireza Asadbeygi[1], Anne Robertson[1]
[1]University of Pittsburgh

PA 105. Mechanics and Failure of Single Sutures in Ovine Tendon
Charlotte Andreasen[1], Nell Hasler[1], Emily Graham[1], Ellen Arruda[1]
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PA 106. Computational Stent Simulation in Patient-Specific Artery Model Using Simplex Mesh
Changkye Lee[1], Wei Wu[1], Shijia Zhao[1], Rakshita R. Bhat[1], Priyansh Patel[1], Yiannis S. Chatzizisis[1]
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PA 107. Site-Dependent Mechanical Properties of the Meniscus
Satoshi Yamakawa[1], Takashi Kanamoto[1], Akira Tsujii[1], Ken Nakata[1]
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PA 108. Impact of Seat Angle on Cervical Spine Degeneration in High-G Environments: A Computational Biomechanics Study
Ann Reyes Kadozono[1], Reuben Kraft[1]
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PA 109. Amplified Cine-MRI of the Healthy Human Brain at 3Tesla and 7Tesla
Tyson Lam[1], Emily Triolo[1], Fargol Rezayaraghi[1], Mehmet Kurt[1]
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PA 110. Alcohol Ablation and Its Influence on Myocardial Mechanics in the Context of Transcatheter Mitral Valve Implantation
Steven Said[1], Mina Shafiei[1], Dong Qiu[1], Ali Azadani[1]
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PA 111. The Cxl Effects on Corneal Mechanical Property Anisotropy
Md E Emu[1], Hamed Hatami-Marbini[1]

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PA 112. A Computational Model of Neonatal Pulmonary Artery Development
Erica Schwarz[1], Abhay Ramachandra[2], Nicola Yeung[3], Edward Manning[1], Dar Weiss[4], Jay Humphrey[1]
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PA 113. A Model of Nonlinear Lung Compliance Coupled to Time- and Pressure-Dependent Recruitment
Jacob Herrmann[1]
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PA 114. Modeling Nonlocal Behavior of Stochastic Fibrous Materials Using a Finite Element Implementation of Micromorphic Linear Elasticity
Zachary Knowlan[1], Jacob Merson[1]
[1]Rensselaer Polytechnic Institute

PA 115. Computational Modeling of Right Ventricle Mechanics: Interventricular Septal Curvature as a Potential Biomarker for Disease Diagnosis
Chenghan Cai[1,2], Lei Fan[1,2]
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PA 116. The Relation Between Glycosaminoglycan Content and Mechanical Property of Human Cornea
Md Esharuzzaman Emu[1], Hamed Hatami- Marbini[1]
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PA 117. Tension in the Deep Zone Collagen Network Contributes to the Residual Stress in Mature Bovine Articular Cartilage
Kimberly Kroupa[1], Haoyu Zhang[1], Clark Hung[1], Gerard Ateshian[1]
[1]Columbia University

PA 118. Microfluidic Synthesis of Alginate Microbeads to Quantify Intra-Tumoral Compressive Stress
Bryce Thompson[1], Erica Rios Hernandez[1], Zachary Fowler[1], Allison Johnson[1], Joseph Chen[1]
[1]University of Louisville

PA 119. Comparative Study of Spinal Cord Stress Distribution and Range of Motion in Anterior Cervical Surgeries
Yuvaraj Purushothaman[1], Hoon Choi[1], Narayan Yoganandan[2]
[1]Cleveland Clinic Florida, [2]Medical College of Wisconsin

PA 120. Substrate Stiffness Influences Fungal Biofilm Morphogenesis and Mechanical Properties
Richa S Thakur[1], Joushua Tamayo[1], Arvind Gopinath[1]
[1]University of California Merced

PA 121. Age and Sex Associations of Aortic Area and Circumferential Strain in Patients with Unique Cardiac Disease States
Alice Guest[1], Petra Alsahwi[1], Tanveer Parhar[1], Rylan Marianchuk[1], Dinah Labib[1], James A. White[1], Elena Di Martino[1]
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PA 122. Quantification of Dynamic Fluidic Sloshing Force During Impact and Effect on Neuron Cells
Raisa Akhtaruzzaman[1], Ashfaq Adnan[1]
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PA 123. Biomechanical Effects of Bertolotti Syndrome on Lumbar Kinematics: A Cadaveric Study
Elizabeth Pace[1], Jeremy Loss[1], Mario-Cyriac Tcheukado[1], Robb Colbrunn[1], Logan Shannon[1], Michael Steinmetz[1]
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PA 124. Immune Activation Through Pattern Recognition Receptor Agonists Modulate Functional Rotator Cuff Healing in a Rat Model
Sam Winston[1], Devin Von Stade[1], Cody Plaisance[1], Renata Impastato[1], Lyndah Chow[1], Lynn Pezzanite[1], Steven Dow[1], Kirk Mcgilvray[1]
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PA 125. Role of the Osteocyte Compressibility on the Controlled Canalicular Volume Flow Rate and Its Biological Implications
Jaemin Kim[1], Youngho Lee[1], Soonmoon Jung[1], Hyeyeong Song[1], Seungyun Oh[1], Jiwoo Jang[1], Inyeop Na[1], Junghwa Hong[1]
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PA 126. Integration of Mathematical and Agent-Based Models in Finite Element Frameworks to Simulate Murine Bone Fracture Healing
Ahmad Hedayatzadeh Razavi[1,2], Nazanin Nafisi[1,2], Mohammad Sadegh Ghiasi[2], Ara Nazarian[1,2]
[1]*Boston University,* [2]*Beth Israel Deaconess Medical Center*

PA 127. Targeting the Mechano-Epigenetic Pathway: A Novel Approach for Primary Mesenchymal Stem Cell Manufacturing to Achieve Quality and Quantity
Lauren Monroe[1], Soham Ghosh[1]
[1]*Colorado State University*

PA 128. Compromised Load Transfer within Human Elastin Network with Aging
Yeganeh Taheri[1], Anastasia Gkousioudi[1]
[1]*Boston University*

PA 129. Sex Differences in Immune Response to Extracellular Matrix Nanoparticle Treatment of Endotoxin-Induced Lung Injury
Casie Slaybaugh[1], Jessica Nguyen[1], Keith Li[1], Rebecca Heise[1]

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PA 130. Reproducibility Issues with Explant Models of Tendon and Ligament Mechanobiology
Brad Foster[1], Lauren Paschall[2], Krishna Pedaprolu[3], Spencer Szczesny[1]
[1]*Pennsylvania State University,* [2]*National Cancer Institute,* [3]*Hospital of Special Surgery*

PA 131. Vasculogenic "Code Switching": Exploring Vascular Smooth Muscle Cell Transcriptomics During Vasculogenesis
Mohammad Nikmaneshi[1], Lennard Weide[1], Noel-Adrian Hollosi[1], Marc Holl[1], Rieke Schleinhege[1], Dan Duda[1], Lance Munn[1]
[1]*Massachusetts General Hospital*

PA 132. Automated Dendritic Spine Counting With Machine Learning for Analyzing Mechanical Injury of Neurons in Vitro
Avik Mukherjee[1], Dehzi Liao[1], Patrick Alford[1]
[1]*University of Minnesota*

PA 133. Assessment of Mesoscale Cutting Accuracy in Tissue Engineered Vascular Grafts Using Two-Photon Subtractive Manufacturing
Tiffany Moreno[1], Brock Pemberton[1], Markus Boettcher[2], William Wagner[1], Jonathan Vande Geest[1]
[1]*University of Pittsburgh,* [2]*Miltenyi Biotec B.V. & Co.*

PA 134. Spatially Graded Tissue Engineering Scaffolds from Multi-Diameter Melt Electrowritten Fibers
Dylan Scheller[1], Sam Winston[1], Kirk Mcgilvray[1]
[1]*Colorado State University*

PA 135. Effect of Exposure to Light of Different Wavelengths on Viability of Sh-Sy5y Cell
Sumaya Sharmin[1], Raisa Akhtaruzzaman[1], Ashfaq Adnan[1]
[1]*University of Texas at Arlington*

PA 136. Pgg-Stablized Acellular Porcine Epicardial Layer as a Cardiac Patch Scaffold
Sara R. McMahan, Alan Taylor, Jiazhu Xu, Zhiping Liu[2], Pietro Bajona[2], Matthias Peltz[2], Yi Hong[1], Jun Liao[1]
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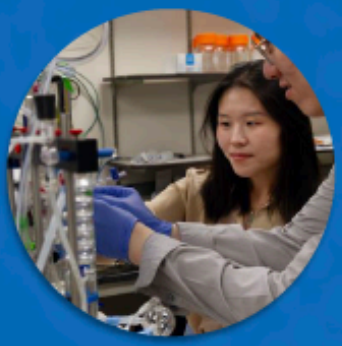

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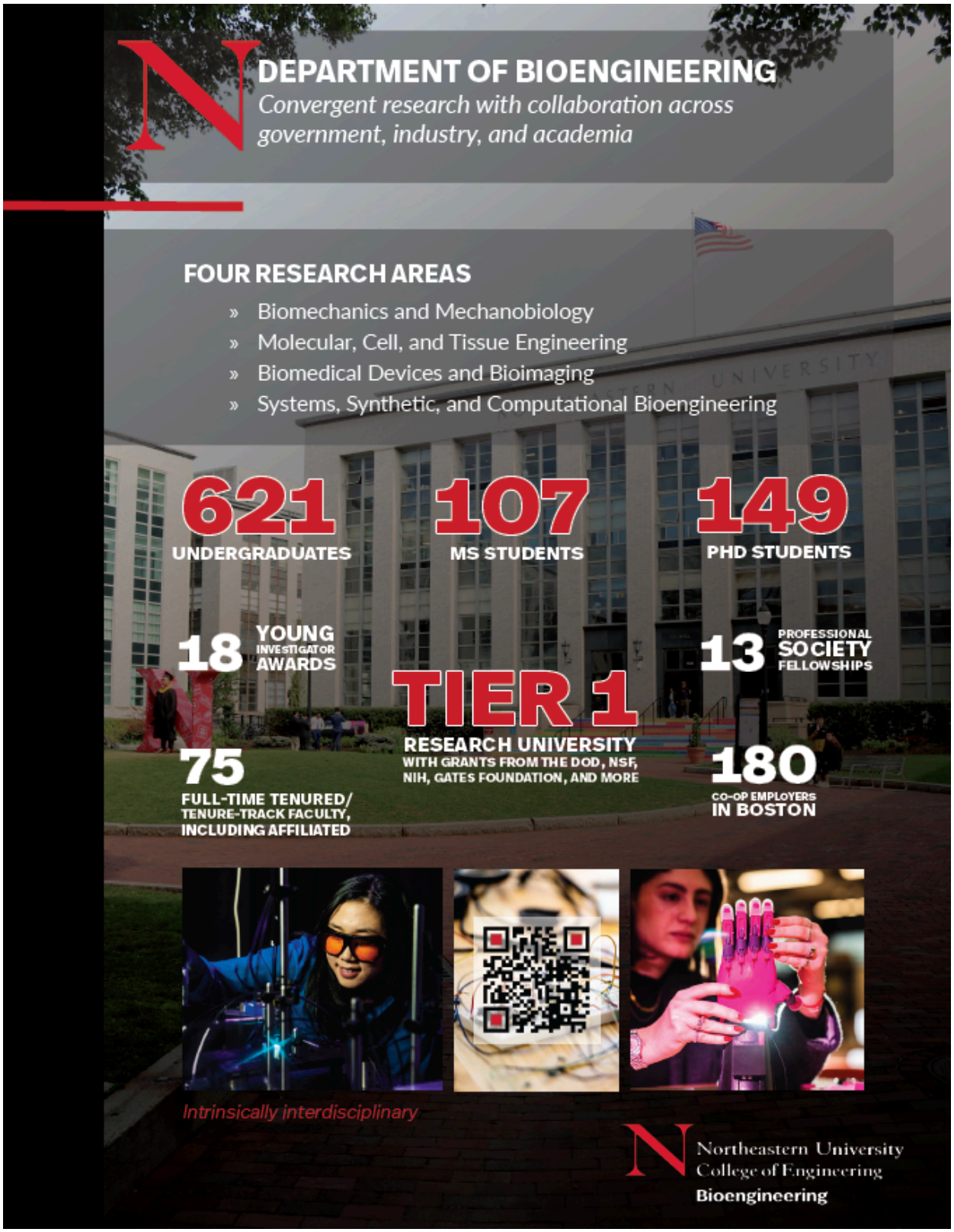
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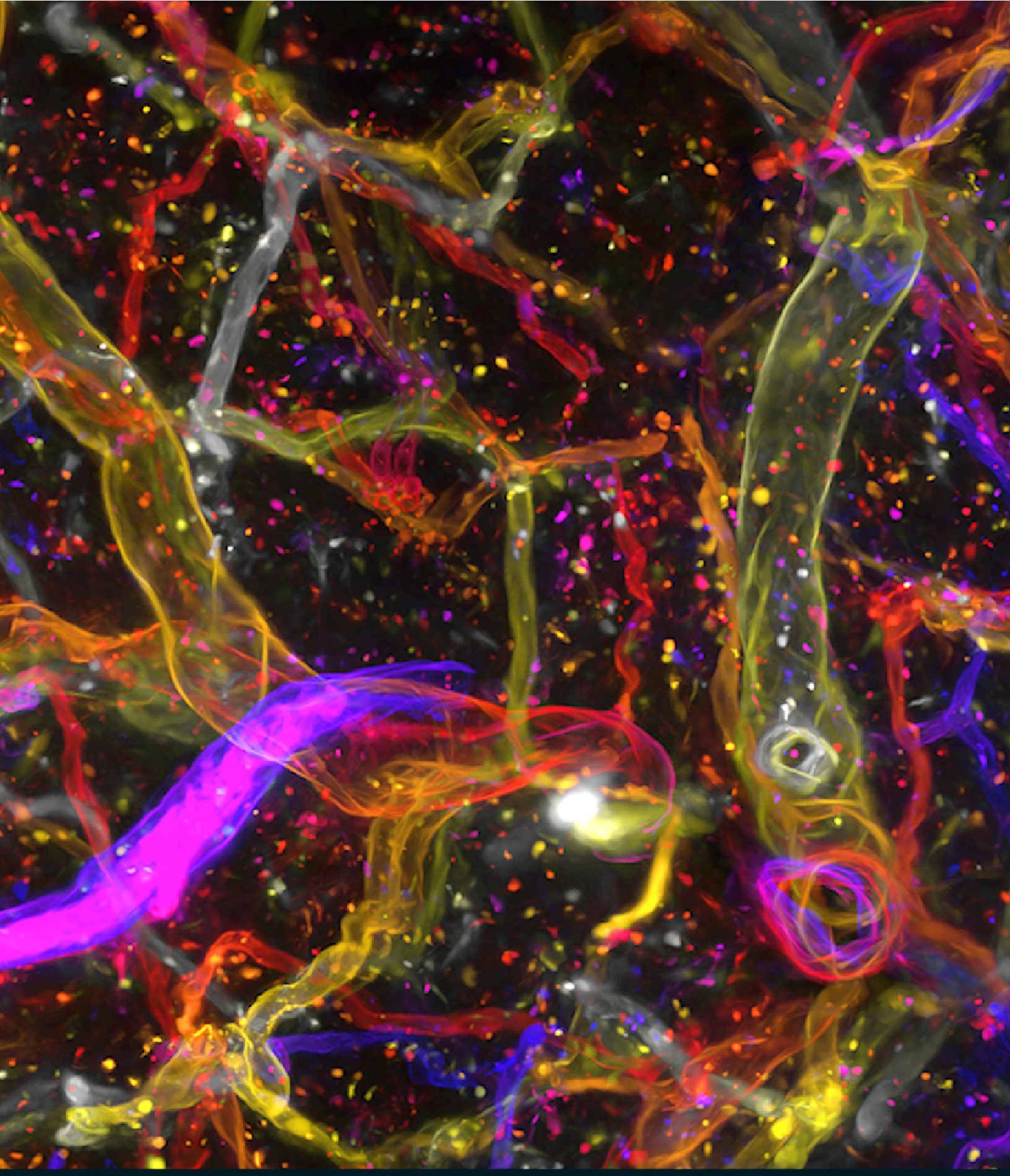
Room:	Tamaya A	Tamaya B	Tamaya C	Puma AB	Wolf AB	Eagle A	Eagle B
SUNDAY, June 22, 2025							
11:30 - 1:00 pm	**ASME EC Meeting**						
1:00 – 2:00 pm				TCOM: Education	TCOM: Fluid Mechanics	TCOM: Industry	Student Leadership Committee
2:00 – 3:00 pm				TCOM: Biotransport	TCOM: Tissue & Cell	TCOM: DDRR	
3:00 – 4:00 pm						TCOM: Solids	
4:15 – 5:45 pm	Emerging Computational BMMB	G&R Mechanics	Mechanobiology I	In Vitro & Computational Biofluids	Head & Injury Solids 1	Engineering Education	Exp. Mechanics & Mineralized Tissues
6:00 – 7:10 pm	**Plenary - Manu Platt** (Tamaya D Ballroom)						
7:15 – 9:00 pm	**Welcome Reception** (Tamaya Foyer)						
MONDAY, June 23, 2025							
8:00 – 9:30 am	Reproductive Mechanics I	Vascular Biomechanics I	Engineered In Vitro Models	Scientific Computing in CVD Fluids & Design	Spine & Joints	DDRR Precision Health Innovations	Biotransport: Biotechnology Applications
9:45 – 11:15 am	**Nerem ASME Medal (Alan Eberhardt) | Mow ASME Meda (Yongjie Jessica Zhang) | Fung ASME Medal (Spencer Szczesny) |** (Tamaya D Ballroom)						
11:15 – 11:30 am	**Coffee Break**						
11:30 – 1:00 pm	Reproductive Mechanics II	Vascular Biomechanics II	Mechanobiology II	Image-Driven Patient-Specific Modeling of CVD	Joint Biomechanics	DDRR Computational, Protective Devices, & Regulatory	Biotransport: Nano & Micro
1:00 – 2:30 pm	**POSTER SESSION I with Lunch, Including BS SPC | Prospective Junior Faculty Poster Session (EFGH Ballroom)**						
2:30 – 3:45 pm	**Lavender Networking Event | 1st Time Attendee**						
3:45 – 4:55 pm	**ASME-SB3C Open Meeting | Student Networking Event**						
TUESDAY, June 24, 2025							
8:00 – 9:30 am	Emerging Experimental BMMB	Cardiac Biomechanics	Special session: Cancer Mechanobiology	Heart Valves & Vascular Flow: Exp & Comp	Special session: John Bischof 60th Birthday	DDRR Clinical Translational Impacts to Improve Mobility	Head & Injury Solids II
9:45 – 10:45 am	**Lissner ASME Medal (Kai-Nan An)** (Tamaya DEFGH Ballroom)						
10:45 – 11:00 am	**Coffee Break**						
11:00 – 12:30 pm	PhD SPC: Reproductive Mechanics	PhD SPC: Cardiovascular BMMB	PhD SPC: Tissue Engineering	PhD SPC: Biomechanical Investigations	PhD SPC: Musculoskeletal Biomechanics	PhD SPC: Biotransport & Modeling Systems	
12:30 – 2:00 pm	**POSTER SESSION II with Lunch, Including MS SPC (EFGH Ballroom)**						
2:00 – 3:30pm	Funding opportunities	Transitioning Between Academia and Industry workshop	Women's Health and Engineering			FDA Medical Device Workshop	
3:30 - 5:00pm	NIH/NSF Program Officer Webinar	Mentor-mentee workshop	Biological sex on tissue mechanics			How to apply for academic positions	
5:00 – 6:00 pm	**Networking Events**						
7:00 – 10:00 pm	**CONCERT**						
WEDNESDAY, June 25, 2025							
8:30 – 10:00 am		CRIMSON	SimVascular Workshop	FEBio Workshop	simVITRO		
10:00 – 11:30 am	Scientific Advocacy (AIMBE)					Undergrad Design Competition	
1:00 - 2:00	**Grood ASME Medal (ATP-Bio Team: John Bischof & Mehmet Toner) | Woo ASME Medal (Umut Atakan Gurkan)** (Tamaya D Ballroom)						
2:00-2:15	**Coffee Break**						
2:15 – 3:45 pm	Multiscale Mechanics I	Heart Valve Biomechanics	Tissue Regeneration, & Emerging TCE	CVD Biofluid Mechanics	Soft Tissue Mechanics	Cancer mechanics & Microfluids	Biotransport: Computational Modeling
4:00 – 5:30 pm	Multiscale Mechanics II	Vascular Hemodynamics & Mechanobiology	Microenv. Stiffness & Physical Effects	AI & Machine Learning in Biofluids	Topics in Bone & Joint Mechanics	CVD Mechanics	Extracellular Matrix Dynamics & Remodeling
7:00 – 7:30 pm	**Banquet Reception** (Tamaya DEFGH Ballroom)						
7:30 – 10:00 pm	**Banquet and Awards Ceremony** (Tamaya DEFGH Ballroom)						



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