

# BMEES

BIOMEDICAL ENGINEERING SOCIETY



# 2022 ANNUAL MEETING

OCTOBER 12 - 15 | SAN ANTONIO, TX

MEETING THEME: Embracing Inclusion to  
Advance Innovation in Healthcare and Education

**COMPANION**

# PROGRAM BOOK

# 2022 BMES Annual Meeting

**October 12-15, 2022**

Henry B. Gonzalez  
Convention Center  
900 E. Market Street

**MEETING CO-CHAIRS**



**Treena Arinzeh, PhD**



**Kris Billiar, PhD**



**Anita Singh, PhD**

### A NOTE FROM THE 2022 ANNUAL MEETING CO-CHAIRS

As Co-Chairs of the 2022 BMES Annual Meeting, we are delighted to invite you to this year's meeting! From October 12-15, 2022, in the vibrant multicultural city of San Antonio, we will celebrate the tremendous contributions made by BMES members in research, teaching, education, and the workforce that directly impact many sectors of our society. We also aim to highlight equity issues in healthcare and education stemming from racial and socioeconomic diversity, gender and sexual orientation, and disabilities.

This year, we are planning an in-person conference with streaming of the plenaries and DEI events to provide a taste of our best and brightest for those who can't make it in person and to encourage students at HBCUs, community colleges and high schools to learn about BME. While it's hard these days to break away from our screens, we strongly encourage you to join us in San Antonio for the full experience. The BMES Annual Meeting is a unique event where you can reconnect with colleagues and expand your network with BMEs for future collaborations, mentorship, and possible employment. We understand that traveling in these times is a personal decision, so we've created an online networking system to bridge the gap between in-person attendees and those who can only join us virtually.

In an effort to enhance the experience of attendees, we are introducing a new "Session Co-Chair Trainee" program. This addition will allow BMES members, in the early stages of their careers, to shadow appointed Session Co-Chairs at the Annual Meeting. These positions are critical to the success of our meetings.

There will be a renewed focus on the existing women's and global health tracks. In addition, thanks to the diligent planning of BMES Committees, we have included a series of Special Session tracks dedicated to DEI, professional development, and student support. Further, we seek proposals for Special Sessions from BME stakeholders that elevate these topics and help facilitate equality in STEM.

While the highlight at BMES Annual Meetings is promoting the importance of cutting-edge science, we will also celebrate the leadership and accomplishments of those who have made the most significant impact in our community — BMES Grade of Fellows and award winners. These two groups embody the BME leaders of tomorrow, so we hope you will nominate someone who inspires you and deserves recognition within our community.

We are confident that you will have a productive, rewarding, and enjoyable experience at the 2022 BMES Annual Meeting. We hope you are as ready as we are to connect with and broaden our community. So come join us as part of the BME community this October!

See you in San Antonio!

### Meeting Co-Chairs

**Treana Arinzeh, PhD**

**Kris Billiar, PhD**

**Anita Singh, PhD**

### PROGRAM AT A GLANCE

📅 Wednesday, Oct 12, 2022

🕒 8:00 AM - 4:00 PM CDT

[BMES Board of Directors Meeting \(invitation only\)](#)

Location: 209,Convention Center

📅 G

🕒 12:00 PM - 7:00 PM CDT

[Registration Badge Pickup](#)

Location: Hall 4 West/4A,Convention Center

📅 G

🕒 1:00 PM - 5:00 PM CDT

[Affiliate: BME-IDEA Meeting by VentureWell \(invitation only\)](#)

Location: 007 A,Convention Center

📅 G

🕒 4:00 PM - 6:00 PM CDT

[Meet the Faculty Candidates Forum](#)

Location: Exhibit Hall 3,Convention Center

📅 G

🕒 5:00 PM - 6:00 PM CDT

[How to Maximize Your Conference Experience w/ Meeting Co-Chairs Anita Singh, Kris Billiar, and Treena Arinzeh](#)

Location: 206AB,Convention Center

📅 G

🕒 5:00 PM - 6:30 PM CDT

[Affiliate: BME-IDEA Reception by VentureWell \(invitation only\)](#)

Location: 007 B,Convention Center

📅 G

🕒 5:00 PM - 8:00 PM CDT

[Affiliate: Alpha Eta Mu Beta Annual Meeting \(invite only\)](#)

Location: 006C,Convention Center

📅 G

🕒 6:00 PM - 7:30 PM CDT

[Special Events - Welcome Reception](#)

Location: Exhibit Hall 4A/4B,Convention Center

📅 G

🕒 6:30 PM - 9:00 PM CDT

[Council of Chairs Meeting \(invitation only\)](#)

Location: 006A,Convention Center

📅 G

[Council of Diversity Dinner Meeting \(invitation only\)](#)

Location: 006B,Convention Center

📅 G

# PROGRAM AT A GLANCE

Three invited panelists will share their experiences and perspectives on what it means to navigate, build, advocate, and reinforce LGBTQIA+ affirming professional spaces. A brief moderated session will follow panelists' presentations to open this discussion to the audience. This portion of the event will also be livestreamed. The panel will be followed by an interactive networking and discussion period facilitated by various discussion leaders from the BMES community. The objective of this session is to help our community members to identify and understand different perspectives and challenges people from across the LGBTQIA+ identity spectrum are faced with, ways in which they have navigated this, and ways to break down barriers at your institution, or company, and/or in your personal spheres for creating more affirming spaces.

## Speaker(s)/PI:

 Wendy E Thomas  Aidan Gilchrist  Sarah Breen

Location: 217AB,Convention Center

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 Thursday, Oct 13, 2022

 7:00 AM - 5:00 PM CDT

### [Registration Badge Pickup](#)

Location: Hall 4 West/4A,Convention Center



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 7:30 AM - 8:00 AM CDT

### [High School Expo and Poster Competition Orientation](#)

Location: 008B,Convention Center



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 8:00 AM - 9:00 AM CDT

### [Student Programming - Student Chapter/High School Poster Breakfast \(Ticketed Event\)](#)

Location: LDR,Convention Center



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 8:00 AM - 9:30 AM CDT

### [BMES National Meetings Committee & 2023 Annual Meeting Planning Committee Meeting \(invitation only\)](#)

Location: 006C,Convention Center



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### [Platform Sessions - Concurrent Platform Sessions \(90 Minutes\)](#)



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Click [here](#) for full list of Platform Sessions.

Location:

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### [Special Sessions - Concurrent Special Sessions \(90 Minutes\)](#)



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Click [here](#) for full list of Special Sessions.

Location:

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 9:30 AM - 10:30 AM CDT

### [Poster Session - Poster Session A](#)



G

Click [here](#) for full list of Poster Sessions.

Location:

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 10:00 AM - 11:00 AM CDT

### [Membership Committee Meeting \(invitation only\)](#)

Location: 006C,Convention Center



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🕒 10:30 AM - 11:45 AM CDT

[Plenary Sessions - State of the Society by BMES President of the Board, John White and Diversity Award Lecture](#)

Speaker(s)/PI:

👤 Derek Nelson 👤 Ronke Olabisi

Location: Lila Cockrell Theater,Convention Center

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🕒 11:45 AM - 1:00 PM CDT

[Lunch on your own](#)

Location:

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🕒 11:45 AM - 1:15 PM CDT

[Special Events - Celebration of Communities of Color in BME Luncheon \*\*SOLD OUT\*\*](#)

A diverse group of invited panelists from a range of career paths will discuss their experiences bringing their identity into BME and how they celebrate their identity at work. The panel will begin with brief introductions followed by a moderated session with pre-planned questions surrounding celebrating identity in the workplace before opening to an interactive discussion with audience members. This panel will be live streamed and networking and discussion is encouraged.

Speaker(s)/PI:

👤 Mykel Green 👤 Marysol Luna 👤 David Jamison 👤 Jessica Weaver 👤 Marissa Wechsler 👤 Erica Bell

Location: 217AB,Convention Center

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🕒 12:00 PM - 1:30 PM CDT

[Affiliate: CAMB Lunch Meeting \(invitation only\)](#)

Location: 006C,Convention Center

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[Affiliate: CVET Lunch Meeting \(invitation only\)](#)

Location: 006D,Convention Center

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🕒 12:30 PM - 2:00 PM CDT

[10th US-Korea Joint Workshop on Biomedical Engineering](#)

The goal of the 10th Annual US-Korea Joint BMES Workshop is to promote cooperation, collaboration, and networking between the members of Korean Society of Medical and Biological Engineering (KOSOMBE) and BMES. In the past nine years, this annual Workshop has become increasingly well-known among biomedical engineers in both US and Korea, attracting >-120 PIs and trainees from both countries as part of the Annual BMES meeting. The workshop covers topics on various convergent technologies to better understand and improve human health via different approaches in multi-disciplines. The number of PI's and trainees of Korean-American and Korean members attending the Annual BMES workshop have been increasing (~100-130 members in the past 9 years). Many KOSOMBE members and Korean BMES members come to BMES because of the added-value of the Workshop. With such proven track-record of success over the past nine years, we are confident that this workshop has become a bridge for a long-term relationship and brought mutual benefits for both Society members. We have had a fruitful and exciting workshop where the leaders of BMES and Korean and Korean-American biomedical engineers had been able to gather together to discuss exciting advancements and technological development. This networking opportunity among the leaders, emerging leaders, and trainees is sure to spur further collaborations that would benefit both members of BMES and KOSOMBE.

Location: Grand Ballroom H,Marriott RiverCenter

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🕒 1:00 PM - 2:30 PM CDT

[Platform Sessions - Concurrent Platform Sessions \(90 Minutes\)](#)

Click [here](#) for full list of Platform Sessions.

Location:

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🕒 10:30 AM - 11:45 AM CDT

**Plenary Sessions - State of the Society by BMES President of the Board, John White and Diversity Award Lecture**

**Speaker(s)/PI:**

👤 Derek Nelson 👤 Ronke Olabisi

Location: Lila Cockrell Theater,Convention Center

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🕒 11:45 AM - 1:00 PM CDT

**Lunch on your own**

Location:

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🕒 11:45 AM - 1:15 PM CDT

**Special Events - Celebration of Communities of Color in BME Luncheon **SOLD OUT****

A diverse group of invited panelists from a range of career paths will discuss their experiences bringing their identity into BME and how they celebrate their identity at work. The panel will begin with brief introductions followed by a moderated session with pre-planned questions surrounding celebrating identity in the workplace before opening to an interactive discussion with audience members. This panel will be live streamed and networking and discussion is encouraged.

**Speaker(s)/PI:**

👤 Mykel Green 👤 Marysol Luna 👤 David Jamison 👤 Jessica Weaver 👤 Marissa Wechsler 👤 Erica Bell

Location: 217AB,Convention Center

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🕒 12:00 PM - 1:30 PM CDT

**Affiliate: CAMB Lunch Meeting (invitation only)**

Location: 006C,Convention Center

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**Affiliate: CVET Lunch Meeting (invitation only)**

Location: 006D,Convention Center

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🕒 12:30 PM - 2:00 PM CDT

**10th US-Korea Joint Workshop on Biomedical Engineering.**

The goal of the 10th Annual US-Korea Joint BMES Workshop is to promote cooperation, collaboration, and networking between the members of Korean Society of Medical and Biological Engineering (KOSOMBE) and BMES. In the past nine years, this annual Workshop has become increasingly well-known among biomedical engineers in both US and Korea, attracting >-120 PIs and trainees from both countries as part of the Annual BMES meeting. The workshop covers topics on various convergent technologies to better understand and improve human health via different approaches in multi-disciplines. The number of PI's and trainees of Korean-American and Korean members attending the Annual BMES workshop have been increasing (~100-130 members in the past 9 years). Many KOSOMBE members and Korean BMES members come to BMES because of the added-value of the Workshop. With such proven track-record of success over the past nine years, we are confident that this workshop has become a bridge for a long-term relationship and brought mutual benefits for both Society members. We have had a fruitful and exciting workshop where the leaders of BMES and Korean and Korean-American biomedical engineers had been able to gather together to discuss exciting advancements and technological development. This networking opportunity among the leaders, emerging leaders, and trainees is sure to spur further collaborations that would benefit both members of BMES and KOSOMBE.

Location: Grand Ballroom H,Marriott RiverCenter

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🕒 1:00 PM - 2:30 PM CDT

**Platform Sessions - Concurrent Platform Sessions (90 Minutes)**

Click [here](#) for full list of Platform Sessions.

Location:

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[Special Sessions - Concurrent Special Sessions \(90 Minutes\)](#)

Click [here](#) for full list of Special Sessions.

Location:

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 **1:30 PM - 4:00 PM CDT**

[High School Expo and Poster Competition](#)

Location: Exhibit Hall 3,Convention Center

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 **2:30 PM - 3:30 PM CDT**

[Poster Session - Poster Session B](#)

Click [here](#) for full list of Poster Sessions.

Location:

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 **3:30 PM - 5:00 PM CDT**

[Special Sessions - Concurrent Special Sessions \(90 Minutes\)](#)

Click [here](#) for full list of Special Sessions.

Location:

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[Platform Sessions - Concurrent Platform Sessions \(90 Minutes\)](#)

Click [here](#) for full list of Platform Sessions.

Location:

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 **4:00 PM - 5:00 PM CDT**

[Ethics Subcommittee Meeting \(invitation only\)](#)

Location: 006C,Convention Center

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 **5:00 PM - 6:15 PM CDT**

[Plenary Sessions - Rita Schaffer Young Investigator Award Lecture & Mid-Career Award Lecture](#)

**Speaker(s)/PI:**

 Erika Moore  Evan Scott

Location: Lila Cockrell Theater,Convention Center

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 **6:00 PM - 8:00 PM CDT**

[Hosted University Reception: University of Washington](#)

Location: Salon C,Marriott RiverCenter

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[Hosted University Reception: University of Texas Austin](#)

Location: 006BCD,Convention Center

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[KBMES Joint Workshop Networking Dinner](#)

The 10th KBMES Joint Workshop Networking Dinner will promote cooperation, collaboration, and networking between the members of Korean Society of Medical and Biological Engineering (KOSOMBE) and BMES.

Location: Grand Ballroom H,Marriott RiverCenter

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 **6:00 PM - 9:00 PM CDT**

[Hosted University Reception: University of Texas at San Antonio](#)

Location: Conference Room 8,Marriott RiverCenter

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🕒 6:00 PM - 10:00 PM CDT

[Hosted University Reception: Cornell University](#)

Location: Salon M,Marriott RiverCenter

📅 G

[Hosted University Reception: University of Pennsylvania School of Engineering and Applied Science](#)

Location: Salon D,Marriott RiverCenter

📅 G

[Hosted University Reception: Texas A&M University](#)

Location: Conference Rooms 20/21,Marriott RiverCenter

📅 G

[Hosted University Reception: Center for Advanced Regenerative Engineering, Northwestern University](#)

Location: Conference Room 19,Marriott RiverCenter

📅 G

🕒 6:30 PM - 7:30 PM CDT

[Special Events - Industry Networking Event SOLD OUT](#)

Location: 217AB,Convention Center

📅 G

🕒 6:30 PM - 9:00 PM CDT

[Hosted University Reception: University of Southern California](#)

Location: 007ABC,Convention Center

📅 G

🕒 7:00 PM - 8:30 PM CDT

[Hosted University Reception: University of Louisville](#)

Location: Conference Room 3/4,Marriott RiverCenter

📅 G

🕒 7:00 PM - 9:00 PM CDT

[Hosted University Reception: University of Maryland](#)

Location: Conference Room 18,Marriott RiverCenter

📅 G

[Hosted University Reception: Columbia University](#)

Location: Salon E,Marriott RiverCenter

📅 G

[Hosted University Reception: Purdue University](#)

Location: Salon I,Marriott RiverCenter

📅 G

[Hosted University Reception: University of Michigan](#)

Location: Salon J,Marriott RiverCenter

📅 G

🕒 7:00 PM - 10:00 PM CDT

[Hosted University Reception: University of Pittsburgh](#)

Location: Conference Room 12,Marriott RiverCenter

📅 G

[Hosted University Reception: Rice University](#)

Location: Conference Room 11,Marriott RiverCenter

📅 G

[Hosted University Reception: Johns Hopkins University](#)

Location: Grotto,Convention Center

📅 G

[Hosted University Reception: University of Rochester](#)

Location: Conference Room 13,Marriott RiverCenter

📅 G

[Hosted University Reception: Wallace H .Coulter Department of BME](#)

Location: LDR,Convention Center

📅 G

🕒 8:00 PM - 10:00 PM CDT

[Hosted University Reception: Duke University](#)

Location: Salon B,Marriott RiverCenter

📅 G

[Hosted University Reception: Rensselaer Polytechnic Institute](#)

Location: Conference Room 14,Marriott RiverCenter

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 Friday, Oct 14, 2022

 7:00 AM - 5:00 PM CDT

[Registration Badge Pickup](#)

Location: Hall 4 West/4A,Convention Center

 G

 8:00 AM - 9:00 AM CDT

[BIEE Editorial Board Breakfast \(invitation only\)](#)

Location: 006C,Convention Center

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 8:00 AM - 9:30 AM CDT

[Special Sessions - Concurrent Special Sessions \(90 Minutes\)](#)

Click [here](#) for full list of Special Sessions.

Location:

 G

[Platform Sessions - Concurrent Platform Sessions \(90 Minutes\)](#)

Click [here](#) for full list of Platform Sessions.

Location:

 G

 8:00 AM - 1:00 PM CDT

[Medtronic Student Design Competition](#)

Location: 008B,Convention Center

 G

 9:30 AM - 10:30 AM CDT

[Poster Session - Poster Session C](#)

Click [here](#) for full list of Poster Sessions.

Location: Exhiibit Hall 3,Convention Center

 G

 10:30 AM - 11:30 AM CDT

[Plenary Sessions - NIBIB Lecture & Presentation of BMES Journal Awards](#)

**Speaker(s)/PI:**

 Samuel Achilefu

Location: Lila Cockrell Theater,Convention Center

 G

 11:30 AM - 1:00 PM CDT

[Lunch on your own](#)

Location:

 G

### [Special Events - Gender Equity in BME Luncheon](#) **SOLD OUT**



A diverse group of Invited panelists from a range of career stages and career paths will share their experiences and perspectives on the current landscape surrounding gender health disparities, including advances in research, federal initiatives, and lived experiences. The panel will begin with brief introductions from the panelists and a short, moderated session before opening to questions from the audience. This portion of the event will also be live streamed. The panel will be followed by an interactive networking and discussion period.

#### **Speaker(s)/PI:**

Kyoko Yoshida Michelle Oyen Kristin S. Miller Marjan Rafat Samantha Zambuto Manuel Rausch Bethany Almeida

Location: 217AB,Convention Center

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**1:00 PM - 2:30 PM CDT**

### [Platform Sessions - Concurrent Platform Sessions \(90 Minutes\)](#)



Click [here](#) for full list of Platform Sessions.

Location:

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### [Special Sessions - Concurrent Special Sessions \(90 Minutes\)](#)



Click [here](#) for full list of Special Sessions.

Location:

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**2:30 PM - 3:30 PM CDT**

### [Poster Session - Poster Session D](#)



Click [here](#) for full list of Poster Sessions.

Location: Exhibit Hall 3,Convention Center

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**3:30 PM - 5:00 PM CDT**

### [Special Sessions - Concurrent Special Sessions \(90 Minutes\)](#)



Click [here](#) for full list of Special Sessions.

Location:

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### [Platform Sessions - Concurrent Platform Sessions \(90 Minutes\)](#)



Click [here](#) for full list of Platform Sessions.

Location:

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**5:00 PM - 6:00 PM CDT**

### [Plenary Sessions - Wallace H. Coulter Award for Healthcare Innovation Lecture & Presentation of 2022 Class of Fellows](#)



#### **Speaker(s)/PI:**

Gabriele Niederauer

Location: Lila Cockrell Theater,Convention Center

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**6:30 PM - 10:00 PM CDT**

## [Special Events - BMES Bash](#)



Join us for the BMES Bash party on the Riverwalk to celebrate this year's Annual Meeting. We will take over the Hard Rock Cafe, Howl at the Moon, and Paesano's with music, desserts, and refreshments. Located just four blocks from the Convention Center, you will have a fantastic night out connecting with other BMEs by having fun outside the session rooms.

**Attendees *must* wear their 2022 BMES Annual Meeting badge for entry into the Bash.**

**For attendees ages 21 and older: Bring your government-issued id to get a wristband and a ticket for 1 alcoholic beverage (can also be used for a non-alcoholic beverage). Attendees under the age of 21: You will receive a ticket for one non-alcoholic beverage.**

Location: San Antonio Riverwalk

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Saturday, Oct 15, 2022

7:00 AM - 12:00 PM CDT

### [Registration Badge Pickup](#)



Location: Hall 4 West/4A,Convention Center

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8:00 AM - 9:30 AM CDT

### [Special Sessions - Concurrent Special Sessions \(90 minutes\)](#)



Click [here](#) for full list of Special Sessions.

Location:

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### [Platform Sessions - Concurrent Platform Sessions \(90 minutes\)](#)



Click [here](#) for full list of Platform Sessions.

Location:

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9:30 AM - 10:30 AM CDT

### [Poster Session - Poster Session E](#)



Click [here](#) for full list of Poster Sessions.

Location: Exhibit Hall 3,Convention Center

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10:30 AM - 11:30 AM CDT

### [Plenary Sessions - Robert A. Pritzker Distinguished Lecture Award Winner](#)



**Speaker(s)/PI:**

Cato Laurencin

Location: Lila Cockrell Theater,Convention Center

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1:00 PM - 2:30 PM CDT

### [Platform Sessions - Concurrent Platform Sessions \(90 minutes\)](#)



Click [here](#) for full list of Platform Sessions.

Location:

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2:30 PM - 4:00 PM CDT

### [Platform Sessions - Concurrent Platform Sessions \(90 minutes\)](#)



Click [here](#) for full list of Platform Sessions.

Location:

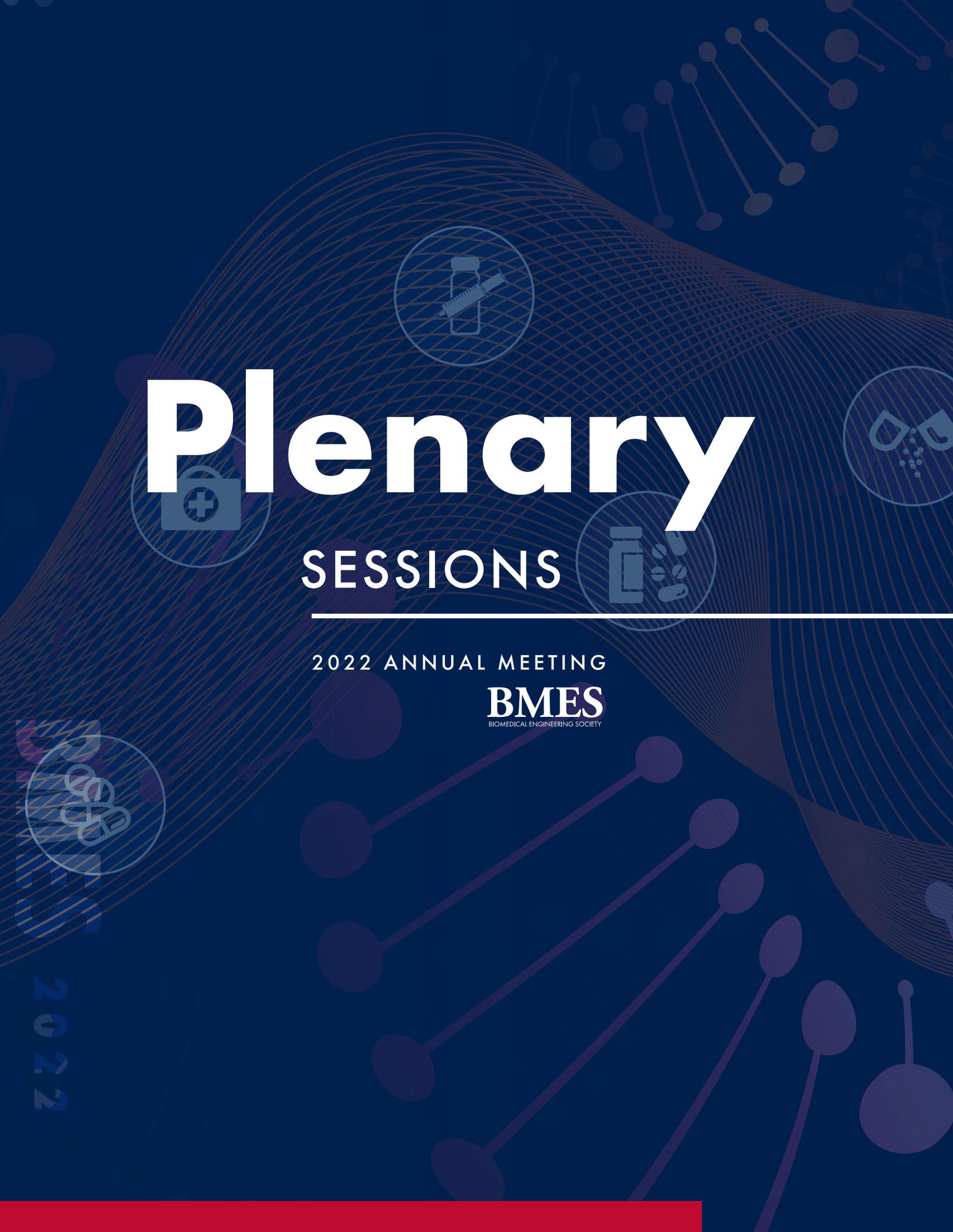
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# Biomedical Engineering at Carnegie Mellon University

- Tissue & Organ Engineering
- Medical Devices & Robotics
- Neuroengineering
- Medical Imaging
- 3D Bioprinting
- Biomaterials



BOOTH 605 | [bme.cmu.edu](http://bme.cmu.edu)



# Plenary

## SESSIONS

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2022 ANNUAL MEETING

**BMES**  
BIOMEDICAL ENGINEERING SOCIETY



2022

**Thursday, October 13, 2022**  
10:30 a.m.

State of the Society by BMES President

John White, PhD

BMES Diversity Award Lecture

The BMES Diversity Award is sponsored by the Whitaker International Program



**Ronke Olabisi, PhD**

*“Exploiting the Media to Dismantle the Gauntlet Standing in the Way of Historically Excluded Groups Pursuing STEM”*

In 1986, the National Research Council Committee on the Education and Utilization of the Engineer gathered to predict the availability of a sufficiently trained science and engineering workforce. All committee members were engineers, and they created a mathematical flow model based on the balance equation from traditional energy and material balances. Along with the terminology “flow,” “input,” and “output,” the model was complete with an intricate schematic of a complex-looking circuit that well lended itself to a vivid and powerful “leaky pipeline” metaphor, which drove policy and research for the next twenty years and continues to persist despite repeated efforts to supplant it. Initially used to describe the loss of white men from STEM, it has shifted towards describing the loss of women and underrepresented minorities. From the outside looking in, the loss of these groups certainly appears as a passive loss.

However, an increasing number of reports focusing on the perspectives of the women and minorities leaving STEM describe it more as a gauntlet, with both active (e.g., sexual harassment, racism, microaggressions) and passive (e.g., boring classes) forces driving them out. This gauntlet begins as early as kindergarten, with messaging on which toys are appropriate for girls or better suited for boys. This messaging comes in the form of parents, teachers, peers, and media. In an assessment on the role of the media in determining intent to pursue STEM, over 4 of 5 girls and women surveyed (82.7%) described the importance of women STEM characters in film and television in their decisions. “The Scully Effect” describes the phenomenon whereby girls who consistently watched the X-Files in middle school and were exposed to Agent Scully were more likely to express interest in STEM, major in a STEM field, and work in a STEM profession relative to girls who did not watch the show. With the advent of social media and growing awareness of inequity in media representation, STEM is more accessible to the general public than ever before.

This lecture describes efforts and strategies to engage traditional and social media to dismantle certain obstacles and neutralize bad agents in the gauntlet to better recruit and retain historically excluded (aka, minoritized) groups in STEM.

This plenary is sponsored by:



Wallace H. Coulter  
Department of  
Biomedical  
Engineering



Thursday, October 13, 2022  
5:00 p.m.

Rita Schaffer Young Investigator Award Lecture

Erika Moore, PhD

*“Engineering Equity: Designing Biomaterial Models to Understand and Manipulate Our Immune System”*



Erika Moore, PhD

The Moore Lab combines material science, immunology, and precision medicine to leverage biomaterials for immune cell tuning and disease modeling. In this talk, we will share 3 major research areas from the lab work: designing biomaterials to control macrophage function, developing a biomaterial model of aging, and enjoining ancestry in bioengineering platforms. For designing materials, we targeted M1 pro-inflammatory macrophages through integrin  $\alpha 2\beta 1$ . To reduce M1 macrophage activation, we designed a biofunctional poly (ethylene glycol) (PEG-based) hydrogel utilizing the collagen I-derived peptide, DGEA (Asp-Gly-Glu-Ala) which targets  $\alpha 2\beta 1$ . For developing a model of aging, we assessed the contribution of macrophages to vascular plexus formation. We created a biomaterial model system in which macrophages, either from <35 years old or >65 years old donors and assessed microvascular formation. We found that >65 years old macrophages reduced microvessel density.

Lastly, the ancestral background of human cells informs cells' behavior and response to therapeutic interventions in vitro. Our review of the literature found that most published articles do not report on the ancestral origins of the human cells used. As a result, we have positioned ourselves as leaders in integrating cell ancestry into biomedical engineered tissue models.

This plenary is sponsored by:



TEXAS A&M UNIVERSITY  
Department of  
Biomedical Engineering

**Thursday, October 13, 2022**  
5:00 p.m.

Mid-Career Award Lecture

Evan Scott, PhD

*“Engineering the Bio/Nano Interface for Cell-Selective Nanotherapy”*



Evan Scott, PhD

Self-assembled nanobiomaterials that are engineered to achieve specific biodistributions and mechanisms of degradation hold great promise for controlled modulation of the immune system and drug delivery in general. Taking advantage of the morphological and chemical flexibility of self-assembled polymeric systems, we have taken a holistic multi-component targeting approach to achieve cell-selective intracellular delivery and enhanced treatment efficacy during nanotherapy. Interfacial phenomena are an essential and often overlooked component of immunology, and we aim to better understand and engineer the bio/nano interface between soft nanobiomaterials and cells of the immune system.

This has allowed us to decrease non-specific clearance of therapeutics by innate immune cells during controlled delivery applications for improved targeting and decreased side-effects. Here, I will present some of our ongoing work towards developing novel nanobiomaterials and bio/nano interfaces, as well as recent applications of these soft nanomaterials for applications in cancer, vaccination, glaucoma, antigen-specific tolerance, and allergy.

This plenary is sponsored by:



TEXAS A&M UNIVERSITY  
Department of  
Biomedical Engineering

**Thursday, October 13, 2022**  
5:00 p.m.

2022 BMES Class of Fellows

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Alisa Clyne, PhD

Alyman El-Baz, PhD

Stacey Finley, PhD

Melissa Grunlan, PhD

Juergen Hahn, PhD

Mariah Hahn, PhD

Sean Kohles, PhD

Pamela Kreeger, PhD

Jan Lammerding, PhD

Tanmay Lele, PhD

Chuanbin Mao, PhD

James Moon, PhD

Emmanuel Opara, PhD

Kevin Otto, PhD

Shalini Prasad, PhD

Ravi Radhakrishnan, PhD

Milica Radisic, PhD

Raj Rao, PhD

Anita Singh, PhD

Nicole Steinmetz, PhD

Maribel Vazquez, PhD

Yingxiao Wang, PhD

**Friday, October 14, 2022**  
10:30 a.m.

NIBIB Award Lecture  
&  
Presentation of BMES Journal Awards

**Samuel Achilefu, PhD**

*"Breaking Silos to See the Invisible and  
Treat the Incurable."*

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**Samuel Achilefu, PhD**

**Friday, October 14, 2022**

**5:00 p.m.**

Wallace H. Coulter Award for Healthcare Innovation Lecture  
&  
Student Chapter Awards

**Gabriele Niederauer, PhD**

*“From Concept to Market: The Joys  
and Challenges of the Medical Device  
Commercialization Path”*



**Gabriele Niederauer, PhD**

Taking a product from first idea to wide-spread utilization in patients can be a long path. The related regulations and requirements are only becoming more arduous; however, the impact innovative medical devices can make, makes all of the hard work worth it. Dr. Niederauer will share several case studies of bringing novel medical devices to market and share the strategies, and challenges, along the way. She will outline the lessons learned to inspire to other biomedical engineers to innovate for the future.

This plenary is sponsored by:



**JOHNS HOPKINS**  
BIOMEDICAL ENGINEERING

**Saturday, October 15, 2022**  
10:30 a.m.

Robert A. Pritzker Distinguished Award Lecture

**Cato Laurencin, MD, PhD**

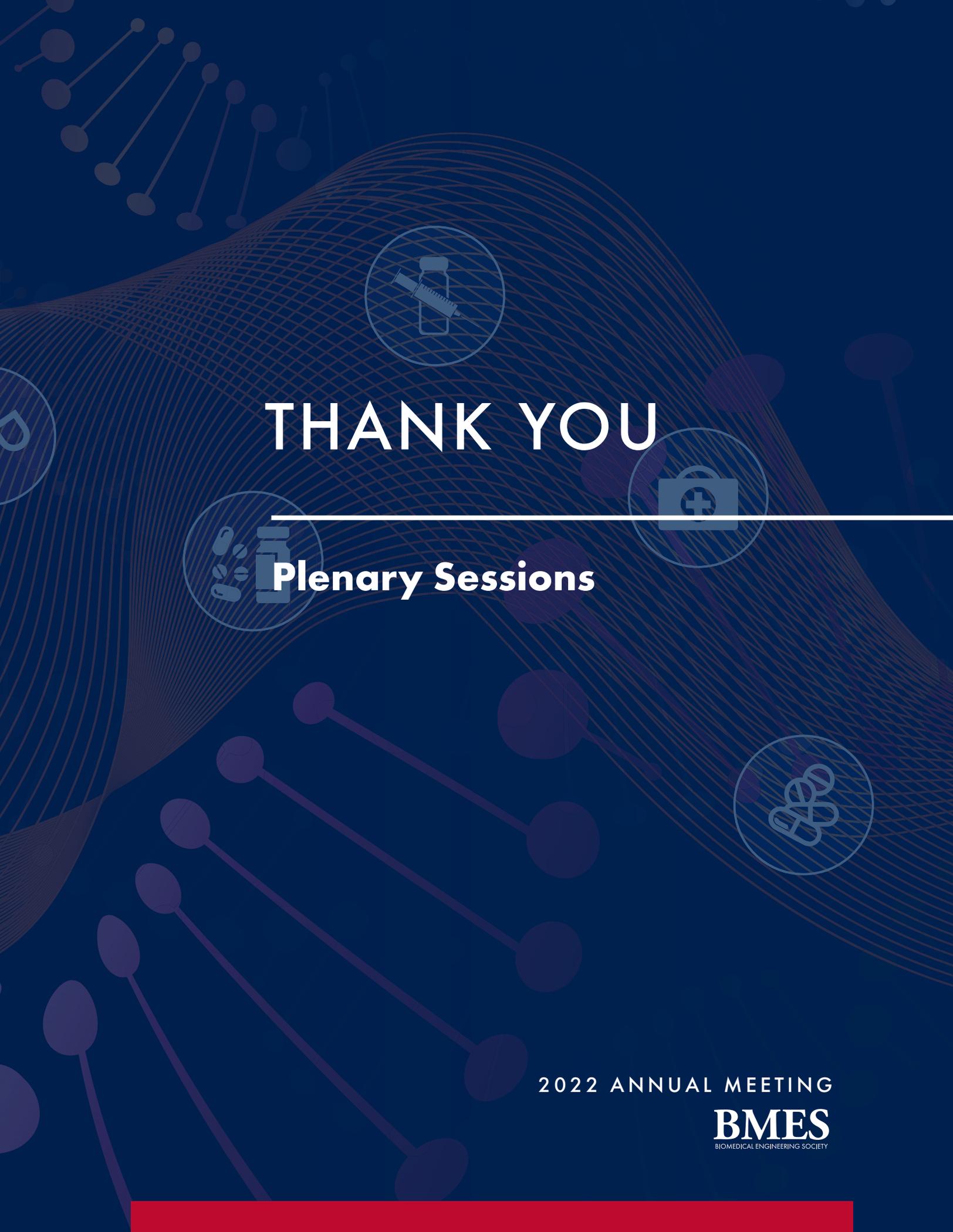
Regenerative Engineering centers on the convergence of a number of disciplines aimed at bringing about breakthrough solutions for tissue regeneration. This talk defines the field of regenerative engineering and describes studies of convergence as examples. A goal of the field is to build new fundamental knowledge, a term I call consilience. Another important goal is to democratize science and bring about social justice while building the field.

*“Regenerative Engineering: Convergence,  
Consilience, Justice”*

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**Cato T. Laurencin, MD, PhD**



THANK YOU

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Plenary Sessions

2022 ANNUAL MEETING

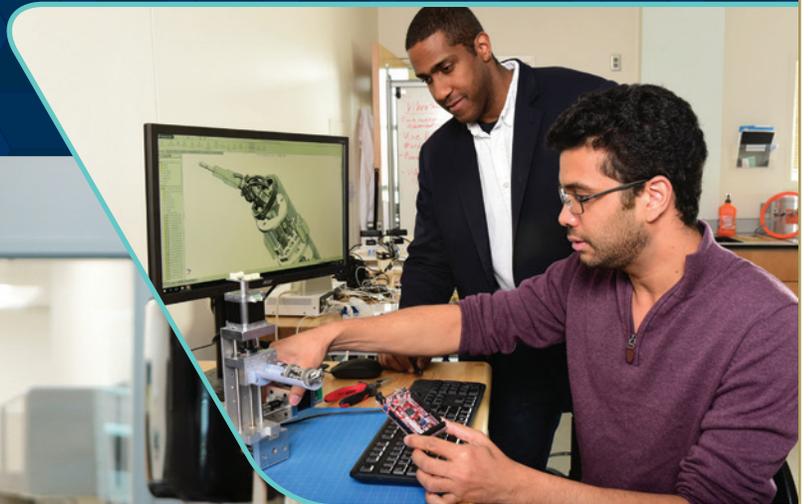
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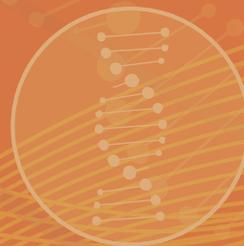
# Special

## SESSIONS

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2022 ANNUAL MEETING

**BMES**  
BIOMEDICAL ENGINEERING SOCIETY



**BMES**

2022

**Wednesday, October 12**

8:00 AM - 4:00 PM

**Room:** 209**Title: BMES Board of Directors Meeting (Invitation Only)****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Wednesday, October 12**

1:00 PM - 5:00 PM

**Room:** 007A**Title: Affiliate: BME-IDEA Meeting by VentureWell (Invitation Only)****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Wednesday, October 12**

4:00 PM - 6:00 PM

**Room:** Exhibit Hall 3**Title: Meet the Faculty Forum****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Wednesday, October 12**

5:00 PM - 6:00 PM

**Room:** 206AB**Title: How to Maximize Your Conference Experience with Meeting Co-Chairs****Presenter(s):**

Kris Billiar

Treena Arinzeh

Anita Singh

**Moderator:** N/A**Panelist(s):** N/A**Wednesday, October 12**

5:00 PM - 6:30 PM

**Room:** 007 B**Title: Affiliate: BME-IDEA Reception by VentureWell (Invitation Only)****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Wednesday, October 12**

6:00 PM - 7:30 PM

**Room:** Exhibit Hall 4A/4B**Title: Welcome Reception****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A

**Wednesday, October 12**

6:30 PM - 9:00 PM

**Room:** 006A**Title: Council of Chairs Dinner Meeting (Invitation Only)****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Wednesday, October 12**

8:30 PM - 9:30 PM

**Room:** 217AB**Title: LGBTQIA in BME and Friends Dessert Social**

Three invited panelists will share their experiences and perspectives on what it means to navigate, build, advocate, and reinforce LGBTQIA+ affirming professional spaces. A brief moderated session will follow panelists' presentations to open this discussion to the audience. This portion of the event will also be livestreamed. The panel will be followed by an interactive networking and discussion period facilitated by various discussion leaders from the BMES community. The objective of this session is to help our community members to identify and understand different perspectives and challenges people from across the LGBTQIA+ identity spectrum are faced with, ways in which they have navigated this, and ways to break down barriers at your institution, or company, and/or in your personal spheres for creating more affirming spaces.

**Presenter(s):** N/A**Moderator:** N/A**Panelist(s):**

Wendy Thomas

Aidan Gilchrist

Sarah Breen

**Thursday, October 13**

7:00 AM - 5:00 PM

**Room:** Hall 4 West / 4A**Title: Registration Badge Pickup****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

7:30 AM - 8:00 AM

**Room:** 008 B**Title: High School Expo and Poster Competition Orientation****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

8:00 AM - 9:00 AM

**Room:** 213 AB**Title: Cellular Molecular Bioengineering Special Interest Group (SIG) Information Session****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A

## Thursday, October 13

8:00 AM - 9:30 AM

Room: 209

### **Title: How to develop a case based active learning session for biomedical students integrating medicine and engineering**

In this interactive session we will present the audience with an engaging activity that can be offered in a lab or small group learning session. The activity-learning session involves the audience discussing a mini-case that integrates medicine and engineering. The active-learning model allow the students to be more focused and part of the learning process. Other objectives besides focus would include team building, retrieving journal articles and developing effective collaboration and integration of topics. We have student feedback suggesting this exercise enhances student's engagement. In addition, this exercise can be used as a formal or informal mode of assessment. The presenter(s) will lay the foundation for a discussion on the importance of active learning and will share relevant materials with the audience. At the end of the session, the participants will reconstruct the activity design tailored to their courses. The future of bioengineering is the integration of basic science, clinical, innovation, engineering, diversity, and technology. The next generation of bioengineers will have to apply quantitative skills and work with different teams to approach health care with innovative solutions. We will share with the audience how to engage students in an active-learning session. We will discuss resources to help the audience to write an integrative mini-case bringing innovative solutions embracing inclusion and diversity with real-world problems in healthcare.

**Presenter(s):**  
Kashif Ahmad  
Oliva Coiado

**Moderator:** N/A

**Panelist(s):**N/A

## Thursday, October 13

8:00 AM - 9:30 AM

Room: 006 C

### **Title: BMES National Meetings Committee & 2023 Annual Meeting Planning Committee Meeting (Invitation Only)**

**Presenter(s):**N/A

**Moderator:** N/A

**Panelist(s):**N/A

## Thursday, October 13

8:00 AM - 9:30 AM

Room: 007 C

### **Title: Clinical Translation and Trials of Biomedical Engineering Technologies and Products**

Significant advancement has been made in the field of biomedical engineering in developing innovative tools, technologies, and therapeutics that combine stem cell engineering and biomaterial engineering to treat disease, promote tissue regeneration, and restore functions. Many of the new tools, technologies, and therapeutics have been progressed to have obtained regulatory approvals from the FDA and are currently undergoing clinical trials. Researchers will be invited to submit abstracts to report on the late breaking news in clinical trials. We will also invite and organize a group of experts in the field to present and serve as panelists for discussion on topics and areas including but not limited to 1) technology innovation with a focus on clinical translation, 2) FDA communications, 3) designing and carrying out IND-enabling studies, 4) GMP manufacturing, and 5) clinical trials. For clinical trial related topics, special interest will be given to discussions around 1) challenges of ensuring equal access to healthcare resources and clinical trials; 2) strategies and approaches to ensure accountability to diversity and inclusion efforts and to ensure the

clinical trial will be available to all people within our community; 3) ideas to perform culturally competent outreach, partnership, and education to increase awareness. This topic aligns well with the meeting theme and will be of broad interest to the BMES audience, including faculty, industry, and trainees.

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):**

Alyssa Panitch  
Aijun Wang  
Jian Yang  
Bryan Brown  
Wendy Brown  
Ke Cheng  
Treena Arinzeh

## Thursday, October 13

8:00 AM - 9:30 AM

**Room:** 008 A

### Title: Latinx voices in Biomedical Engineering

The LatinXinBME community was created in February 2019 to support Latinx engineers across all subfields in biomedical engineering and all career stages (undergraduate and graduate students, professionals, postdocs, and faculty). It includes 340+ members representing over 12 nationalities, most of whom identify as Latinx. The community operates both online (through the Slack messaging app) and offline (e.g. at conferences) at the national level. These spaces allow us to combat the feelings of isolation experienced by many of our members, who are underrepresented in their home institutions by sharing resources, exchanging advice, and building mentoring networks. The purpose of this session is to highlight the research conducted by Latinx in BME and to feature “rising stars” in our field. The Session will

begin with a 30 minute invited keynote lecture from a distinguished investigator in the LatinXinBME community. The keynote will be followed by a series of 10 rapid-fire 5 minute talks highlighting outstanding research from Latinx undergraduate students, graduate students, and postdocs.

**Presenter(s):**

Christopher Hernandez

**Moderator:** N/A

**Panelist(s):** N/A

Oscar Benavides  
Claudia Collier  
Karen Court Pinto  
Valentina Garcia  
Julia Harrer  
Daniel Montes Pinzon  
Fernando Rebolledo  
Victor River-Llabres  
Steven Robles Blasini  
Renato Samuel Navarro  
Ana Vargas Nufio

**Rising Stars:**

Maria Bandres Oscar Benavides  
Claudia Collier  
Karen Court Pinto  
Valentina Garcia  
Julia Harrer  
Daniel Montes Pinzon  
Fernando Rebolledo  
Victor River-Llabres  
Steven Robles Blasini  
Renato Samuel Navarro  
Ana Vargas Nufio

## Thursday, October 13

8:00 AM - 9:30 AM

Room: 210 A

### Title: A new era of engineering medicine- How to educate the next generation of biomedical engineers

Presenter(s): N/A

Moderator: N/A

#### Panelist(s):

Roderic Pettigrew

Shalini Prasad

Mark Anastasio

Baowei Fei

Hanjoong Jo

## Thursday, October 13

8:00 AM - 9:30 AM

Room: 210 B

### Title: Education Industry Panel

Our panelists, from various industry areas (including start-ups and large companies) speak about their professions and answer audience questions

Presenter(s): N/A

Moderator: N/A

#### Panelist(s):

Gary Bowlin

William Torres

Yashar Aucie

Kathryn Lyall

Juan Wang

Grant Scull

## Thursday, October 13

8:00 AM - 9:30 AM

Room: 212 A

### Title: Advancing Ocular Health with Engineering

There are many exciting basic and translational research opportunities for biomedical engineers in ocular health applications. This includes ocular bioimaging, biomaterials, biomechanics, drug delivery, and tissue engineering. This session highlights the breadth of basic and translational engineering research being done in the eye by engineers in academia and industry. Sample research topics being presented are ocular drug delivery systems like drug eluting contact lenses and sustained release implants, design of biomaterials for ocular tissue engineering, investigation of ocular biomechanics

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**Dr. Megan McCain**

**Dr. Keyue Shen**

in age-related diseases like presbyopia and cataract, and application of computational modeling to ocular trauma. The speakers will also have an open dialogue about remaining challenges and opportunities in this field for biomedical engineers. One of these remaining challenges is that several eye diseases disproportionately impact minorities and women, including glaucoma, diabetic retinopathy, macular degeneration, and dry eye disease, to name a few.

**Presenter(s):**  
Matthew Reilly  
Katelyn Swindle-Reily  
Mark Bryne

**Moderator:** N/A

**Panelist(s):** N/A

## Thursday, October 13

8:00 AM - 9:30 AM

**Room:** 212 B

### **Title: A Discussion for the BME Community of the Proposed ABET DEI Criteria**

This session will break down the proposed ABET definitions and criteria related to DEI including the student and faculty components. A panel of BME faculty will share their experiences in integrating DEI into different courses and topics as well as share assessment approaches. Then we will break into small groups to further share successes and challenges that BME education may have in integrating DEI into the core curriculum. The outcome of this session will be a co-created document that summarizes the status of DEI integration into BME curricula as well as highlights successes and challenges still to come.

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):**  
Jenny Amos

Sonia Bansal  
Andrew Brightman  
Aaron Kyle

## Thursday, October 13

8:00 AM - 9:30 AM

**Room:** 214 C

### **Title: Advancing Healthcare Innovation for Chronic Disease in Underserved and Underrepresented Communities**

Chronic diseases such as diabetes, cancer and cardiovascular disease (CVD) are a leading cause of morbidity and mortality. Every 30-40 seconds one American will be diagnosed with cancer, another with diabetes, and yet another will suffer a coronary event. These diseases are a greater burden in underserved and underrepresented communities across the US due to higher prevalence and reduced access to equitable healthcare services. This is particularly exacerbated when coupled with the added burden of the COVID pandemic and the increasing incidence of obesity or high body mass index (BMI). Further, it is well documented, particularly in the case of optically-based devices, that the increased absorption and autofluorescence associated with darker skin tones as well as changing optical properties with different BMI levels, means that care must be taken to ensure that disparities in functionality are avoided across diverse populations. This track will include one 90 minute special sessions is to discuss how to engage stakeholders in these underserved and underrepresented communities, the development of innovative, cost-effective, solutions for these chronic diseases ideally at the point-of-care (POC), and how these technologies and system solutions could be integrated into the communities toward actionable information. The session will include 4 invited speakers (1 hour) and an open panel Q&A discussion (30 minutes). Acknowledgement: The invited speakers for this track are funded by the NSF Engineering Research Center, PATHS-UP (Precise Advanced Technologies and Health Systems for Underserved Populations) and from the Cancer Prevention and Research Institute of Texas (CPRIT).

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):**

Gerard Cote

Md Nurunnabi

Ashu Sabharwal

Jessica Ramella-Roman

Thenral Mangadu

## Thursday, October 13

9:30 AM - 10:30 AM

**Room:** Exhibit Hall 3

**Title: Poster Session A**

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):** N/A

## Thursday, October 13

10:00 AM - 11:00 AM

**Room:** 006 C

**Title: Membership Committee Meeting (Invitation Only)**

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):** N/A

## Thursday, October 13

10:30 AM - 11:45 AM

**Room:** Lila Cockrell Theater

**Title: Plenary Session - State of the Society by BMES President of the Board, John White and Diversity Award Winner Lecture**

**Presenter(s):**

John White

Derek Nelson

Ronke Olabisi

**Moderator:** N/A

**Panelist(s):** N/A

## Thursday, October 13

11:45 AM - 1:15 PM

**Room:** 217 AB

**Title: Special Events - Celebration of communities of Color Luncheon (Ticketed Event)**

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):**

Marissa Wechsler

Mykel Green

Marysol Luna

David Jamison

Jessica Weaver

Erica Bell

**Thursday, October 13**

11:45 AM - 1:15 PM

**Room:****Title: Lunch on your own****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

12:00 PM - 1:30 PM

**Room:** 006 C**Title: Affiliate: CAMB Lunch Meeting (Invitation only)****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

12:00 PM - 1:30 PM

**Room:** 006 D**Title: Affiliate: CVET Lunch Meeting (Invitation only)****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

12:30 PM - 2:00 PM

**Room:** Grand Ballroom H. Marriott River Center**Title: 10th US-Korea Joint Workshop on Biomedical Engineering**

The goal of the 10th Annual US-Korea Joint BMES Workshop is to promote cooperation, collaboration, and networking between the members of Korean Society of Medical and Biological Engineering (KOSOMBE) and BMES. In the past nine years, this annual Workshop has become increasingly well-known among biomedical engineers in both US and Korea, attracting >~120 PIs and trainees from both countries as part of the Annual BMES meeting. The workshop covers topics on various convergent technologies to better understand and improve human health via different approaches in multi-disciplines. The number of PI's and trainees of Korean-American and Korean members attending the Annual BMES workshop have been increasing (~100-130 members in the past 9 years). Many KOSOMBE members and Korean BMES members come to BMES because of the added-value of the Workshop. With such proven track-record of success over the past nine years, we are confident that this workshop has become a bridge for a long-term relationship and brought mutual benefits for both Society members. We have had a fruitful and exciting workshop where the leaders of BMES and Korean and Korean-American biomedical engineers had been able to gather together to discuss exciting advancements and technological development. This networking opportunity among the leaders, emerging leaders, and trainees is sure to spur further collaborations that would benefit both members of BMES and KOSOMBE.

**Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A

**Thursday, October 13**

**1:00 PM - 2:30 PM**

**Room:** 209

**Title: Diversity Committee Special Session: Mentoring advice for you, mentoring advice for us, Identifying best practices for inclusive mentoring**

The goal of this session is to create an open dialogue and cross-pollination of ideas between mentors and mentees for how to effectively run an inclusive research group. The panelists consist of mentors and mentees from diverse backgrounds and levels of experience. The goal of this panel discussion is to identify challenges and opportunities for inclusive mentoring, as well as strategies for success in addressing these challenges. Topics of discussion include communication tips and best practices to create a successful and collaborative relationship between mentors and mentees. Additional resources will be provided for attendees to implement in their own institutions and working relationships.

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):**

Cathal Kearney  
Jamal Lewis  
Neda Latifi  
Bethany Almeida  
Brendan Harley  
Gabriella Sugerman  
Jason Chang Marvin  
Gabrela Romero Uribe

**Thursday, October 13**

**1:00 PM - 2:30 PM**

**Room:** 007 C

**Title: Understanding Challenges to create Opportunities for Biomedical Engineers with Disabilities**

Federal regulations mandate equal opportunities and the provision of accommodations for individuals with disabilities. However, several 'practical' challenges exist in the inclusion of people with disabilities in a multi[1]disciplinary field such as biomedical engineering. Specifically, biomedical engineers with disabilities face unique challenges in four areas, namely accessibility, professional networking, mentorship, and social perception. With support from federal agencies (NSF, NIH & FDA) and professional organizations (BMES), opportunities and challenges in each of these areas can be explored and addressed

**Presenter(s):** N/A

**Moderator:** Sriram Balasubramanian

**Panelist(s):** N/A



**Thursday, October 13**

1:00 PM - 2:30 PM

**Room:** 008 A**Title: Black Women In BME Special Session - Fueling your fire: Cultivating relationships and sustaining your network**

As we navigate our personal and professional lives, self-care and support are critical to our well-being and success. One way that we can care for ourselves is to allow others to be part of that journey. Attendees will be guided through activities where they reflect on the relationships in their lives that fuel them but do not drain them. Conversations will focus on finding those people who are sources of positive support and cultivating those relationships in our personal and professional lives. We will learn to identify what we need from those people in our lives and how we can give to others. As attendees find ways to build and sustain their own support and mentoring networks, they will also have opportunities to connect with each other. Sharing the same space during this time will allow attendees to build community, connect with one another on shared experiences, and share experiences across a range of life and career stages.

**Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

1:00 PM - 2:30 PM

**Room:** 210 B**Title: Q&A with Chapter Leaders, Make your Chapter Thrive**

An Interactive session designed to help current and future chapter leaders create programs that excel

**Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A

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## Thursday, October 13

1:00 PM - 2:30 PM

**Room:** 212 A

### **Title: BME Latin America Workshop**

With this workshop, we want to bring institutions and individuals from the Latin America Region together, for collaboration and networking. We will discuss creating an organization, that closely follows the BME guidelines for the advancement of BME activities, focused on our region of Latin America. We will do a recap of the first BME Idea Latam meeting that was held in Bogotá, Colombia on July 2022. We want to establish topics of cooperation and in the future, share good practices from different Engineering Schools of the region to consider and overcome the particular challenges that the region faces.

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):**

Daniel Suarez

Youseph Yazdi

David Bigio

Diana Gaitan-Leon

Camila Botero Saffon

Cassandra Howard

to be very interactive – lots of questions from the audience and a conversation of the dos and do nots for writing a statement of purpose, requesting letters or recommendation, impacts of COVID-19 on university admissions processes, etc. Attendees will come out of the session with a more concrete idea of whether or not graduate school is a good choice for them as well as strategies for putting together a solid application for admission and funding.

**Presenter(s):**

Maggie Wolford

**Moderator:** N/A

**Panelist(s):** N/A

## Thursday, October 13

1:30 PM - 4:00 PM

**Room:** Exhibit Hall 3

### **Title: High School Expo and Poster Competition**

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):** N/A

## Thursday, October 13

1:00 PM - 2:30 PM

**Room:** 214 C

### **Title: Navigating the Path to Graduate School**

This workshop focuses on the process of applying to graduate school. There is a short discussion at the beginning of the workshop on things to consider when you are making the decision to apply to graduate school and how to search for programs that fit your needs and interests. The majority of the workshop, however, focuses on how to put together the best application possible. The session is designed

## Thursday, October 13

2:30 PM - 3:30 PM

**Room:** Exhibit Hall 3

### **Title: Poster Session B**

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):** N/A

**Thursday, October 13****3:30 PM - 4:30 PM****Room:** 007 B**Title: Forensic Biomechanics**

Biomechanics has its own mark on our lives and is affecting our daily actions in many ways, from using seat belts in our vehicles to sneakers we wear and keyboards we type on for several hours every day. However, biomechanics is not a so-called household term, meaning many people around us do not understand biomechanics' true meaning and do not appreciate its applications in real life. In addition, a career path to become an expert witness is somewhat obscure for many of our students. Having a panel of professionals with expertise in this area will shed light on biomechanics in general and answer many questions regarding its applications in the legal arena. This session also aims toward making connections between consulting and engineering curriculum by focusing on innovation and entrepreneurship in engineering, as well as, student engagement and motivation at the graduate and undergraduate levels.

**Presenter(s):** N/A**Moderator:** N/A**Panelist(s):**

Rouzbeh Amini

Kevin Toosi

Ruth Ocia

**Thursday, October 13****3:30 PM - 4:30 PM****Room:** 007 C**Title: Enhancing Human Body Impact And Blast Safety Through Testing, Digital Modeling And Data Analytics**

According to the data published by the Centers for Disease Control and Prevention (CDC) in the USA, accidents causing unintentional injuries are a major contributor to annual deaths in the country

(i.e. USA). As a matter of fact, statistics published by CDC reveals that out of a total of 2,813,503 deaths in the USA in 2017, 169,936 mortalities were due to accidents making the latter the third largest contributor to annual deaths. It may be noted that to the gross number (i.e. 169,936) of accident-related fatalities, the second highest contribution (i.e. 40,231 or 23.67%) is due to vehicle crashes. The picture (i.e. fatalities caused by motor vehicle crashes) is even more grim in many other regions globally including two of the world's most populous countries namely China (with an officially-reported total number of 58,022 road accident-related fatalities in 2015 with WHO estimate being 256,180 for 2016) and India (with corresponding official figure of 150,785 in 2016 and WHO estimate being 299,091 for the same year). In addition to the fatalities suffered, motor vehicle crashes leave a staggering number of people across the world with serious head and bodily injuries, often with permanent disabilities, with an astounding economic cost. It may be mentioned here that a large number of undesirable vehicular mishaps can be either prevented or the severity of their effects reduced through active and passive safety countermeasures. Additionally, regional wars and terrorist activities are becoming increasing common globally leading to a large number of casualties among military personnel caused by bullets and other projectiles as well as shock waves emanating from blasts and detonations. It is pointed out that accidents are sometimes unavoidable due to human errors and mechanical/electrical faults involving vehicle as well as road hardware. Although autonomous vehicles are touted to eliminate a large number of crashes potentially being caused by driver-related issues today, it is speculated that inherent limitation of "creativity" in machines, sensor and actuator faults, and limitations in AI (Artificial Intelligence) algorithms will introduce a newer set of road hazards in such vehicles. Thus, the potential of injuries to road-users including vehicle occupants and pedestrians will always remain. A remedial measure lies in reducing the effects of primary impact on a vehicle body or pedestrian, and of secondary impact on occupants through design interventions. In this context, managing impact energy by maintaining deceleration of a vehicle and its structural deformation within desirable levels is a key for safety of its occupants. For protection of a pedestrian, reducing impact force and consequently bodily deceleration,

and avoiding contact with vulnerable areas of the body of a subject will substantively reduce the risk of death and severe injuries provided the subject is not run over by a vehicle. The proposed session is aimed at addressing the crucial topic of saving precious human lives by mitigating the effects of impact and other extreme forms of loading as mentioned in the foregoing by deliberating on opportunities for improved countermeasures through state-of-the-art digital/computational modeling of human body and vehicle structures, advanced laboratory tests involving drop-weight and ballistic impact as well as shock wave generation, and data-driven modeling enabled through data analytics and machine learning.

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):** N/A

## Thursday, October 13

3:30 PM - 5:00 PM

**Room:** 209

### **Title: Diversity Committee Special Session: Inclusion in STEM: People with Disabilities**

The BMES diversity committee is pleased to introduce a new subcommittee for People with Disabilities. Our initial goals to be a more inclusive society are to define visible and invisible disabilities, identify challenges faced at different career stages, provide education and awareness, and establish how to identify allies. We look forward to growing as a subcommittee and serving the needs of the larger community. Based on the BMES survey sent earlier this year, 15-20% of our community identifies as having a disability or a physical or mental impairment that substantially limits one or more major life activity. An invisible disability is any physical, mental, or emotional impairment that goes largely unnoticed. A few examples include: cognitive impairment and brain injury; the autism spectrum; chronic illnesses like cancer, multiple sclerosis, chronic fatigue,

chronic pain, and fibromyalgia; d/Deaf and/or hard of hearing; blindness and/or low vision; anxiety, depression, PTSD, and many more. Our inaugural event at the annual 2022 BMES meeting is hosting Dr. Bradley Duerstock to discuss his perspectives and research that integrates engineering strategies or technologies to improve the human condition.

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):**  
Evangelia Bellas  
Bradley Duerstock  
Jacqueline Linnes

## Thursday, October 13

3:30 PM - 5:00 PM

**Room:** 210 B

### **Title: Navigating Med School Tracks and Working with Clinicians**

Our panelists will discuss a variety of topics related to medical careers, including 1) applying to MD or MD/PhD programs and 2) working with clinicians

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):**  
Kenitta Johnson  
Martin Yarmush  
Elaheh Rahbar  
Justin Han-je Lo

**Thursday, October 13****3:30 PM - 5:00 PM****Room:** 212 A**Title: Athanasiou Student and Post-Doc Award Session**

In 2017 the Kyriacos and Kiley Athanasiou Endowment was established within the Biomedical Engineering Society (BMES) to promote graduate students and post-doctoral scholars through their publications in the Annals of Biomedical Engineering (ABME). The 5th annual Athanasiou Student and Post-Doc Award Session will include up to four speakers selected by the ABME Editorial Board based on their outstanding publications in ABME during the past year. Each award recipient will present a 10 minute summary of their paper followed by 5 minutes of Q&A, for a total session time of 1 hour. A plaque and award of \$500 will be presented to each winner through the Kyriacos and Kiley Athanasiou Endowment.

**Presenter(s):** Stefan Duma**Moderator:** N/A**Panelist(s):** N/A

and refining our understanding of the brain, their applications in the rest of the body also hold tremendous potential especially given their ability to more directly modulate end organ function. However, implementing this technology in the periphery faces a host of unique challenges not encountered in similar brain applications. This mini-symposium will provide a survey of the current research directions and advances in the area of peripheral and spinal cord optogenetics including optogenetic modulation of motor, cardiac, bladder, and autonomic function, wireless implantable devices, and optical read-out of neural activity. This session will feature a lineup of leaders in the field who will each give a short talk on their research. The event will conclude with a panel Q&A session to discuss future directions for this area of investigation and critical hurdles to be addressed with questions welcomed from the audience.

**Presenter(s):** N/A**Moderator:** N/A**Panelist(s):**

Aaron Mickle

Jordan Williams

Patricia Jillian Ward

Richard Weir

Philipp Gutruf

**Thursday, October 13****3:30 PM - 5:00 PM****Room:** 214 C**Title: Optogenetic Interfaces in the spinal cord and periphery**

Optogenetic techniques - which allow optical modulation of activity in genetically specified neural populations - have been a major breakthrough in neuroscience over the past two decades. While these techniques have been revolutionary for studying

**Thursday, October 13****4:00 PM - 5:00 PM****Room:** 006 C**Title: Ethics Subcommittee Meeting (Invitation only)****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A

**Thursday, October 13**

4:00 PM - 5:00 PM

**Room:** LDR**Title: Student Chapter & High School Poster Competition Award Ceremony****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

5:00 PM - 6:15 PM

**Room:** Lila Cockrell Theater**Title: Plenary Session - Rita Schaffer Young Investigator Award Lecture & Mid-Career Award Lecture****Presenter(s):**Erika Moore  
Evan Scott**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

5:00 PM - 8:00 PM

**Room:** 006 C**Title: Affiliate: Alpha Eta Mu Beta Annual Meeting (Invitation only)****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

6:00 PM - 8:00 PM

**Room:** 006BCD**Title: Hosted University Reception University of Texas Austin****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

6:00 PM - 8:00 PM

**Room:** Grand Ballroom H. Marriott River Center**Title: KBMES Joint Workshop Networking Dinner**

The 10th KBMES Joint Workshop Networking Dinner will promote cooperation, collaboration, and networking between the members of Korean Society of Medical and Biological Engineering (KOSOMBE) and BMES.

**Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

6:00 PM - 8:00 PM

**Room:** Salon C, Marriott River Center**Title: Hosted University Reception University of Washington****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A

**Thursday, October 13**

6:00 PM - 9:00 PM

**Room:** Conference Room 8, Marriott River Center**Title: Hosted University Reception  
University of Texas San Antonio****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

6:00 PM - 10:00 PM

**Room:** Conference Room 19, Marriott River Center**Title: Hosted University Reception Center  
for Advance Regenerative Engineering,  
Northwestern University****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

6:00 PM - 10:00 PM

**Room:** Conference Room 20/21, Marriott River Center**Title: Hosted University Reception Texas  
A&M Univeristy****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

6:00 PM - 10:00 PM

**Room:** Salon D, Marriott River Center**Title: Hosted University Reception  
University of Pennsylvania School of  
Engineering and Applied Science****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

6:00 PM - 10:00 PM

**Room:** Salon M, Marriott River Center**Title: Hosted University Reception  
Cornell University****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

6:30 PM - 7:30 PM

**Room:** 217 AB**Title: Special Events - Industry  
Networking Event****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A

**Thursday, October 13**

6:30 PM - 9:00 PM

**Room:** 007 ABC**Title: Hosted University Reception  
University of Southern California****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

7:00 PM - 8:30 PM

**Room:** Conference Room 3/4, Marriott River Center**Title: Hosted University Reception  
University of Louisville****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

7:00 PM - 9:00 PM

**Room:** Conference Room 18, Marriott River Center**Title: Hosted University Reception  
University of Maryland****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

7:00 PM - 9:00 PM

**Room:** Salon E, Marriott River Center**Title: Hosted University Reception  
Columbia University****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

7:00 PM - 9:00 PM

**Room:** Salon I, Marriott River Center**Title: Hosted University Reception  
Purdue University****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

7:00 PM - 9:00 PM

**Room:** Salon J, Marriott River Center**Title: Hosted University Reception  
University of Michigan****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A

**Thursday, October 13**

7:00 PM - 10:00 PM

**Room:** Conference Room 11, Marriott River Center**Title: Hosted University Reception Rice University****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

7:00 PM - 10:00 PM

**Room:** Conference Room 12, Marriott River Center**Title: Hosted University Reception University of Pittsburgh****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

7:00 PM - 10:00 PM

**Room:** Conference Room 13, Marriott River Center**Title: Hosted University Reception University of Rochester****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

7:00 PM - 10:00 PM

**Room:** Grotto**Title: Hosted University Reception John Hopkins University****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

7:00 PM - 10:00 PM

**Room:** LDR**Title: Hosted University Reception Wallace H. Coulter Department of BME****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Thursday, October 13**

8:00 PM - 10:00 PM

**Room:** Conference Room 3, Marriott River Center**Title: Hosted University Reception Rensselaer Polytechnic Institute****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A

## Thursday, October 13

8:00 PM - 10:00 PM

**Room:** Salon B, Marriott River Center

### **Title: Hosted University Reception Duke University**

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):** N/A

## Friday, October 14

7:00 AM - 5:00 PM

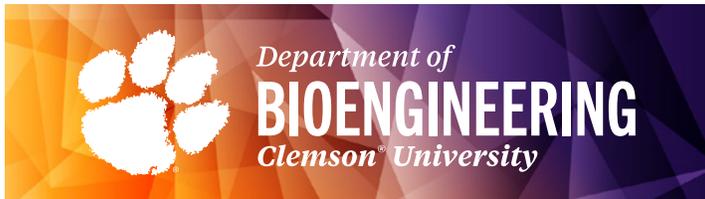
**Room:** Hall 4 West/4A

### **Title: Registration Badge Pickup**

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):** N/A



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**Friday, October 14****8:00 AM - 9:30 AM****Room:** 007 C**Title: CMBE Young Innovators Part 1**

We are pleased to present to you this year's 12 Young Innovators of Cellular and Molecular Bioengineering, whose original research is featured in the October issue of the journal. It is now the ninth year of the Young Innovators competition, and we continue to receive a remarkable number of compelling nominations. All potential authors who hold the rank of Assistant Professor (or equivalent) at the time of nomination are eligible for selection, and while many of the authors are active members of the Biomedical Engineering Society (BMES), membership in BMES is not a requirement for inclusion. The awardees will present the papers in this issue in two live, invited plenary sessions at the Annual Meeting of BMES on Friday, October 14, 2022. The articles in this issue represent some of the most innovative and impactful bioengineering studies carried out by junior faculty in our field. This year's Young Innovators are all clearly recognized as rising stars in their field, and significantly, have demonstrated true grit in their ability to complete impactful research studies under the persistent challenges of a global pandemic.

**Presenter(s):**

Omid Veisheh  
Rebecca Wachs  
Abhinav Bhushan  
Adam Gormley  
Chelsea Magin  
Katharina Maisel

**Moderator:** N/A**Panelist(s):** N/A**Friday, October 14****8:00 AM - 9:30 AM****Room:** 210 B**Title: Graduate School Panel**

Our panel of experts walks you through the grad school application process, and answers all your burning questions

**Presenter(s):**

Matthew Reilly  
Katelyn Swindle-Reilly  
Mark Bryne

**Moderator:** N/A**Panelist(s):**

Ian Schneider  
Matthew Fisher  
Rebecca Heise  
Sarah Stabenfeldt  
Angela Alexander-Bryant

**Friday, October 14****8:00 AM - 1:00 PM****Room:** 008B**Title: Medtronic Student Design Competition****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Friday, October 14****9:30 AM - 10:30 AM****Room:** Exhibit Hall 3**Title: Poster Session C****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A

## Friday, October 14

10:30 AM - 11:30 AM

**Room:** Lila Cockrell Theater

### **Title: Plenary Session - NIBIB Lecture & Presentation of BMES Journal Awards**

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):** N/A

## Friday, October 14

1:00 PM - 2:30 PM

**Room:** 209

### **Title: Diversity Committee Special Session: Biomedical Engineering for ALL - Engaging Communities with BME Beyond Traditional Settings**

**Presenter(s):**

Evangelia Bellas

Adrian Buganza Tepole

Ana Maria Porras

**Moderator:** N/A

**Panelist(s):** N/A

## Friday, October 14

1:00 PM - 2:30 PM

**Room:** 007 C

### **Title: CMBE Young Innovators Part 1**

We are pleased to present to you this year's 12 Young Innovators of Cellular and Molecular Bioengineering, whose original research is featured in the October issue of the journal. It is now the ninth year of the Young Innovators competition, and we continue to receive a remarkable number of compelling nominations. All potential authors who hold the rank of Assistant Professor (or equivalent) at the time of nomination are eligible for selection, and while many of the authors are active members of the Biomedical Engineering Society (BMES), membership in BMES is not a requirement for inclusion. The awardees will present the papers in this issue in two live, invited

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plenary sessions at the Annual Meeting of BMES on Friday, October 14, 2022. The articles in this issue represent some of the most innovative and impactful bioengineering studies carried out by junior faculty in our field. This year's Young Innovators are all clearly recognized as rising stars in their field, and significantly, have demonstrated true grit in their ability to complete impactful research studies under the persistent challenges of a global pandemic.

**Presenter(s):**

Justin Pritchard  
Nikki Reinemann  
Sebastian Vega  
Gregg Duncan  
Donny Hanjaya-Putra  
Devika Manickam

**Moderator:** N/A

**Panelist(s):** N/A

## Friday, October 14

1:00 PM - 2:30 PM

**Room:** 210 B

### Title: Deconstructing virtual communications

Our panelists will discuss a variety of topics related to effective virtual communication, including topics such as 1) how to send an effective email and 2) how to use social media to advance your career

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):**

Robin Queen  
Jessica Larsen  
Priscilla Delgado  
Wyatt Shields  
Sandra Strangeland-Molo

## Friday, October 14

1:00 PM - 2:30 PM

**Room:** 212 B

### Title: BME Resume Guidance and Review

Whether you are a bachelors student, graduate student, postdoc, or looking to change careers, you can always use a fresh take on your resume to make sure that you are representing your best self in your job search. For this reason, the BMES Education Committee is pleased to host a resume guidance and review session for BMES members. Think of your resume as a living document that grows and changes as you gain experience through courses, volunteering, internships, research, and other opportunities. You should continue to update your resume and have it reviewed periodically as you add more experience. We will be offering insight on trends and needs in the BME workforce today as well as how to sell yourself and your skills. We will also provide on-site resume reviews to members.

**Presenter(s):**

Jenny Amos  
Cassandra Jamison

**Moderator:** N/A

**Panelist(s):** N/A

## Friday, October 14

1:00 PM - 2:30 PM

**Room:** Lila Cockrell Theater

### **Title: AIMBE Special Session: A Common Cause: The Abandonment of Precedents, Norms and Facts**

This AIMBE special session will address the U.S. Supreme Court rulings on reproductive rights, gun safety and climate change highlight the importance of public policy, the courts, and citizen engagement upon the lives and health of all Americans. The implications of recent court rulings reach far beyond individual health and safety to social, equality, and income inequality in America, workplace opportunity, and the freedom of all to reach their full potential. BMES' keynote lecture will explore the abandonment of legal precedents, social and political norms, and even the denial of common facts for their devastating implications on science, research and biomedical innovation. Discover how a changing landscape for marriage equity, voting rights, and even the fundamentals of majority rule have implications for academics, young investigators, scientists and discovery. This session will reveal the common cause for responsibility, commitment, and engagement. Learn how this common cause may be the rallying call and this lecture the spark for action.

**Presenter(s):**

Milan Yager

**Moderator:** N/A

**Panelist(s):**

Cynthia Bir

Joel Bumgardner

Frederic Zenhausern

Michele Grimm

## Friday, October 14

2:30 PM - 3:30 PM

**Room:** Exhibit Hall 3

### **Title: Poster Session D**

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):** N/A

## Friday, October 14

3:00 PM - 4:30 PM

**Room:** A discussion of the impact of the Dobbs decision on medicine and society

### **The U.S. Supreme Court decision in Dobbs v. Jackson Women's Health Organization**

The U.S. Supreme Court decision in Dobbs v. Jackson Women's Health Organization has generated significant attention. While the decision clearly impacts many communities, the broad and long-term impact on healthcare practice remains unclear. The goal of this panel is to present our current understanding of the potential impact of the decision on healthcare in Texas and the United States. Presentations will be provided on the areas of legal uncertainty, how to work with local healthcare providers, and the disproportionate impact on specific communities. Following the presentation, the panelists will participate in a discussion on the impact of the Dobbs decision on healthcare and society.

**Presenter(s):** N/A

**Moderator:** Eric Brey

**Panelist(s):**

Chiquita Collins

Jeff Wurzburg

**Friday, October 14****3:30 PM - 5:00 PM****Room:** 209**Title: Diversity Committee Special Session: Implementing Inclusive Research Practices**

The goal of this workshop is to provide instructors and educators with evidence-based and best practices that promote student participation and successful learning outcomes in higher education biomedical engineering curricula. Invited speakers will share their experiences in the classroom on topics ranging from active learning strategies, accessible assessment methods, and approaches to cultivating an inclusive learning environment. In small groups, participants will then rotate through a series of breakout topics to discuss tools that will enable them to promote effective dialogue between their students and increase their culture awareness in structuring content aimed at critically engaging healthcare disparities. Lastly, participants will reflect on their own pedagogy and identify their primary goals for adopting more equitable and inclusive teaching practices for the future.

**Presenter(s):** N/A**Moderator:** N/A**Panelist(s):**

Erika Moore

Evangelia Bellas

Marjan Rafat

Ariella Shikanov

Brian Aguado

Melissa Mendoza-Seale

**Friday, October 14****3:30 PM - 5:00 PM****Room:** 007 C**Title: NIBIB DEBUT Award Ceremony**

This session is an awards ceremony for the Design by Biomedical Undergraduate Teams (DEBUT) Challenge, a collaboration between the National Institute of Biomedical Imaging and Bioengineering (NIBIB) and VentureWell. DEBUT recognizes undergraduate excellence in biomedical design and innovation by challenging student teams to develop technology solutions for unmet needs in any area of healthcare. This year's DEBUT competition had 9 prize-winning teams, with 7 prizes provided by NIBIB/NIH and 2 prizes from VentureWell. There are also 5 Honorable Mention awards. The session will be led by NIBIB Director, Dr. Bruce Tromberg, and each of the award-winning teams will give a short presentation of their projects. Dr. Rebekah Neal will present the VentureWell prizes, and Elias Caro from Biocomx will give a presentation on commercialization of biomedical innovations.

**Presenter(s):**

Rebeka Neal

Elias Caro

**Moderator:** Bruce Tromberg**Panelist(s):** N/A

**Friday, October 14**

**3:30 PM - 5:00 PM**

**Room:** 210 B

**Title: Inclusive teaching: a Capstone story**

Capstone design courses provide students with the opportunity to work in teams to apply and integrate their collective knowledge towards solving real-world problems with the intent to create value for their clients and society. But to what extent do these courses promote diversity, equity, and social justice, and our students' sense of belonging and inclusion? This session will feature a faculty panel with expertise in capstone design, inclusive pedagogies, or both. Each panelist will share their perspectives and experiences related to this topic, after which the panel will answer a set of questions from the moderator, and then from the audience.

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):**

- Sarah Rooney
- Sara Schley
- Joe Tranquillo
- Aaron Kyle
- Joe Le Doux

**Friday, October 14**

**3:30 PM - 5:00 PM**

**Room:** 216 AB

**Title: Establishing and Sustaining Effective Mentor / Mentee Relationships**

Establishing and sustaining effective mentor/mentee relationships is important for career development and fostering a supportive culture within biomedical engineering. This special session will include a panel discussion

and Q&A with PI mentors. This will be followed by small group discussions with mentors and mentees. Potential topics include identifying and approaching potential mentors, conflict resolution, best practices, and communication strategies. The target audience is students, trainees, and mentors at all career stages.

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):**

- |                |                  |
|----------------|------------------|
| Gregg Duncan   | Andrew Brightman |
| Sean Tritely   | Marissa Wechsler |
| Pam Kreeger    | Francisa Acosta  |
| Sanjeev Shroff |                  |
| Lori Setton    |                  |

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**Friday, October 14**

5:00 PM - 6:00 PM

**Room:** Lila Cockrell Theatre**Title: Plenary Session - Wallace H. Coulter Award for Healthcare Innovation Wallace H. Coulter Award for Healthcare Innovation Lecture & Presentation of 2022 BMES Class of Fellows****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Friday, October 14**

6:30 PM - 10:00 PM

**Room:** San Antonio Riverwalk**Title: Special Events - BMES Bash****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Friday, October 14**

11:30 PM - 1:00 PM

**Room:** 217 AB**Title: Special Events - Gender Equity in BME Luncheon**

A diverse group of Invited panelists from a range of career stages and career paths will share their experiences and perspectives on the current landscape surrounding gender health disparities,

including advances in research, federal initiatives, and lived experiences. The panel will begin with brief introductions from the panelists and a short, moderated session before opening to questions from the audience. This portion of the event will also be live streamed. The panel will be followed by an interactive networking and discussion period.

**Presenter(s):**  
Kyoko Yoshida  
Michelle Oyen  
Kristin S. Miller  
Marjan Rafat  
Samantha Zambuto  
Manuel Rausch  
Bethany Almeida  
**Moderator:** N/A

**Panelist(s):** N/A**Friday, October 14**

11:30 PM - 1:00 PM

**Room:****Title: Lunch on your own****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A**Saturday, October 15**

7:00 AM - 12:00 PM

**Room:** Hall 4 West/4A**Title: Registration Badge Pickup****Presenter(s):** N/A**Moderator:** N/A**Panelist(s):** N/A

**Saturday, October 15**

**8:00 AM - 9:30 AM**

**Room:** 209

**Title: Diversity Committee Special  
Session: Equitable & Inclusive Pedagogy  
in Biomedical Engineering Education to  
Empower Student Learning**

The goal of this workshop is to provide instructors and educators with evidence-based and best practices that promote student participation and successful learning outcomes in higher education biomedical engineering curricula. Invited speakers will share their experiences in the classroom on topics ranging from active learning strategies, accessible assessment methods, and approaches to cultivating an inclusive learning environment. In small groups, participants will then rotate through a series of breakout topics to discuss tools that will enable them to promote effective dialogue between their students and increase

their culture awareness in structuring content aimed at critically engaging healthcare disparities. Lastly, participants will reflect on their own pedagogy and identify their primary goals for adopting more equitable and inclusive teaching practices for the future.

**Presenter(s):** N/A

**Moderator:** N/A

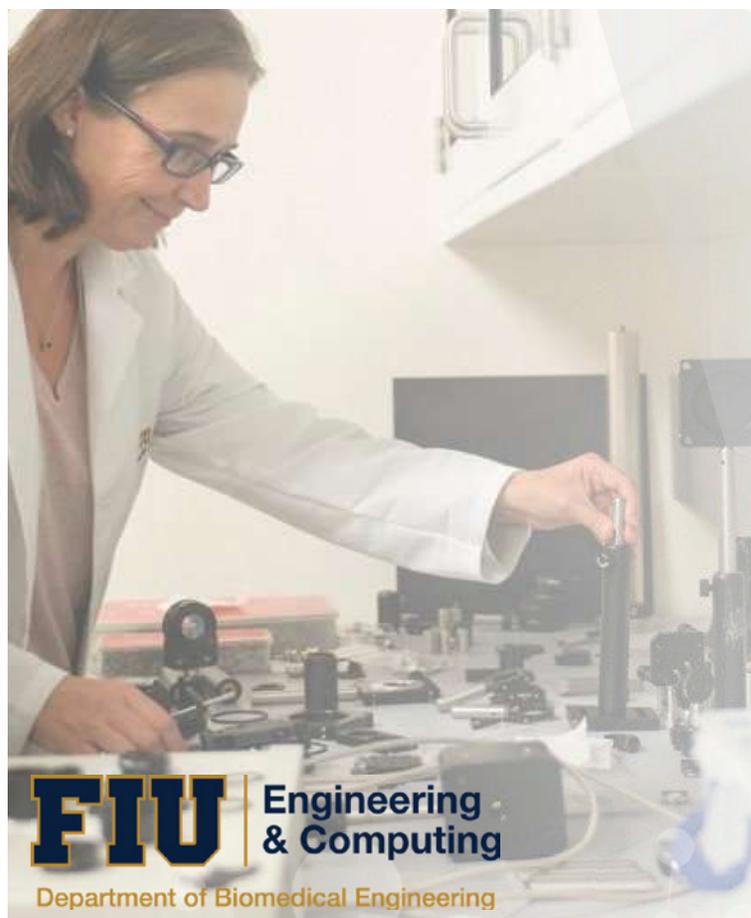
**Panelist(s):**

Sarah Rooney

Elizabeth Cosgriff-Hernandez

Casey Ankeny

Karina Vielma



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**SPECIAL SESSIONS**

**BMES 2022**

**Saturday, October 15**

8:00 AM - 9:30 AM

**Room:** 210 B**Title: Incorporating Education into your Scholarly Portfolio**

As faculty become more reflective of their own teaching and their students' learning, there are opportunities to document this work and publish it. Topics for publication may include undergraduate and graduate education, special programs, diversity initiatives, and more. In this session, we will talk about framing an education-focused publication, which may include research questions and assessment. We will overview the publishing landscape for biomedical engineering faculty, including ASEE, Biomedical Engineering Education, Advances in Engineering Education, and others. With questions for the audience and discussions on many topics, this session should position you to better consider your own teaching and programs and what direction you might take to initiate or continue publishing your efforts in biomedical engineering education.

**Presenter(s):** N/A**Moderator:** N/A**Panelist(s):**

Huang Saad  
Ann Saterbak  
Brian Helmke

**Saturday, October 15**

8:00 AM - 9:30 AM

**Room:** 214 B**Title: NIH/NIBIB Funding Panel**

An NIBIB Program Director will talk about funding opportunities for students and junior investigators at NIH. NIH-funded PIs at different career stages will share their experiences and advice regarding securing research and career development funds from the NIH.

**Presenter(s):** N/A**Moderator:** Dave Gutekunst**Panelist(s):**

Tina Gatlin  
Mia Markey  
Samuel Achilefu



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**Saturday, October 15**

10:30 AM - 11:30 AM

**Room:** Lila Cockrell Theater

**Title: Plenary Session - Robert A. Pritzker Distinguished Lectureship Award Winner**

**Presenter(s):** N/A

**Moderator:** N/A

**Panelist(s):** N/A

**Saturday, October 15**

1:00 PM - 2:30 PM

**Room:** 210 B

**Title: How to Introduce Cybersecurity Engineering of Regulated Medical Devices into BME Curricula**

This session will introduce key educational concepts to integrate cybersecurity engineering in a phased manner into biomedical engineering courses and degree programs to protect by design medical products from modern cybersecurity threats. Millions of medical devices ranging from implantable pacemakers to radiation therapy machines depend on computer software and hardware for safe and effective diagnosis and therapeutics. Cybersecurity

risks pose challenges to protecting the total product lifecycle. For instance, ransomware has disrupted hospitals and disabled for weeks an entire global product line for cancer radiation therapy. These risks begin at the earliest pre-market phases of medical device design and extend into the long curve of legacy medical devices that become unsecurable as key software components lapse into unsupported, orphaned status susceptible to cyberattacks from organized crime and nation states with demonstrated intent to cause harm to healthcare infrastructure. The speakers from regulators, providers, and universities will discuss what engineering concepts are needed in curricula, and how to phase in these defensive design concepts into undergraduate and graduate degree programs in biomedical engineering of medical product development.

**Presenter(s):**

Kevin Fu

**Moderator:** N/A

**Panelist(s):** N/A

A promotional graphic for the University of Pittsburgh. It features a blue background with a photograph of the Cathedral of Learning on the left. The text 'Forge Ahead.' is written in large, bold, yellow letters. Below it, a list of bullet points includes 'GRE optional' and 'Deadline for funding application December 1, 2022'. Further down, it says 'Come visit booth #465 for a fee waiver' in yellow. At the bottom, the University of Pittsburgh logo and 'Swanson School of Engineering' are displayed. The URL 'engineering.pitt.edu/bioengineering' is at the very bottom in white text on a yellow background.

**Forge Ahead.**

- GRE optional
- Deadline for funding application December 1, 2022

**Come visit booth #465 for a fee waiver**

 **University of Pittsburgh**  
Swanson School of Engineering

[engineering.pitt.edu/bioengineering](http://engineering.pitt.edu/bioengineering)