

Student Advisory Board

Mechanical Engineering and Materials Science

Hello Pitt MEMS,

Welcome back! We hope you had an enjoyable summer break working, researching, or just relaxing and are now ready to begin another semester.

SAB is looking for new members to join! SAB consists of undergraduate students, graduate students, and faculty working together to improve the MEMS community. There are four different subgroups: research, social, awareness, and survey.

If you are interested, please email MEMS_Student_Advisory_Board@groups.pitt.edu

Want to learn more? Here is a video showcasing what SAB does for the MEMS community!



<https://youtu.be/TPtgeIwYyFQ?si=YDiW4hwN-NBHnVgX>

MEMS FACULTY RETREAT PRESENTATION



At this year's MEMS Faculty Retreat, SAB presented on the current issues facing graduate students in the department, including student stipends and benefits, as well as Under-Represented Minority (URM) faculty hiring.

SAB Highlights

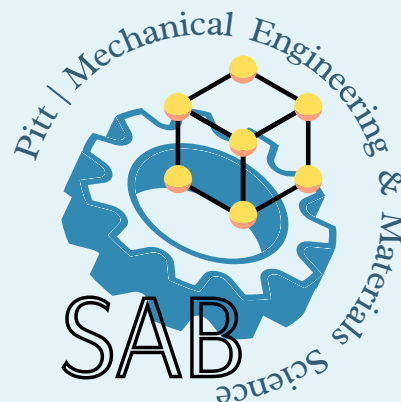
SAB presents at MEMS Faculty Retreat on student issues

Upcoming events :
MEMS Alumni Career Panel

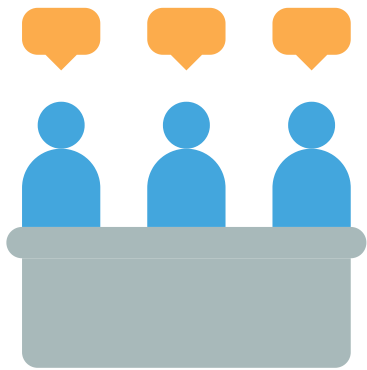
MEMS FIRE program receives \$400k in grants for next year

SAB member highlight: Dr. John Whitefoot

Have an event to share? Email us to be included in the next issue



SAB Highlights and Upcoming Events



MEMS ALUMNI CAREER PANEL

September 19 6-8PM
Benedum Hall 157

Come meet recent graduates from Pitt MEMS and ask about their experiences transitioning into the workforce and how they navigated the application process.

LOOKING FOR VOLUNTEERS FOR MEMS CAREER FAIR

January 10th

We are aiming to organize a career fair hosting industries and research labs specifically looking to hire mechanical engineers and material science engineers. We are hoping to organize the event in early spring and looking for active community members interested in being a part of the planning committee.

If you are interested in getting involved, please fill out the following application.

https://pitt.co.qualtrics.com/jfe/form/SV_3guLVZS4DKoVptA



MEMS FIRE has now received over \$400k in grants to expand the program to more students next year!

MEMS FIRE HIGHLIGHTS

A grant was awarded by NSF for a new REU site (Research Experiences for Undergraduate) for the FIRE program for Summer 2024 - 2026 (three years). The grant is an award of over \$400,000 to expand the FIRE program to support up to 10 students from institutions outside of Pitt, which will be augmented by 5 students within Pitt.

UNDERGRADUATE RESEARCHER RESPONSES

"I have faculty, graduate students, and/or other professionals in my field that I feel are mentors to me"



"I feel confident in my ability to conduct research"



"I feel confident in my ability to read and understand scientific literature"



STUDENT TESTIMONIAL

"I had the opportunity to delve into difficult materials science concepts while also being introduced to concepts from other disciplines and learn how they all work together to solve a common problem. I got experience in a laboratory setting and was trained [to use] a variety of technical equipment."

SAB Member Highlight



Dr. John Whitefoot is an Associate Professor in the MEMS department at Pitt since 2016. Before becoming a professor, he had earned his bachelor's, master's, and doctoral degrees in mechanical engineering all from the University of Michigan and worked 6 years in the automotive industry and 4 for the US Department of Transportation. His greatest accomplishment from his time was increasing the fuel economy regulations for cars and trucks, ultimately reducing fuel use and greenhouse gas emissions. He was then looking for a change, and having enjoyed teaching in graduate school and industry, he applied for an opening for a teaching faculty position at Pitt.

He joined SAB in 2020 because it is a “student-led” organization addressing racial inequality and breaking down perceived behaviors at the university level. Teaching hundreds of students per term, he sees firsthand the need for this and is impressed with the SAB’s passion to create positive change. He helped launch MEMS FIRE in 2022, a program that supports students from underrepresented groups who are interested in pursuing graduate studies in engineering. The program not only provides research experience but also hosts weekly workshops on effective communication, writing technical papers, overcoming barriers that may inhibit graduate school success, and professional and non-professional mentorship. [Dr. Whitefoot believes that having a good mentor can make a big difference in someone’s career path; he credits his master’s degree advisor for convincing him to pursue a Ph.D.](#) He is very excited that the program received an NSF REU grant which will fund the program for three years to expand its reach, recruiting students from other universities and expanding the program beyond the MEMS department.

This semester, Dr. Whitefoot is teaching [Mechanical Measurements 1](#) and [2](#) as well as [Introduction to Mechanical Design](#). Although he is not a research professor, he actively follows research on engineering education and has published two papers at the American Society for Engineering Education annual conference. This directly goes into the courses he teaches, improving the projects and materials to reflect new trends in industry, such as using Arduinos and programming in lab courses.



Outside of work, he is an avid cyclist, including mountain biking and long-distance riding, and has been purposefully car-free since 2010 (which was a talking point during his time in the automotive industry). He is also very interested in everything music, including playing the guitar, bass, and drum machine, and recording his own work. He enjoys doing a few home improvement projects on his own. This summer, he learned how to do roofing, including patching and coating, with great success.

HAVE AN EVENT TO SHARE?

If you are part of a MEMS or engineering club with an event coming up, let us know! We will add it to the next newsletter and share it with the MEMS community.



Highlight on MEMS FIRE

The MEMS Facilitating Inclusive Research Experiences (FIRE) program started in 2022 and just completed its second year. The 10-week program runs through the summer to give underrepresented undergraduate students a glimpse of the graduate research experience and encourage them to pursue it for graduation.

After seeing the lack of diversity in the department when he was enrolled at Pitt, the program began with a donation from Jim Grubbs (BSME '68). It is not only about providing research experience for undergraduate students, but also to breakdown barriers which can be intimidating navigating the graduate experience. Different workshops are held to help students perform literature reviews, create connections and network with colleagues and mentors, understand how to apply for graduate school and possible routes afterward, and address issues regarding race, gender, and power structures in the workplace.

Having that guidance can greatly influence the path these students take and reach their full potential. [The program has grown from that first year, now supporting 7 MEMS undergraduate researchers with 18 faculty and graduate mentors for technical and professional support.](#) Here are just some of the research topics the students led this summer:

- [Effects of hydrogen cracking on additively manufactured gas and water atomized alloy 625](#)
- [Analytical Modeling of Microwave Processing for Functional Magnetic Ceramic Ferrites](#)
- [Magnetic Properties of Conventionally and Flash Annealed Iron-Nickel Magnetic Alloys](#)
- [Biomechanical effects of meniscus suture spacing during submaximal cyclic and load-to-failure test conditions](#)

The program has garnered more interest now! It has received a Research Experience for Undergraduates (REU) Site Award from the National Science Foundation (NSF) for over \$400k. This will provide support for three years and get more resources to attract students outside of Pitt. With the NSF sponsorship, official evaluations can be done to better gauge which programs are most effective and identify weak points. In the future, the program can expand beyond the MEMS department to the whole Swanson School of Engineering.

If you are an undergraduate student interested in joining next year's cohort, or a graduate student interested in mentoring a student next summer, please email mems.fire@pitt.edu.