



The Trailblazers' Tea

Honoring Women in STEM

Emcee:

Ava Marie
Meteorologist, WBAL-TV 11



Ava Marie joined the WBAL-TV 11 Weather Team as a meteorologist in 2011. Prior to moving to Maryland, Ava worked as a broadcast meteorologist in Kansas and Pennsylvania. She earned her Bachelor of Science in meteorology from the University of Kansas, with an emphasis in journalism.

Growing up in Denver, Colorado, with extreme snowstorms and hailstorms, Ava's excitement for weather and science began at a young age. Ava now uses her passion to advocate for science education, with visits to schools and STEM events.

Ava lives in Anne Arundel County with her husband and two sons. She enjoys cooking from scratch where she channels her inner mad scientist. She also hopes to spend more time hiking, with a lifetime goal to reach the highest peak in each state.

Panelists:

Dr. Dawnielle Farrar-Gaines
Senior Electrical & Materials Engineer
Johns Hopkins University Applied Physics Laboratory



Dr. Dawnielle Farrar-Gaines is a Senior Electrical & Materials Engineer at the Johns Hopkins University Applied Physics Laboratory (JHU/APL). She is responsible for providing creative solutions to problems across disciplines including micro and nano materials, piezo-electric and multi-functional materials, sensors, microscopy, microelectronics, and packaging. In addition, she uses her inter-disciplinary skills to design and fabricate devices/systems small enough to fit on the edge of a piece of paper, but large enough in impact to service our military and medical communities.

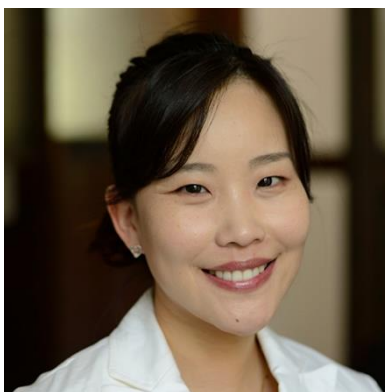
Dr. Farrar-Gaines earned a Ph.D. and M.S. in materials science and engineering, as well as an M.S. in electrical engineering, from Johns Hopkins University; a B.S. in electrical engineering from the University of Maryland College Park; and a B.S. in physics (minor in Chemistry) from Lincoln University.

Dr. Farrar-Gaines' research interests include micro/nano systems, polymeric materials, low-friction coatings, and transducers. Of her many projects, one recent innovation involves reconstruction of the ossicular chain to restore hearing to those impaired by middle-ear damage (conductive hearing loss) or disease.

Dr. Farrar-Gaines is a Professor in the JHU School of Engineering, an elected member of the Board of Directors for the Materials Research Society, has authored/co-authored more than 40 papers, holds eight patents (with four pending), and produced a book chapter. She is an Officer of the Board of Directors for the Materials Research Society. Her research efforts have been highlighted in *Advanced Materials Journal* and she was also awarded the Innovation in Technology Award, in recognition of her "distinguished contributions to the engineering profession in the area of smart materials." She is currently a member of the Materials Research Society (MRS), Institute of Electrical & Electronic Engineers (IEEE), the Society of Women Engineers (SWE), and the International Microelectronics and

Packaging Society (IMAPS). She also serves on the Every Girl Can Be SMART Advisory Board, and mentors students from the undergraduate through post-doc levels.

Claire Hur, Ph.D.
Clare Boothe Luce Assistant Professor
Department of Mechanical Engineering
Johns Hopkins University



Soojung Claire Hur, the Clare Boothe Luce Assistant Professor in the Department of Mechanical Engineering, is an expert in microfluidics. She is a fellow of the Hopkins Extreme Materials Institute, an associate researcher at the Johns Hopkins Institute for NanoBioTechnology, and holds a secondary appointment in the Department of Oncology at the Johns Hopkins University School of Medicine.

Through the Hur Lab on Micro-Fluidic Biophysics, Hur is working to develop microfluidic platforms to understand complex fluid dynamics principles and to translate acquired knowledge into practical applications. In particular, she is interested in studying single-cell mechanics and understanding the veiled correlations between cellular functions and their physical phenotypes. Her lab utilizes a unique microscale hydrodynamic phenomenon called inertial focusing to accomplish high-throughput target cell detection, cost-effective cell separation, and sequential multimolecular delivery. They aim to create innovative techniques for use in high-throughput target cell detection, cost-effective cell separation, and sequential multimolecular delivery that are useful for oncology, immunology, gene therapy, tissue engineering and regenerative medicine. Hur holds three U.S. patents and two international patents for her work.

Hur is a member of several professional scientific societies including the American Association for Cancer Research (AACR), the American Society of Mechanical Engineers (ASME) and the American Chemical Society (ACS). She serves as an editor for the journals *Nature Scientific Reports*, *SLAS Technology* special issue, and *Biomicrofluidics: Microfluidics, Circulating Biomarkers and Cancer*. She also is a reviewer for additional science journals, such as *PLoS One* and the *Annals of Biomedical Engineering*; agencies such as the National Science Foundation (NSF) and National Aeronautics and Space Administration (NASA); and conferences for organizations, such as ASME.

She has won numerous awards and scholarships, including the Edward K. Rice Outstanding Doctoral Student award, the HSSEAS (UCLA Henry Samueli School of Engineering and Applied Science) academic scholarship, the UCLA Mechanical and Aerospace Engineering Department's Chevron scholarship and UCLA Dean's special fellowship, the 2018 inaugural Johnson and Johnson WiSTEM2D Scholars Award, and the School of Engineering Junior Faculty Award at the 2018 Johns Hopkins Department of Medicine Research Retreat.

Hur received her bachelor's degree, master's and doctoral degrees in mechanical engineering from the University of California, Los Angeles, in 2005, 2007 and 2011, respectively. In September 2011, with five years of research funding, she joined the Rowland Institute at Harvard University as one of two Rowland Fellows. Next, Hur managed clinical studies funded by Vortex Biosciences, Inc. as an assistant researcher at UCLA Department of Bioengineering. She joined the Whiting School of Engineering faculty in 2015.

Jacky M. Jennings, PhD, MPH
Associate Professor, Department of Pediatrics
Johns Hopkins School of Medicine



Dr. Jacky Jennings is an Associate Professor in the Department of Pediatrics in the Johns Hopkins School of Medicine with joint appointments in three Departments at the Bloomberg School of Public Health.

She is the Director of the Center for Child and Community Health Research (CCHR), the Biostatistics, Epidemiology, and Data Management (BEAD) Core and the Associate Director of General Pediatrics and Adolescent Medicine.

The most significant impact of Dr. Jennings' research contributions is in the area of STI and HIV transmission dynamics. Her specific interest is in determining the mechanisms through which networks and place play a role in local transmission dynamics causing endemic rates of STIs and HIV and extreme racial disparities. She has a longstanding relationship with the Baltimore City Health Department working collaboratively on implementation science, translating evidence to practice, and policy.

She is part LatinX, the daughter of a first-generation immigrant, the mother of two Ingenuity Project students, and proud to call Baltimore City her home.

Ebony Larry
Project Engineer
George, Miles and Buhr, LLC



Ebony Larry is an Ingenuity Project alumna from the Baltimore Polytechnic Institute's class of 2009. She holds a B.S. in Civil Engineering from Morgan State University.

Currently she is a Project Engineer at George, Miles and Buhr, LLC where she manages the planning, design, and construction of various water and wastewater design collection and conveyance systems such as pumping stations, treatment plants and storage tanks, including new construction and rehabilitations. Ebony also serves as Operations Manager for B-360 a local STEM education organization that utilizes Baltimore's dirt bike culture in conjunction with STEM education to end the cycle of poverty, disrupt the prison pipeline, and change the perceptions of dirt bike riders and engineers in the community.

Ebony attributes her passion for mentoring and STEM education to the many professionals who mentored her throughout her high school and college years. She serves as secretary of the PTO at her daughter's elementary school and as an advisor for the Dr. Betty Shabazz Delta Academy. Through her work in the community she strives to provide culturally relevant and interactive programming to the youth of Baltimore City.

Megan Olsen, Ph.D.



**Associate Professor of Computer Science
Director of Loyola University Maryland's CPaMS Scholars Program**

As associate professor of computer science and director of Loyola's CPaMS Scholars Program, **Megan Olsen, Ph.D.**, wants to break the stigma around her field. She believes a student's gender and ethnicity have nothing inherently to do with one's ability to learn and work in computer science. "Through my outreach and teaching practices, I try to help people see that they too belong." Through the CPaMS Scholars Program, Dr. Olsen teaches, supports, and mentors high-achieving students in computer science, physics, and mathematics/statistics. She also maintains scholarship support for these students and teaches a Messina course to provide guidance for first-year students. Dr. Olsen received her Master of Science and her Ph.D. in Computer Science from the University of Massachusetts Amherst. Her research examines how to improve the process of building computation models.

Angela Winstead, Ph.D.



**Chairperson and Professor of Chemistry
Director NIH RISE
Morgan State University**

Dr. Winstead is a STEM educator and researcher who uses her education and professional experience to encourage the development of student growth and to inspire and empower young, African-American scholars to reach their highest potential. Her philosophy is that a mentoring professor is most effective when teaching, research, and advising are intertwined together to provide a greater impact on the overall development of the student.

Over her career in synthesis, she has conducted basic and applied research in the areas of organic and organometallic synthetic chemistry. In addition to extensive organic synthesis experience, she has worked with rhenium, iridium and zinc-based organometallics at various points in my synthetic career. Her specific areas of research include:

- Microwave Synthesis of Near-IR heptamethine Cyanine Dyes and pathogen detection. Applications include: 1) Characterization of the fluorescence lifetime and intensity changes of cyanine derivatives in various microenvironments, 2) Investigation of the microenvironmental changes and their ability to characterize the onset of cellular toxic events, 3) Development of pathogen biosensors,
- Development of organorhenium tosylato compounds as a new class of anticancer drugs
- STEM Education in the areas of critical thinking and curriculum redesign

Education: Postdoctoral Fellow, Organic Chemistry, Ohio State University; Ph.D. Chemistry, University of North Carolina at Chapel Hill; B.S. Chemistry, Spelman College.