Trio Tapped to Join AIMBE College of Fellows

Professor James Galagan (BME, Microbiology), Associate Professor Xue Han (BME) and Professor Dimitrije Stamenovic (BME, MSE) have been elected to the College of Fellows of the American Institute for Medical and Biological Engineering (AIMBE).

"Being elected as an AIMBE Fellow is one of the highest honors in our profession, reserved for the top two percent of practitioners in industry and academics," says Professor and BME Chair John White. "Dimitrije, James and Xue are richly deserving of this honor. All three are highly respected for their research and leadership in our community."

Galagan was selected for advances in computational biology to understand the molecular basis of infectious diseases and in novel biosensors for physiological monitoring. Galagan leads an interdisciplinary lab at the intersection of genomics, molecular biology, computational biology, electrical engineering and technology development.

Xue Han (BME)

James Galagan (BME, Microbiology)

Dimitrije Stamenovic (BME, MSE)

A pioneer in optogenetics, Han was selected for inventing and applying high-impact molecular technologies to optically probe brain dynamics underlying behavior and pathology. Using pulses of light to control and observe the behavior of different neurons, she has discovered new types of brain signals. Her ultimate goal is to design the next generation of neuromodulation therapies for brain disorders.

Stamenovic was selected for his outstanding contributions to the understanding of fundamental multiscale structure-function relations in the field of biomechanics of tissues and cells. He helped to design and develop a light pneumatic knee brace capable of ameliorating symptoms of knee osteoarthritis.

"From a departmental and college perspective, this is the second year in a row that three of our faculty have received this honor, bringing our total to 38 AIMBE Fellows," says White. "This is an astounding number, indicative of the high regard in which our faculty are held by our peers."

Xin Zhang a Guggenheim Fellow

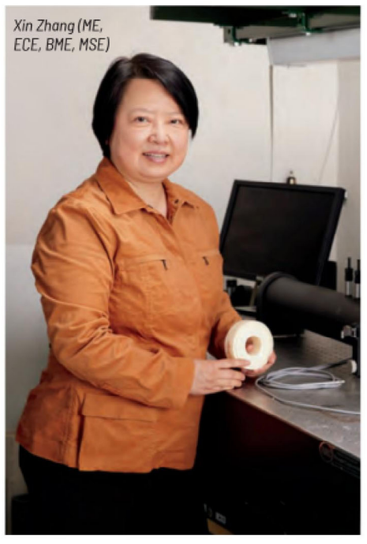
Professor Xin Zhang (ME, ECE, BME, MSE) has been awarded a highly prestigious Guggenheim Fellowship in recognition of her exceptional record of research in the fundamental and applied aspects of microelectromechanical systems and metamaterials.

Zhang was one of 180 scholars and artists to receive the honor out of a pool of nearly 2,500 applicants. The fellowships, awarded each spring by the John Simon Guggenheim Memorial Foundation, include among past winners Nobel laureates, Fields Medal winners and other leading lights across academic and artistic disciplines.

Zhang and her research group, the Laboratory for Microsystems Technology, seek to understand and exploit interesting characteristics of physics, materials, mechanics and manufacturing technologies with forward-looking engineering efforts and practical applications ranging from energy to healthcare to homeland security.

Recent technologies to emerge from Zhang's lab include a new metamaterial that can be shaped to block 94 percent of sound waves from a source of noise without blocking air flow, and a helical resonator array that can improve MRI image quality, potentially in less time and at lower cost.

Zhang has published more than 200 papers in interdisciplinary journals and is a fellow of AIMBE *(see above)*, the American Association for the Advancement of Science, the American Society of Mechanical Engineers and the Institute of Electrical and Electronics Engineers.


Xin Zhang (ME, ECE, BME, MSE)

TOP: HAN BY CIARA CROCKER; GALAGAN BY MELISSA OSTROW; BOTTOM: ZHANG BY DANA J. QUIGLEY

BU Bestows Top Honor on Grinstaff

Professor Mark Grinstaff (BME, Chemistry, MSE, MED) has been appointed a William Fairfield Warren Distinguished Professor—the highest recognition the University bestows on faculty.

The funds that come with the professorship "will allow me to do more of what I'm doing and to take greater risks in the research," says Grinstaff. "To work on projects that are more challenging, more interdisciplinary. It kind of reinforces the way I think about research and the way I work with my students."

Besides being a professor of translational research, biomedical engineering, chemistry, materials science and engineering, and medicine, Grinstaff is director of the NIH T32 Program in Biomaterials and director of the Nanotechnology Innovation Center at Boston University.

Mark Grinstaff (BME, Chemistry, MSE, MED)

Grinstaff's research activities encompass the synthesis of new macromolecules and biomaterials, self-assembly chemistry, imaging contrast agents, drug delivery and wound repair. His eponymous research group conducts interdisciplinary research in the areas of biological and macromolecular chemistry.

Early in the pandemic, Grinstaff developed a diagnostic device for the detection of COVID-19; the start-up he founded to produce the device was recently acquired by Sorrento Therapeutics.

Grinstaff is a fellow of the Biomedical Engineering Society (BMES), the winner of the 2018 Clemson Award for Applied Research from the Society of Biomaterials, and recipient of the 2015 Charles DeLisi Award, among other honors, and the author or coauthor of more than 225 peer-reviewed manuscripts. He earned his BA at Occidental College and his PhD at the University of Illinois at Urbana-Champaign. – JOEL BROWN

Ahmad "Mo" Khalil (BME)

TOP: GRINSTAFF BY CYDNEY SCOTT; BOTTOM: KHALIL BY DANA J. QUIGLEY

Schmidt Award Will Empower Khalil to Pursue Cross-Disciplinary Research

Associate Professor Ahmad "Mo" Khalil (BME) has earned the Schmidt Science Polymath Award, recognizing him as a bold researcher and fueling the possibility of advances toward the engineering of new multicellular systems, including plants, that can help humanity address devastating diseases and grapple with climate change.

Granting Khalil and his lab $500,000 a year for five years, the polymath award was conferred on him by the Schmidt Family Foundation, which was started by former Google CEO Eric Schmidt and his wife, Wendy Schmidt.

"Mechanisms that provide unrestricted funding to pursue entirely new research directions, especially in spaces that fall across disciplines, are rare," says Khalil, a pioneer of synthetic biology. "The idea behind this award is to encourage newly tenured professors to work in those areas and empower them to make shifts in their research and take on new and interesting problems."

Khalil says that one possible path he may take is developing efficient and effective methods for engineering plants, which could accelerate the sustainable production of crops with qualities such as increased yields, pathogen resistance and drought tolerance.

The Schmidt award is one of a slew that Khalil has won lately, including $1 million from the W.M. Keck Foundation for a cell-signaling study that might lead to heart and pain therapies with fewer side effects.