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Soft Optical Systems as Biointegrated Technologies: From Biological Research to Clinical Health Care

Monday, July 23, 2023 1:00 PM - 2:00 PM EST

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About This Webinar

Advanced opto-electronic systems that use minimally invasive soft fibres have the potential to accelerate progress in biological research and to serve as the foundation for new approaches in patient care. Specifically, capabilities for delivering minimally-invasive, light sources, photodetectors, coherent and incoherent optics, and other components onto the surface of or into the depths of such tissues will open up unique and important opportunities to explore fundamental principles in biology and improve outcomes in healthcare.

John Rogens, Ph.D., of Northwestern University, develops foundational concepts in optics, device physics, and manufacturing knowhow for these types of soft optical systems, along with examples of commercialized systems for microengineering and patient monitoring. These examples include collagen-based opto-electronic neural probes for behavioral research on animal models, and composite microfluidic systems for assessing biochemical markers of physiological state in human subjects.

What will attendees learn?

- Engineers, laboratory technicians, doctors, scientists, and researchers who utilize optical systems in the lab, those who work in biology, biophysics, the pharmaceutical industry, microfluidics, spectroscopy, and medicine using optics, photodetectors, nanotechnology, and light sources.

About the presenter

John A. Rogens, Ph.D., is a professor at Northwestern University. He obtained a bachelor’s degree in chemistry and physics from the University of Texas at Austin in 1981, a master’s degree in physics and chemistry from MIT in 1984, and a doctorate in physical chemistry in 1988. He was a junior fellow in the Harvard University Society of Fellows from 1987 to 1989. He joined the Bell Laboratories as a member of the technical staff, later serving as director of the Centered Matter Physics Research Department from 2000 to 2002. Next, Rogens spent 13 years on the faculty of the University of Chicago, where he was the St払いwllon and Charles Alex prese Profesor and Chair of the Department of the Robert S. W. Research Professor. In 2011, he began working at Northwestern University, where he is now the director of the recently endowed Quanser Stephen Institute for Biointegration.

Rogens has co-authored nearly 100 papers and co-invented over 300 novel technologies. His research has been recognized with many awards, including a MacArthur Fellowship in 2006, the American Physical Society’s 2011 Harold Urey Award, the National Academy of Engineering’s 2015 Kraft Speaker, and the American Academy of Arts and Sciences’ 2019 National Academy of Engineering Medal. Rogens is the current president of the American Academy of Arts and Sciences.

Mark Your Calendar

Date: Tuesday, July 23, 2023
Time: 1:00 PM - 2:00 PM EST

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