WELDON SCHOOL OF BIOMEDICAL ENGINEERING

PURDUE UNIVERSITY

Weldon School of Biomedical Engineering
Prospective Faculty Seminar

Wednesday, January 18, 2023
9:30-10:20am
MJIS 1001 or Via Zoom:
https://purdue-edu.zoom.us/j/94936026728?pwd=K3ZHcTN5Q2JrSGk3YTJwZVVxUHoxdz09&from=addon
(Note: Students registered for credit for the seminar are expected to attend in-person.)

Integrated Semiconductors for the Life Sciences

Jacob Rosenstein

Associate Professor of Engineering
Brown University

Abstract: One of the most significant trends in modern science is the growth of information technology and microelectronics into life science applications. In this talk I will review my lab's research on the conceptual and physical integration of electrical, biological, and chemical systems. I will discuss the latest progress on a new class of semiconductor sensors which use more than 100,000 active addressable microelectrodes to create non-destructive all-electrical "images" of cells, particles, biofilms, and other materials near the surface of the sensor. I will also review some of our recent collaborative work on digital information storage using mixtures of natural metabolites and synthetic small-molecule libraries. I hope that by re-imagining semiconductor circuits as bioelectronic interfaces, and considering chemical systems as abstract stores of information, we can uncover new ways to interact with the natural world.

Bio: Jacob K. Rosenstein is an Associate Professor in the School of Engineering at Brown University, in Providence, Rhode Island. He received a Ph.D. in electrical engineering from Columbia University, and previously worked in the wireless division at Analog Devices and MediaTek. His research focuses on electronic interfaces with chemical and biological systems, which has included integrated circuits for DNA sequencing, molecular information systems, machine olfaction, and smart cell culture platforms.

~BME Host: Hugh Lee~