FIU Engineering & Computing
Biomedical Engineering

Wallace H. Coulter Foundation
Biomedical Engineering Seminar Series

DR. JOHN X.J. ZHANG is a Professor at Thayer School of Engineering, Dartmouth College, NH, and an investigator at Dartmouth-Hitchcock Medical Center. Dr. Zhang is a Fellow of the American Institute for Medical and Biological Engineering (AIMBE), and a recent recipient of NIH Director's Transformative Research Award. His research takes multi-disciplinary approaches, utilizing engineering expertise in bionanotechnology, microfluidics, functional materials design, and micro-nanofabrication of biochips for synergizing sensing, imaging and manipulation on-chip to facilitate studies of biomedical complexity and early diagnostics towards precision healthcare. He has received numerous recognitions including NSF CAREER award, DARPA Young Faculty Award, Wallace Coulter Foundation Early Career Award, Facebook SARA award, Sony Faculty Innovation Award, and Agilent University Research Award. Dr. Zhang has published over 300 peer-reviewed papers and proceedings, presented over 80 invited seminars worldwide, and has 8 US and over 30 international patents issued. His research discoveries and patents were licensed to two companies, with successful commercialization. Dr. Zhang has mentored over 30 Ph.D. students and post-doctoral scholars, and published a textbook Molecular Sensors and Nanodevices in biomedical engineering. Dr. Zhang received his Ph.D. in Electrical Engineering from Stanford University and did postdoctoral research in Systems Biology at the Massachusetts Institute of Technology (MIT).

DR. JOHN X.J. ZHANG

Professor of Engineering

Dartmouth College

Graduate Research Day

WEDNESDAY, MARCH 9, 2022 | 9:00 AM | C 2300

MICROCHIPS IN TRANSLATIONAL MEDICINE: FROM CANCER DIAGNOSIS, BIOENERGY HARVESTING TO WEARABLE APPLICATIONS

ABSTRACT: Microchip-enabled miniaturized instruments are playing an increasingly significant role in assimilating the advancement of nanomaterials and microsystems towards developing innovative tools for translational medicine. Microfluidic chips can be the new form of "Intel-Inside" in emerging Lab-on-chip instruments; Functional nanomaterials can be rationally designed and synthesized in micro-reactors for enhanced biological assays, and thin film polymer sensors and actuators can enable a new generation of low profile bio-integrated systems.

In this talk, I will review our research in these frontiers: A rapid blood screening device for circulating tumor biomarkers detection and analysis towards successful commercialization, the recent NIH-sponsored effort on developing implantable cardiac energy harvesting devices which can be integrated on single pacemaker lead, and the collaboration with Facebook to develop tactile communication devices using patterned piezoelectric thin films, to enhance stretch and electricity-generation for both wearable devices and implants.

Wallace H. Coulter Foundation

Through the generous support of the Wallace H. Coulter Foundation, the Department of Biomedical Engineering facilitates weekly lectures each year during academic terms. Experts in all areas of Biomedical Engineering are invited to provide a research seminar and to meet with faculty and students to discuss the latest developments and research in Biomedical Engineering.

Wednesday, March 9, 2022

9:00 AM | https://bme.fiu.edu/seminars