

**MAYSAM GHOVANLOO, PH.D.** received the B.S. degree in electrical engineering from the University of Tehran, the M.S. degree in biomedical engineering from the Amirkabir University of Technology, and the M.S. and Ph.D. degrees in electrical engineering from the University of Michigan in Ann Arbor in 2003 and 2004, respectively. From 2004 to 2007, he was an Assistant Professor with the Department of Electrical and Computer Engineering, North Carolina State University, Raleigh, NC. From 2007 to 2019, he was a Professor with the School of Electrical and Computer Engineering at Georgia Tech. Currently he is generating intellectual property (IP) in advanced integrated circuits at Silicon Creations, Atlanta, GA. He has coauthored over 250 peer-reviewed publications on implantable microelectronic devices, circuits and microsystems, and modern assistive technologies, and holds 11 U.S. patents. He is a Fellow of the IEEE and a recipient of the National Science Foundation CAREER Award, Tommy Nobis Barrier Breaker Award for Innovation, and the Distinguished Young Scholar Award from the Association of Professors and Scholars of Iranian Heritage. He was the General Chair of the 2015 IEEE Biomedical Circuits and Systems (BioCAS) Conference in Atlanta, GA.



## **DR. MAYSAM GHOVANLOO**

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FRIDAY, OCTOBER 15, 2021 / 9:00 AM

### **FUNDAMENTALS OF WIRELESS POWER TRANSMISSION TO IMPLANTABLE MICROELECTRONIC DEVICES**

**ABSTRACT:** Applications of Wireless Power Transfer (WPT) are rapidly growing in a number of areas from wirelessly rechargeable watches and smartphones to home appliances, drones, underwater robots, and EVs because of the convenience in cord-cutting, being environmentally friendly by eliminating the use of primary batteries, and robustness against wear and tear. But when it comes to implantable medical devices (IMD), WPT is a must have for a large majority of IMDs, such as cochlear implants, retinal prostheses,

invasive brain-computer interfaces, and ventricular assist devices, even though there are ultra low power IMDs that still run on primary batteries, such as pacemakers. In this talk, you will learn about the fundamentals, design, optimization, and some of the latest developments in key building blocks of a WPT system for IMD applications. You will learn about design targets, priorities, and challenges as well as alternative approaches to power up and communicate with IMDs.



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.

Friday, October 21, 2021  
9:00AM-10:00AM | <https://bme.fiu.edu/seminars>