



**Pedram Mohseni, Ph.D.**

Goodrich Professor of Engineering Innovation and Inaugural Chair of the Electrical, Computer, and Systems Engineering Department

**Date** Friday, March 27, 2026

**Time** 12:00 to 1:00 PM

**Location** CBB 108

**Title:** "*Microfluidic Dielectric Biosensors for Point-of-Care Assessment of Hemostasis*"

**Abstract:** Point-of-care (POC) diagnostic devices hold great promise to significantly impact healthcare delivery and address health disparities. These devices enable a shift in focus away from the utilization of high-cost specialized care for the treatment of late-stage diseases toward predictive, preventative, participatory, and personalized healthcare for more effective disease monitoring and management.

In this seminar, I will present our work on ClotChip® – a microfluidic sensor that utilizes dielectric spectroscopy for POC assessment of blood coagulation disorders with <math><10 \mu\text{L}</math> of whole blood. Specifically, I will discuss how permittivity measurements on microliter-range coagulating blood at MHz-range frequencies provide clinically useful information on cellular and molecular abnormalities in fibrin clot formation and dissolution processes. Moreover, I will share our results from pilot clinical studies with ClotChip® on monitoring anticoagulation therapy with direct oral anticoagulants (DOACs) – a new class of FDA-approved blood thinners – and coagulation factor replacement therapy in hemophilia care management. Results from correlative studies between ClotChip® and clinically relevant global hemostatic assays such as rotational thromboelastometry (ROTEM) are also provided.

**Bio:** Dr. Pedram Mohseni is the Goodrich Professor of Engineering Innovation and Inaugural Chair of the Electrical, Computer, and Systems Engineering Department at Case Western Reserve University, Cleveland, OH, USA. He received the B.S. degree from the Sharif University of Technology, Tehran, Iran in 1996 and the M.S. and Ph.D. degrees from the University of Michigan, Ann Arbor, MI, USA in 1999 and 2005, respectively, all in electrical engineering. His main research interests are in analog/mixed-signal/RF integrated bioelectronics, wireless power/data transfer to biomedical implants, translational microfluidics, and microassays for point-of-care/point-of-injury diagnostics. His research activities have resulted in 2 book chapters, over 170 refereed publications, and 17 issued U.S. and international patents. He currently serves as the Editor-in-Chief of the IEEE Transactions on Biomedical Circuits and Systems (TBioCAS). Dr. Mohseni is an elected Senior Member of the U.S. National Academy of Inventors (NAI) for producing biomedical technologies that bring real impact on the welfare of society and a Fellow of the IEEE.