

# JOHNS HOPKINS BIOMEDICAL ENGINEERING

## BME Seminar Co-Sponsored with Dept. of Electrical and Computer Engineering

### Mostafa Fatemi, PhD

Professor of Biomedical Engineering  
Dept. of Physiology and Biomedical Engineering  
Mayo Clinic College of Medicine

**Date:** Tuesday, May 30, 2017

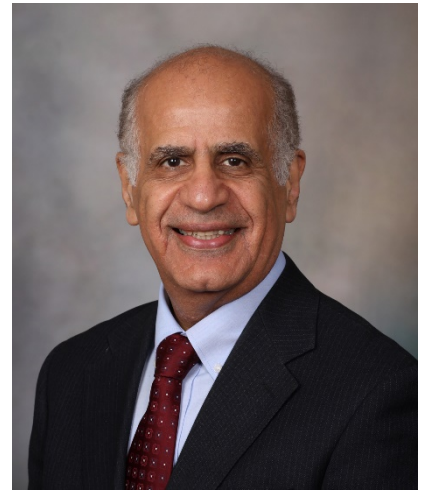
**Time:** 1:30 pm

**Location:** Clark 110, Homewood Campus

Video-teleconferenced to Traylor 707, School of Medicine Campus

**Host:** Dr. Muyinatu Bisi Bell

Light lunch will be served in Clark 110



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## Ultrasound Techniques for Evaluation of Urinary Bladder Function and Diagnosis of Breast Abnormalities

**Abstract:** This talk presents 2 modalities where ultrasound is used in different ways for diagnostic purposes. The first modality is for evaluation of functional aspect of urinary bladder in patients with neurogenic bladders. In current clinical practice, bladder compliance is assessed through an invasive procedure called *urodynamic studies* by which the internal bladder pressure is measured at different filling volumes. This procedure requires substantial hospital resources and is not well tolerated by patients. The new ultrasound technique can provide similar information noninvasively while requiring only minimal resources. The second modality is a technique for differentiation of suspicious breast masses. This technique is based on the slow deformation rate of tissue to quantitatively measure the viscoelastic response of tissue at very low frequencies and captures tissue characteristics that are missed in conventional elastography. This modality has been tested on a group of patients and the results show high accuracy in differentiation of such masses.

**Bio:** Mostafa Fatemi received his PhD degree in Electrical Engineering from Purdue University. Currently, he is a Professor of Biomedical Engineering at the Department of Physiology and Biomedical Engineering of Mayo Clinic College of Medicine in Rochester, MN. At the Mayo Clinic, he is also a member of the Mayo Clinic Cancer Center, Cancer Imaging Program, and the [Center for Translational Science Activities](#). In addition, he is a faculty member of the Biomedical Informatics and Computational Biology graduate program at the University of Minnesota Rochester.

Dr. Fatemi's current research areas include ultrasonic methods for tissue viscoelasticity estimation for applications in cancer imaging and bladder function evaluation. His past and current research has been funded by NIH, NSF, DoD-CDMRP Breast Cancer Research Program, Komen Breast Cancer Foundation, and Minnesota Partnership Program. He has published extensively in the field of medical ultrasound and holds 10 patents in this field.

Dr. Fatemi is an elected *Fellow* of these institutions: IEEE, American Institute of Medical and Biological Engineering (AIMBE), Acoustical Society of America (ASA), and American Institute of Ultrasound in Medicine (AIUM).

Dr. Fatemi is a recipient of the IEEE-UFFC Distinguished Lecturer award for 2016-2017