BIOMEDICAL ENGINEERING
Carnegie Mellon University

Tuesday, February 20, 2018
4:30 – 5:30 p.m.
Doherty Hall A302


# Frederick Epstein, PhD

Professor and Chair of Biomedical Engineering
Professor of Radiology
Department of Biomedical Engineering
University of Virginia
Charlottesville, VA 22904


## MRI in mouse models of heart disease


**Abstract:** Genetically modified mice are widely used to study mechanisms of normal physiology and of heart disease. Magnetic resonance imaging (MRI) is a modality that can accurately and reproducibly measure cardiac anatomy, function, perfusion, infarction, and certain cellular and molecular events. Our research involves the development and optimization of cardiac MRI methods for mice as well as their application in hypothesis-driven research. This seminar will present an overview of MRI methods that we have developed to image the mouse heart, with a focus on displacement-encoding using stimulated echoes (DENSE) to quantify myocardial strain and arterial spin labeling (ASL) to quantify myocardial perfusion. The application of these methods in mouse models of left ventricular remodeling after myocardial infarction and in coronary microvascular disease will be presented.