

From Protons to Pictures: A Physicist in Medical Imaging

Biomedical imaging research brings together physicists, engineers, biologists and chemists to develop techniques that directly impact patient care. Technological advances have made it possible to create images at scales from single molecules to the whole body. Medical images are used for a wide range of purposes from mapping brain function, diagnosing disease, measuring blood flow and metabolism, visualizing cellular function and more. This talk will introduce how medical images are made, and how they are used in clinical practice. A technique developed by physicians, engineers, physicists and mathematicians is capable of quantifying the mechanical properties of biological tissue. My research uses this technique, called Magnetic Resonance Elastography (MRE) to investigate the stiffness of tumors. It is commonly known that tumors are stiffer than the surrounding normal tissue. This talk will describe how the tumor mechanical properties change with successful treatment, and how this can be used to improve the outcome for the patient.



Wednesday, March 25
2:00 - 3:00 p.m.
RNS 210

Cookies and Apple Cider Served!

Kay Pepin '10

Ph.D. Candidate, Biomedical Engineering at Mayo Graduate School

Kay Pepin, a Physics and Mathematics major, graduated from St. Olaf College in 2010. While at St. Olaf, she was a member of the first Rube Goldberg team in 2009 and involved in both theater and orchestra. She began her graduate research in biomedical engineering at the Mayo Clinic Graduate School where she joined the lab of Kiaran McGee and Richard Ehman. Her thesis is on the development of a biomarker of chemotherapy response using Magnetic Resonance Elastography, a technique used to quantify the mechanical properties of tissue. In graduate school, she served as the student representative in the development of a new graduate program curriculum. She is also the co-founder of a program to support the success of women in biomedical research.