



Department of
Biomedical Engineering
UNIVERSITY OF WISCONSIN-MADISON

Spring 2018 Seminar Series



A Tale of Two Biopolymers:

Imaging the Nanoporosity of Mucus & Collagen with Diffusion-Sensitive Optical Coherence

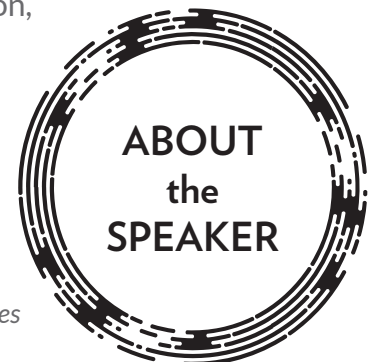
Amy Oldenburg, Ph.D.
Assoc. Professor of Physics & Astronomy
University of North Carolina at Chapel Hill

From the mucus that lines our airways, to the collagen that comprises our soft tissues, much of the human body can be thought of as a biopolymeric mesh filled with water. Remodeling of the mesh structure occurs in many, if not most, disease processes.

This talk will discuss the development and application of a new method, diffusion-sensitive optical coherence tomography (DS-OCT), which employs plasmonic nanoparticles capable of penetrating the biological pore structure and reporting the local nanopore size based upon changes in their stochastic diffusion. Interestingly, DS-OCT enables the inference of nano-scale information about biological samples using an imaging modality (OCT) of much coarser (micro-scale) resolution, with high speed and only minimal invasiveness. Applications in lung disease and breast cancer will be presented.

Dr. Amy Oldenburg received her B.S. with Honors in Applied Physics from the California Institute of Technology in 1995 and her Ph.D. in Physics from the University of Illinois at Urbana-Champaign in 2001.

In 2008, Dr. Oldenburg started the Optical Coherence Imaging Laboratory at the University of North Carolina at Chapel Hill; the lab's research is focused on the use of coherent optical and acoustic properties for imaging tissue viscoelastic properties and developing novel contrast mechanisms for biomedicine.



Monday, March 5, 2018
12 PM in Tong Auditorium (1003 Engineering Centers)