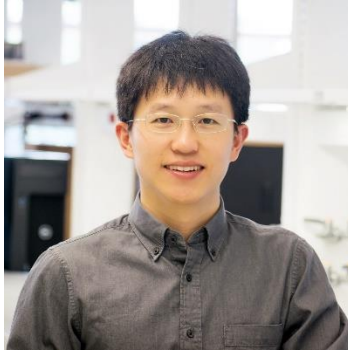




Department of Biomedical Engineering
Graduate Seminar



Dr. Jitao Zhang, Ph.D.

Assistant Research Professor, Department of Bioengineering,
University of Maryland,

Subject: Brillouin microscopy and its application in cell and tissue biomechanics

Abstract:

Brillouin microscopy is an emerging optical technique for quantifying the mechanical properties of materials in a non-contact, non-perturbative, and label-free manner. Over the past decade, the feasibility and potential of this innovative technique in biomedical field have been extensively demonstrated, and Brillouin technology is rapidly recognized. In this talk, I will discuss the development of the technique and demonstrate its application in cell and tissue biomechanics. I will start with the challenges and the innovations of the technique regarding the measurement sensitivity, speed, and range. I will then focus on two areas of biomedical application: (1) tissue mechanics in embryo development, and (2) nuclear mechanics in intact cell. I will discuss the implication of our research in combating birth defects and metastatic cancer diseases. Finally, I will briefly discuss several future directions of the technique and potential applications in other areas of biomedical engineering.

Bio:

Dr. Jitao Zhang is an assistant research professor in Fischell Department of Bioengineering at the University of Maryland, College Park, where he also received his postdoc training from 2015 to 2018. Prior to Maryland, he briefly worked at the University of Arizona as a postdoc for developing optical spectrometer and devices. He obtained his Ph.D. in optical engineering from Tsinghua University, Beijing, China. His current research interest is in devising innovative optical technology for biomedical research. Dr. Jitao has been a recipient of several awards, including the Doctoral Dissertation Excellence Award, the Excellent Youth of China Instrument Society scholarship, the Marcy Speer Award for postdoc, the NIH K25 award, and the Helmsley Scholar from Cold Spring Harbor Laboratory. He has 3 patents granted on Brillouin technique.

Date and time: Friday Jan 29nd, 2021 @ 11:00 a.m.

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