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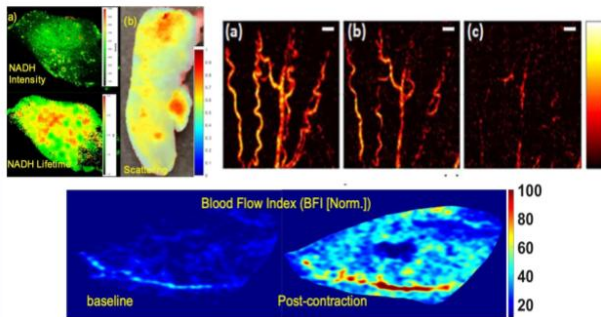
2022 – 2023 Seminar Series

Noninvasive Tissue Characterization and Monitoring with Optical/Photoacoustic Imaging

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For disease characterization and evaluation of intervention efficacy, there is a strong need for imaging modalities that can provide (bio)markers fast, frequently and noninvasively. Furthermore, realistic tissue constructs involve multilayered thick constructs consisting of vascular bed layer and cells such that there exists neovascularization during tissue healing, and proliferation and differentiation of cells in these dynamic thick tissue-mimicking constructs. Hence, there is a critical need to develop new imaging techniques that can image well beyond the penetration limits of conventional microscopy. Optical/Photoacoustic imaging modalities can simultaneously quantify functional and metabolic contrasts such as tissue blood flow, oxygenation, and oxygen metabolism, without the need for contrast agent administration, which is particularly attractive for early diagnosis and intraoperative evaluation in real time. In this talk, I will show several examples including neuro-monitoring, quantitative imaging of light-triggered nanovesicles, and 3D mesoscopic imaging for engineered 3D tissue constructs and regenerative medicine, drug delivery, and neural systems. Overall, portable and fast multimodal technology has allowed us to study tissue noninvasively in a variety of physiological contexts in both preclinical and clinical settings.

Wednesday, October 5th @ 11:45AM

Laufer Center

Lecture Hall Room 101

Stony Brook University

Faculty Host: Yi-Xian QIn