



JOHNS HOPKINS
BIOMEDICAL ENGINEERING

BME Virtual Seminar Series

Paco Robles, PhD

Assistant Professor
Georgia Institute of Technology & Emory University BME department

Monday, September 27th, 2021

1:30 p.m.

Held via Zoom

Faculty host: Nickolas Durr



Simple and low-cost optical imaging tools for label-free molecular imaging and 3D microscopy

Abstract: Label-free molecular contrast and 3D tomographic imaging capabilities with subcellular spatial resolution are invaluable for many biomedical applications. However, technologies with either of these capabilities are typically complex and expensive, which hinders their widespread use. Here I will first discuss our recent efforts to enable low-cost and highly sensitive molecular imaging using multispectral deep-UV microscopy. Its application to hematology and pathology will be described. Secondly, I will present quantitative oblique back-illumination microscopy (qOBM), which enables epi-illumination tomographic, quantitative phase imaging in thick scattering samples with nanometer scale sensitivity. QOBM's unique ability to image thick scattering samples quantitatively, with high speed, low-cost and ease-of-use provides unique advantages for biomedical imaging. Results highlighting this technology's unique capabilities in areas ranging from regenerative medicine to surgical guidance will be presented.

Bio: Dr. Robles is an assistant professor at the Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech & Emory University. His lab focuses on advancing label-free optical imaging technologies to help improve our understanding of biological processes and our ability to identify disease. He earned his doctorate in medical physics at Duke University with Prof. Wax and completed his postdoctoral training in the Department of Chemistry also at Duke with Prof. Warren.