

The Fitzpatrick Institute for Photonics (FIP)

FIP Friday Breakfast & Poster Presentation

Compact point-detection fluorescence spectroscopy system for quantifying intrinsic fluorescence redox ratio in brain cancer diagnostics

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Hemoglobin concentration and oxygenation in tissue are important biomarkers that are useful in both research and clinical diagnostics of a wide variety of diseases such as cancer. The authors developed a simple ratiometric method based on the spectral filtering modulation SFM of fluorescence spectra to estimate the total hemoglobin concentration and oxygenation in tissue using two primary endogenous fluorophores, reduced nicotinamide adenine dinucleotide (NADH) and Flavin adenine dinucleotide (FAD). In addition, the metabolic activity of the tissue

can also be quantified with this method by solving for the reduction-oxidation ratio, which is the FAD concentration over FAD + NADH concentration. The methods provide complementary capabilities for understanding cancer development and non-invasively diagnosing brain cancer. The results of the study suggest that this portable system can be potentially used to demarcate the elusive boundary between a brain tumor and the surrounding normal tissue during surgical resection.

Poster Presenter:

Ren Odion, Graduate Student
from Dr. Tuan Vo-Dinh's Lab

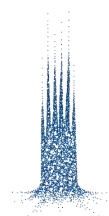
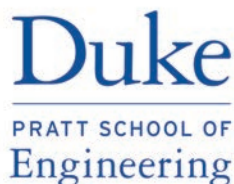
*2nd Place Poster Winner at
FIP 2017 Symposium*

Friday, August 25, 2017

FCIEMAS Atrium

10:00 am

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