

Abstract Submitted
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Time-resolved measurements of diffuse reflectance in biological, scattering media JIJUN CHEN, CARTER MCMASTER, KARTHIK VISHWANATH, Miami Univ — Light is non-invasively used to determine properties of the biological system. These biological properties are related to the optical coefficients of scattering and absorption and they are functions of the wavelength. It is possible to measure these optical properties by shining an ultra-fast laser pulse into the medium and then measuring the resulting time-resolved diffuse reflectance. Here we explore relationships between time-resolved reflectance with different optical properties experimentally and numerically. We use a supercontinuum laser which produces a broadband pulse together with a time correlated single photon counter connected to photon-counting avalanche photodiode. The laser will be spectrally filtered to get the optical properties of tissue as a function of wavelength, using time-resolved data. Monte Carlo simulations of time-resolved reflectance will be calculated for media with different optical properties. These simulations will not only help with validating experimental data, but will also help us predict, design and optimize experimental studies.

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