

Abstract Submitted
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Optical Characterization of Biological Tissues¹ FREDERICK BARRERA, DHIRAJ SARDAR, ANDREW TSIN — University of Texas at San Antonio, San Antonio, Texas 78249. An in-depth characterization of optical properties of biological tissues has been performed. The wavelength-dependent total diffuse reflection (R_d) and total transmission (T_t) measurements have been taken for individual tissue by using a double-integrating sphere setup. The index of refraction of the tissue will be determined using conventional optical techniques. The Inverse Adding Doubling (IAD) computational method is applied to the measured values of n , R_d , and T_t to calculate the optical absorption and scattering coefficients as well as the scattering anisotropy coefficients of these tissues. The R_d and T_t determined by the IAD method were compared with those generated by the Monte Carlo simulation technique. A thorough comparison of the scattering characteristics of these tissues has been made. Furthermore, a comparison of these optical scattering and absorption coefficients calculated by IAD method were compared to the values determined by the Kubelka-Munk model.

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