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The Power of Inverse Adding-Doubling (IAD) Method to Determine Optical Scattering and Absorption of Biological Media. GUANG-YIN SWANLAND, RAYLON YOW, DHIRAJ SARDAR — The IAD method is a numerical approach to determine the optical properties of biological tissue samples by using the measurements of total diffuse reflectance and total diffuse transmittance in conjunction with the index of refraction and the thickness of a homogeneous slab of turbid medial. It can be used on slabs within or without slide glass, including slabs surrounded by a medium with a different index of refraction. The turbid slabs can have any optical thickness, albedo, or phase function. The IAD method obtains the optical properties of the slab by repeatedly using an adding-doubling method to solve the radiative transport equation until those derived properties are the closest match to the measured values. The IAD method has the advantages of accuracy and flexibility in regard to the sample.

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Guang-Yin Swanland
gyfsw2001@yahoo.com
UTSA

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