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TESTING THE SCATTERING DISTRIBUTION OF A PHOTON IN A TURBID MEDIUM USING MONTE CARLO SIMULATIONS

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The scattering distribution of a photon in an inhomogeneous turbid medium is too complex to be represented by an analytical expression, and therefore requires a numerical solution. Photon propagation may be treated as a stochastic process. In this study, a Monte Carlo simulation is used to reproduce the behaviour of photons in turbid media. This is approached by applying random number generation to the fundamental physics of photon scattering. The redistribution of a photon in different directions is determined through the stochastic treatment of the scattering event and corresponding phase function. Scattered light is then subjected to a repeated similar stochastic process until the photon emerges from the medium. Taking into consideration the physical and optical properties of the turbid media, the model predicts the angular distribution of photons able to transmit through the medium. Archival data obtained from sunphotometry will be used to attempt to validate the simulations

Apply to be considered for a student award (Yes / No)?

Yes

Level for award (Hons, MSc, PhD, N/A)?

MSc

Main supervisor (name and email) and his / her institution

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Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

Yes

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