Leaf Polarized BRDF Simulation based on Monte Carlo 3-D Vector RT Modeling

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PII: S0022-4073(18)30249-8
DOI: https://doi.org/10.1016/j.jqsrt.2018.09.033
Reference: JQSRT 6241

To appear in: *Journal of Quantitative Spectroscopy & Radiative Transfer*

Received date: 8 April 2018
Revised date: 30 September 2018
Accepted date: 30 September 2018

Please cite this article as: Abdelaziz Kallel, Leaf Polarized BRDF Simulation based on Monte Carlo 3-D Vector RT Modeling, *Journal of Quantitative Spectroscopy & Radiative Transfer* (2018), doi: https://doi.org/10.1016/j.jqsrt.2018.09.033

Highlights

- Vector radiative transfer to model leaf polarized reflectance is proposed.
- Statistics about ray absorption and probability of exiting the medium allow to predict scattered energy after large number of transition
- Monte Carlo weighted sampling allows to predict the ray tracing at wavelength given it at close wavelength
- Rays forget their original direction after a number of transitions allowing to simulate multi-sun orientation high order scattering using the same ray tracing.
- Leaf are not Lambertian mediums
- Specular reflection is not pointlike.
- Horizontal and diagonal polarizations are observed at forward and inclined forward direction.