


Verification of Diffuse Reflectance Spectroscopy Using Monte Carlo Method

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**Final Year Project Report Submitted in
Partial Fulfillment of the Requirement for the
Degree of Bachelor of Science (Hons.) Physics in the
Faculty of Applied Science
Universiti Teknologi MARA**

July 2013

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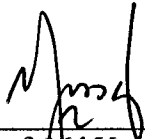
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ACKNOWLEDGEMENTS

I would like to thank my supervisor, Assoc. Prof. Dr. Mohd Hanapiah bin Mohd Yusoff, for making this project possible and pushing me to run extra mile. I also want to show my gratitude to my partner Nabila, who cooperate with me throughout the project. Last and foremost, I would like to show my gratitude toward my family, who had given me the support during the project, is done. Without all these people I wouldn't come close to finishing this project. Thank you.

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ABSTRACT

VERIFICATION OF DIFFUSE REFLECTANCE SPECTROSCOPY USING MONTE CARLO METHOD

A Monte Carlo model of steady-state light transport in multi layered tissue (mcml) and the corresponding convolution program (conv) have been coded in ANSI standard C. This is a study to model Diffuse Reflectance using Monte Carlo method. The aim of this study is to investigate the influence of number of photons used in the Monte Carlo Simulation program on the Reflectance Spectrum generated. Data of apple properties were use during the verification of the experimental results. The absorption coefficient, μ_a and scattering coefficient, μ_s , were obtained from a journal, which is 0.39 and 21.45 respectively. These figures are then input into the MCML program to compute the simulation. Several parameters were also input into the MCML program such as the number of photon that were used was 3,000,000. The MCML output is then input into the CONV program in order to obtain the results of Diffuse Reflectance versus radius, where the radius is the radial distance from the source to the detector. From the result obtained through the CONV program, it is interpret into graph of Diffuse Reflectance