CONDUCTIVITY STUDIES OF NATURAL RUBBER-GRAFTED WITH 30% POLY(METHYLMETHACRYLATE)-$LiBF_4$-EC BASED POLYMER ELECTROLYTE

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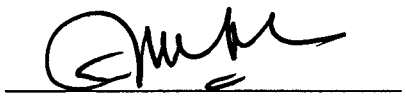
This Final Year Project entitle "Conductivity Studies Of Natural Rubber-Grafted with 30% Poly(Methymethacrylate)-LiBf4-EC based polymer electrolyte" was submitted by Nurhidayu Bt Ghazi in partial fulfillment of the requirement for Degree of Bachelor of Science (Hons) Physics in the Faculty of Applied Science and was approved by:



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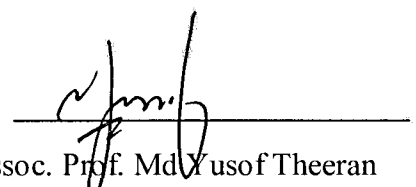

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ABSTRACT

In this study, Poly (methyl methacrylate) 30% grafted natural rubber (MG30) based polymer electrolytes was doped with Lithium Tetrafluroborate ($LiBF_4$) salt and mixed with ethylene carbonate (EC) as a plasticizer were prepared using a solvent casting technique. Fourier-Transform Infrared (FTIR) was used to establish the interactions between the polymer and salt in the frequency range 400 to 4,000 cm^{-1}. The ionic conductivity of plasticizer was studied. An impedance spectroscopy was used to determine the ionic conductivity of each sample and the frequency range of 100HZ to 1MHz over the temperature range of 303-383K. The highest ionic conductivity of $2.30x10^{-3}$ Scm^{-1} was obtained at 60wt% of EC plasticizer at room temperature.