

**INVESTIGATION ON ELECTROCHEMICAL PROPERTIES OF
CNTs/Si COMPOSITES AS ANODE IN LITHIUM ION BATTERIES**

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

NOVEMBER 2008

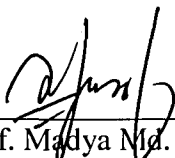
This Final Year Project Report entitled “Investigation on Electrochemical Properties of CNTs/Si Composites as Anode in Lithium Ion Batteries” was submitted by Kevin Alvin B Eswar, in partially fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Physics, in the Faculty of Applied Sciences, and was approved by



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ACKNOWLEDGEMENT

I am highly grateful to the God as permission given, my thesis entitled “**Investigation on electrochemical properties of CNTs/Si composites as anode in lithium ion batteries**” has been successfully submitted.

Firstly, I would like to express my sincere gratitude to my supervisor, **Dr. Muhd Zu Azhan Yahya** and my co-supervisor, **Dr. Ab Malik Marwan Ali** because they gave their trust and confidence while I'm doing my work. They always helped and showed me a lot of new ideas, the continuous encouragement and good advice while I was studying in order to finish my project.

I would also like to express my real appreciation and thanks to my seniors, YM Tunku Ishak, Noor Aishah, Fauziah, Irma Yuana, Ainnur Sherene, Nurhizwati and others. To and all my friends, Dzulieza., Luqmannulhakim, Noor Izati, Noor Asyira, Luqmanhakim, Mat, Amir Zaidi and my family, I really appreciate their understanding, continuous support and encouragement during the process of finishing this thesis. Last but not least, thanks to Universiti Teknologi MARA for the opportunities that make me as I am today.

Thank you,

Kevin Alvin B Eswar

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ABSTRACT

INVESTIGATION ON ELECTROCHEMICAL PROPERTIES OF CNTs/Si COMPOSITES AS ANODE IN LITHIUM ION BATTERIES

In this study, lithium metal is used as cathode and 1 M LiPF₆ + DMC: EC (1:1) as a liquid electrolyte. In order to investigate the anode, six samples with different amount of CNTs composite's are prepared by *ultrasonic bath* method. The six samples are Sample A (pure CNTs) as received, Sample B (99.5% wt. CNTs, 0.5% wt. Si), Sample C (99% wt. CNTs, 1% wt. Si), Sample D (98% wt. CNTs, 2% wt. Si), Sample E (97% wt. CNTs, 3% wt. Si) and Sample F (95% wt. CNTs, 5% wt. Si). Electrochemical properties; cyclic voltammetry and charge-discharge are carried out by using battery cyler (Won a Tech) in range 0V-3V, current 0.2 mA and limited to 25 cycles. The charge-discharge study shows the capacity loss is minimum starting from the second cycle of all samples. It is also shows the *columbic efficiency* is very good where 96 % of capacities are retained after 25 cycles. The cyclic voltammetry is studied to investigate the redox reaction of sample. It shows the good redox reaction for entire samples.