

**SYNTHESIS OF CARBON NANOTUBES (CNTs) USING  
COBALT/ZINC OXIDE AS A FLOATED CATALYST PRECURSOR  
AND PALM OIL AS A CARBON PRECURSOR**


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

**JANUARY 2012**

## DECLARATION

I hereby declare that the final year project report is based on my original work except for quotation and citations, which have been duly, acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UiTM or other institutions.



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Date: 30 / 1 / 2012

## ACKNOWLEDGEMENTS

Assalamualaikum W.B.T

In the name of Allah, The Almighty and The Most Graceful. First and foremost, I praise Allah for his blessing and guidance; therefore I could finish this Final Year Project on the required time.

From the bottom of my heart, I would like to thank my supervisor, Assoc. Prof. Dr. Mohamad Rusop and co-supervisor, Prof. Dr. Saifollah Abdullah for their knowledge and wisdom that they had given to me, my senior Mr. Syazwan Afif (Master Student) and Miss Maryam Mohamad (Master Student) for her helpful guidance and knowledge. With their helpful guidance, tips and critiques I could perform this final year project. I'm also deeply grateful for having informative and reliable resources for reference from the internet, journals and text books. They have been very helpful and accurate. Throughout this subject, I gain a lot of information and knowledge on writing a final year project especially the topic that I'm doing that is Synthesis of Carbon Nanotubes using Cobalt/Zinc Oxide as a Floated Precursor Catalyst and Palm Oil as a Carbon Precursor. Finally, my thanks again for all the individuals involved and contributed in this final year project.

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## ABSTRACT

### SYNTHESIS OF CARBON NANOTUBES USING COBALT/ZINC OXIDE AS A FLOATED CATALYST PRECURSOR AND PALM OIL AS A CARBON PRECURSOR

Vertically aligned carbon nanotubes (VACNTs) have been synthesized in a thermal catalytic chemical vapor reactor using natural palm oil as the carbon source. The main motivation of the used natural palm oil as the carbon precursor because to provide “green” alternatives of cheap and renewable raw materials for CNT production. The growth of vertically aligned CNTs nanostructures will be prepared at different temperature and molarity. To get the image of the CNTs produced by same method but different parameters we characterized it with Field Emission Scanning Electron Microscope (FE-SEM) and also determine the Raman Spectra by the Raman Spectroscopy (RS) characterization. Futhermore, we also the FTIR spectrum using Fourier Transform Infra Red Spectroscopy (FTIR). Based on this research, the optimize temperature to produce vertically aligned CNTs is 800°C. While for the effect of the bimetal Cobalt/Zinc Oxide catalyst, the optimize molarity of Zinc Oxide is 0.15 mol.