

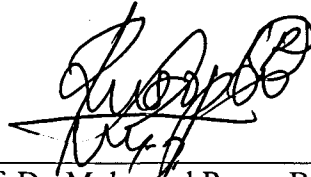
**PREPARATION OF CARBON NANOTUBES BY SEEDED CATALYST
METHOD USING PALM OIL AS STARTING MATERIAL**

ISRIHETTY@SITI SALMAH BINTI SENAIN

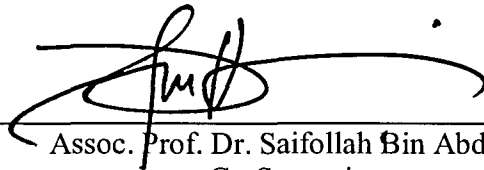
**Final Year Project Report Submitted in
Partial Fulfillment of the Requirements for the
Bachelor of Science (Hons.) Physics
In the Faculty of Applied Sciences
Universiti Teknologi MARA
Malaysia**

NOVEMBER 2008

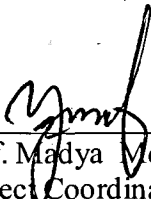
This Final Year Project Report entitled “**Preparation of Carbon Nanotube with Seeded Catalyst Method Using Palm oil as Starting Materials**” was submitted by Isrihetty @ Siti Salmah Binti Senain, in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Physics, in the Faculty of Applied Sciences, and was approved by



Assoc. Prof. Dr. Mohamad Rusop Bin Mahmood
Supervisor
NANO-SciTech Centre, Institute of Science
Universiti Teknologi MARA
40450 Shah Alam
Selangor, Malaysia



Assoc. Prof. Dr. Saifollah Bin Abdullah
Co-Supervisor
Faculty of Applied Sciences
Universiti Teknologi MARA
40450 Shah Alam
Selangor, Malaysia



Prof. Madya Md. Yusof Theeran
Project Coordinator
B. Sc. (Hons.) Physics
Faculty of Applied Sciences
Universiti Teknologi MARA
40450 Shah Alam
Selangor, Malaysia

Dr. Muhd Zu Azhan Bin Yahya
Head of Programme
B. Sc. (Hons.) Physics
Faculty of Applied Sciences
Universiti Teknologi MARA
40450 Shah Alam
Selangor, Malaysia

Date: 28/4/08

ACKNOWLEDEgements

First of all I would like to dedicate our greatest and ultimate debt and gratitude is due to Allah, the Most Beneficent and Most Merciful due to the completion this final year project. Besides, i wish to express my thanks to my supervisor Assoc. Prof. Dr. Mohamad Rusop Mahmood, my co-supervisor Assoc. Prof. Dr. Saifollah Bin Abdullah and Pn Azira Aziz for his guidance and advice regarding the best procedure in handling project experiment and the thesis writing. Without her assist and support, this project may not be possible. I also want to thanks the Institute of science (IOS), Nano Sci-Tech Centre and also the lab assistance, En Azlan because of their cooperation during this project.

Isrihetty @ Siti Salmah Binti Senain

ABSTRACT

PREPARATION OF CARBON NANOTUBES USING SEEDED CATALYST METHOD WITH PALM OIL AS STARTING MATERIALS

Carbon Nanotubes (CNTs) are produced by Thermal Chemical Vapor Deposition (TCVD). The function of support catalyst is to optimize used of the catalyst. The morphology and crystallinity of CNTs produced are determined by Fourier Transmission Infrared Spectroscopy (FTIR). The catalyst was prepared by the sol-gel method with cobalt, iron and nickel as the catalyst where these catalysts were added with different percent of support catalyst. In the synthesizing of CNTs, the palm oil was used as precursor. The collected CNTs are carried out for characterization by using FTIR. Increasing the percent of support catalyst contributes to the unstableness of carbon bonding of CNTs. The CNTs will vibrate more and absorb more energy. In this study, the energy absorbance of CNTs will be varied depends on the catalyst used.

TABLE OF CONTENT

	PAGE
ACKNOWLEDGEMENT	i
TABLE OF CONTENT	ii
LIST OF TABLE	iv
LIST OF FIGURE	v
LIST OF ABBREVIATION	vi
ABSTRACT	vii
ABSTRAK	viii
CHAPTER 1 INTRODUCTION	
1.1 Background	1
1.2 Properties of CNTs	2
1.3 Problem Statement	4
1.4 Significant of study	5
1.5 Objective of study	5
CHAPTER 2 LITERATURE REVIEW	
2.1 Chemical Vapor Deposition, CVD	6
2.2 Growth of CNTs	7
2.3 Catalyst	9
2.4 Palm oil	10
2.5 Fourier Transmission Infrared (FTIR) spectroscopy	11
CHAPTER 3 METHODOLOGY	
3.1 Materials	15
3.1.1 Equipment	15
3.1.2 Instrument	16
3.2 Preparation of Catalyst	17
3.3 Preparation of CNTs by thermal CVD	18
CHAPTER 4 RESULT AND DISCUSSION	
4.1 The Yield of CNTs	19
4.2 FTIR Characterization	20
CHAPTER 5 CONCLUSION AND RECOMMENDATION	
5.1 Conclusion	25
5.2 Recommendation	26