"The Application of Nuclear Track Detectors for Neutron Dosimetry"

A thesis presented by:

BASMA ALI EL-BADRY

B. Sc. in physics, 2004

For

M. Sc. Degree in Physics

Submitted to

Physics Department
Faculty of Girls for Art, Science and Education, Ain Shams University

<u>2007</u>

"The Application of Nuclear Track Detectors for Neutron Dosimetry"

A thesis presented by:

BASMA ALI EL-BADRY

B. Sc. in physics, 2004

Supervisors

Prof. Dr. Ahmed Morsy Ahmed

Department of physics,
Faculty of Girls,
Ain Shams University, Cairo, Egypt

Assist. Prof. Dr. Tarek El-Desouky

Department of physics,
Faculty of Girls,
Ain Shams University, Cairo, Egypt

Dr. Mohammed Fawzi Zaki

Head of Solid State Unit
Experimental Nuclear Physic Department,
Nuclear Research Center,
Atomic Energy Authority, Cairo, Egypt

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

وَيَسْأَلُونَكَ عَنِ الرُّوحِ قُلِ الرُّوحُ مِنْ أَمْرِ رَبِّي
وَمَا أُوتِيتُم مِّن الْعِلْمِ إِلاَّ قَلِيلاً

[الإسراء : 85]

Dedicated

To

My parents (Father and Mother),

My brothers,

My cognates

And

My friends

Abstract

Acknowledgment

I kneel obsequiousness to ***ALLAH*** *thanking* ***HIM*** *for showing me the right way, without* ***HIS*** *help my efforts would have gone astray. Thanks also for a person I love him very much, the* ***Prophet Mohammed {God's praise and peace upon},*** *who demonstrate the way on the strength of his instructions.*

I would like to extend a special thanks to, ***Prof. Dr. Ahmad Morsy Ahmad****, Department of Physics, Faculty of Girls, Ain Shams University, for his many suggestions and his continuous advises during this research.*

Thanks are also to ***Assist. Prof. Dr. Tarek Mohamed El-Desoky****, Department of Physics, Faculty of Girls, Ain Shams University, for his many illuminating discussions through the course of the work*

I *wish to express my deepest sincerest gratitude to* ***Dr. Mohammed Fawzi Zaki,*** *Department of Experimental Nuclear Physics, Nuclear Research Center, Atomic Energy Authority for his patience, endless help, and support during this research and his guidance through the early years of chaos and confusion.*

Great thanks for ***Prof. Dr. Amira Zaki,*** *head of Physics Department for her help and continuous encouragement for me and all young scientists in our department.*

Of course, I am grateful to my parents for their patience. Without them this work would never have come into existence.

Finally, I wish to thank the following: Department of Experimental Nuclear Physics, Nuclear Research Center, Atomic Energy Authority, staff members of the Physics Department, Faculty of Girls, Ain Shams University; specially, my friends (for all the good and bad times we had together); and my brothers; my family .

CONTENTS

Chapter (III)

Chapter (IV)

Chapter (V)

List of Tables

List of Tables

List of Figures

List of Figures