ACKNOWLEDGMENT

I would like to express my sincere thanks and gratitude to **Prof. Dr. N.M. El-Naggar**, Professor of nuclear physics, Faculty of Science, Zagazig University, Benha Branch, for his encouragement, his supervision, guidance and valuable discussions during this work.

My deep thanks to **Prof. Dr. M. M. El-Ocker**, professor of solid state physics, Faculty of science, Al-Azhar University, for suggesting the point of research and also for his continuous help, supervision, stimulating discussions, encouragement, kindness and guidance during the progress of this work.

My sincere thanks to **Dr. Abd El-Rahman Ali Saad**, Assist. professor, Mathematical and natural science department, Faculty of Engineering (Shoubra), Zagazig University, Benha Branch, for his supervison, continuous assistance and guidance throughout this work.

My sincere gratitude to **Dr. M. K. El-Mansy**, Assist. professor of solid state physics, Faculty of science, Zagazig University, Benha Branch, for his efforts, advice, continuous help guidance and valuable discussion during this work.

I would like also to thank **Dr. N. M. Shash** as well as, **Dr. Fathy Salman**, physics department, Fuculty of Science, Zagazig University, Benha Branch, for their cooperation and encouragement.

My deep sincerest thanks to **Prof. Dr. M. I. El-Zaiki,** professor of nuclear physics and head of physics department, Faculty of Science, Zagazig University, Benha Branch, for encouragement, advice and for all facilities offered during this work.

Many thanks are also expressed to all staff members of physics department for their useful cooperation.

Thanks are also to the staff of the National Center for Radiation Research and Technology, for their valuable help.