



## ACKNOWLEDGEMENTS

My heartfelt gratitude goes first to The Almighty GOD in Heaven, without whom this work would have been a futile exercise.

I would like to express my deep and sincere gratitude and appreciation to my supervisor Prof. N.L. Singh, who introduced me to this topic and whose original and never ending flow of ideas and encouragement are in a large part responsible for the work described in this thesis. Inculcation of having a systematic approach in any scientific endeavor will help me in the long run. I shall always cherish the memories of my association with him.

I would like to Prof. C. F. Desai (Ex Head), Prof. A. C. Sharma, Head, Physics Department, Science Faculty for providing lab facilities and all other Teaching and Non-Teaching staff members of Physics department for their kind help and suggestions during my Ph.D work.

UGC-DRS laboratory, Physics Department is gratefully acknowledged for providing characterization facilities.

I would like to thank to Dr. Amit Roy, Director, IUAC New Delhi, Dr. D. K. Avasthi, Co-ordinator- Materials Science Division and whole operating team of pelletron accelerator for providing accelerator facility at Inter University Accelerator Centre, New Delhi. I would like to thank Dr. Fouran Singh, Mr. Pawan Kulriya for providing various characterization techniques at the centre and for many scientific discussions during my stay at IUAC. Financial assistance given by IUAC, New Delhi is also gratefully acknowledged.

I would like to thank Dr. Ajay Gupta, Centre director, IUC-UGC-CSR, Indore and Dr. V. Ganesan, Dr. D. M. Phase and Dr. A. M. Avasthi for providing laboratory facility.

I also thank to Prof. Shayam Kumar, Department of Physics, Kurukshetra University, Kurukshetra for UV-measurement and for many fruitful discussions.

My heartfelt thank to my dear friends Ms. Jagriti, Ms. Neelam and Mr. Vikash for multiplying my joys and dividing my sorrows. Their sincere support and inspiration provided by them pushed me to complete the present piece of work.

I am very thankful to my labmates Dr. Sejal Shah, Ms. Chaitali, Ms. Sangeeta for their valuable suggestions and support during my research work.

I express my heartfelt thanks to my senior Dr. Anjum Qureshi for her co-operation, moral support, encouragement and valuable suggestions throughout the entire journey of my research work. I also like to thanks all my department colleagues for holding scientific discussions. I thank to my hostel friends Ms. Kamanee Ranka and Ms. Shree Lata and all my well wisher.

I would like to express appreciation for my close friend Mr. Nishant Singh, who pushed me when I wanted to quit and gave me encouragement, support and love.

I wish to dedicate this thesis to my parents for all what they gave me in life. I wish to express my gratitude for my younger brother Mr. Ankit and my sister Ms. Varsha and entire family for all their constant support.

Date: 13/02/2012

Vadodara:



Dolly Singh