



Acknowledgments

I am indebted to my research advisor, Professor Nandlal Singh, for his personnel and professional guidance, kind help, unfailing suggestions and moral boosting. He has gone above and beyond what was expected of him as an advisor to provide opportunities for research both on and off campus and to encourage exposure to various national and international conferences.

I am extremely thankful to Dr. Amit Roy, Director, Inter University Accelerator Center, New Delhi for providing all the necessary experimental facilities at IUAC, New Delhi.

I express my indebtedness to Professor C. F. Desai, Head, Department of Physics, The M. S. University of Baroda, for providing local facilities during the course of these investigations.

I would also like to thank Professor A. K. Rakshit (Department of chemistry, M S University of Baroda), Dr. D. K. Avasthi, Dr. F. Singh (Inter University Accelerator Center, IUAC, New Delhi), Dr. V. Shrinet (ERDA, Baroda), for their valuable suggestions, and active cooperation during the course of these investigations.

I am exceedingly grateful to Dr. P. K. Mehta, Dr. Anita Shrama, Dr. M. S. Gadkari, Dr. Dhiren Shah, Dr. Nilam Shah, Dr. K. Somani, Dr. S. Sharma, Dr. S. Patil, Dr. A. Uppadhyay, Mr. H. B. Patel, Ms. Sejal Shah, and Ms. Dolly Singh for their co-operation and help at various stages of my research work.

I am greatly indebted and thankful to Dr. J. S. Bandukwala for his encouragement and blessings during the course of study.

I am also thankful to teaching staff of Physics Department, M. S. University of Baroda, for their cooperation and staff members of IUAC, New Delhi for their efforts which culminated in successful Pelletron operation and completion of this experimental programme.

I also express my sincere thanks to Prof. Ajay Gupta, Center Director (IUC-CSR-Indore) and Dr. V. Ganesan for providing the characterization facility at their center.

I am also thankful to Prof. Arif Gulluoglu, (Department of Metallurgical and Material Science Engineering, Marmara University, Istanbul, Turkey) for his valuable suggestions, time, help and collaboration.

The financial support by Inter University Accelerator Center (IUAC), New Delhi under the project (NSC/X11.7/UFUP-34317/2112) is gratefully acknowledged.

With a deep sense of gratitude I acknowledge the support and encouragement of all my friends, Ms. Archana, Mrs. Ambili, Ms. Emel, Ms. Kamini, Ms. Shrilata, Mr. Sameer, Mr. Atul, Mr. Sujit, Mr. Vikrant, Mrs. Zuhail and family.

I appreciate whole-heartedly the encouragement given to me by my parents throughout my academic career and deep sense of affection of my sisters Tarannum and Parveen Qureshi, my brother Mohsin Qureshi. Words are insufficient to express my appreciation and love to them.

Above all this venture has successfully come to an end with God's blessings. God has been with me throughout: wherever I went and in whatever I did. He gave me the help, comfort, peace, fairness, justice, goodness, mercy and bestowed all his love on me making me feel like his favorite child and to help me achieve this dream of mine.

Anjum Qureshi