Acknowledgement

This thesis is solely the result of the immense wisdom, constant encouragement and perfect vision of my guide Dr. Minaxi Vinodkumar. It was from my guide that I learned the nuances of research methodology and the finer aspects of electron scattering with atomic and molecular targets thereby raising my thinking and ideas to a different level. I forever, will be totally indebted to my guide for guiding me to complete this thesis work.

I would like to extend my special gratitude to Prof. P. C. Vinodkumar (Physics Department, S. P. University), for his encouragement, guidance and valuable suggestions throughout the work. His advice and support throughout the work are greatly appreciated.

I am thankful to Prof. K. N. Joshipura (Professor, Physics Department, S P University), Dr. Chetan Limbachiya (P. S. Science College, Kadi), Prof N. J. Mason, and Dr. Bobby Antony (I. S. M., Dhanbad) for their interest and support in this work. I am also thankful to Dr. R. J. Pathak (Physics Department, R. R. Mehta Science College, Palanpur) for his motivations during my research journey.

I would like to thank all the staff member of V. P & R. P. T. P Science College, for their co-operation and support. I extend my special gratitude towards the former principal of the college, Dr. D. J. Desai and present Principal Mr. K. M. Patel for their constant help and strong positive attitude towards me throughout my research work.

Next, I would like to thank the Charutar Vidya Mandal, Vallabh Vidyanagar for providing me the facility and research environment in the college.
Acknowledgement

I am also thankful to UGC(32 – 38 / 2006 (SR)), New Delhi and DST (SR / S2 /LOP – 26/2008) New Delhi for providing me the necessary facilities for doing my research work.

Special thanks to my friend Mr. Kirti M. Korot (Government Engineering College, Modasa), for his continuous help and support during my study. I would like to acknowledge my friends Mayuri, Avani, Rucha, Shailesh, Abhay, Dr. Harshit, Ketan Purohit, Mohit, Sumona, Foram, Puja and Siddharth for their assistance during my research work.

 Acknowledgements are also due to all the faculty members of Government Engineering College, Patan, Mr. A. K Chaudhari, Mr. Haresh Judal, Mr. Kapil Joshi and all others, for their concern and good wishes.

It is indeed a pleasure for me to acknowledge the mental support and sacrifice of my wife towards the completion of this thesis. I cannot forget to thank multi role personalities of my life – My Parents, my elder brother, bhabhi, my sisters for all the support and best wishes they have showered on me during the course of my post graduation and research work. Without their help and co-operation, probably it would not have been possible to complete this mammoth work.

Finally, I dedicate this thesis unto the lord almighty whose blessings are always showered upon me.

Harshad S Bhutadia