

## *Acknowledgements*

During the course of my Ph.D. work I came across so many persons who not only inspired me but also encouraged me to proceed ahead in life. At first, I would like to express deep sense of gratitude towards my supervisor Dr. (Mrs.) Chandana Rath for her invaluable suggestions, motivation, inspiration and keen interest in my work during my Ph.D. period. She has helped and nourished me to grow as a person literally. Her effortless enthusiasm has made me complete this thesis. I also thank Dr. Govinda Chandra Rath for the moral support and encouragement.

I gratefully acknowledge the faculty members of our School; Prof. Dhananjai Pandey, Prof. Pralay Maiti, Prof. Rajiv Prakash, Dr. Akhilesh Kumar Singh, Dr. Chandan Upadhyay and Dr. Bhola Nath Pal for encouragement and support. I am also thankful to all the non-teaching staffs of our School, especially Shri Ambresh Kumar Rai for his timely help.

I heartily acknowledge Prof. N. C. Mishra, Utkal University for his encouragement and help during my research. I am indebted to Dr. Alok Banerjee, Prof. Ajay Gupta, Dr. R. J. Choudhary, Dr. V. Ganesan, Dr. T. Shripathi, Dr. R. Rawat, Dr. N. P. Lalla, Dr. V. R. Reddy and Dr. V. Sathe from UGC-DAE CSR, Indore for the timely help. I am grateful to Dr. D. Kanjilal, Dr. D. K. Avasthi, Dr. D. Kabiraj, Dr. P. K. Kulriya, Dr. Praveen Kumar, Mr. Sunil Ojha and Mr. R. N. Dutta for their help at IUAC, New Delhi. I thank the entire Pelletron group at IUAC, New Delhi for providing stable beam to carry out my experiments. I convey my regards to Prof. D. Sa, Banaras Hindu University, for the valuable discussions. I thank Prof. R. K. Mandal, Prof. A.S.K. Sinha and Dr. (Mrs.) S. Annapoorni, for their help in measurements.

I am thankful to my friend as well as lab-mate Shri Vinay Pratap Singh for his unconditional help and support. I thank my friend Shri Uma Shankar for giving me a nice company during my stay in BHU. I specially

acknowledge Shri B. N. Bhattacharjee for the valuable suggestions, care and encouragement. I also extend my regards to my juniors Dugesh, Jagadish, Bharati, Priyanka and Ankit.

I thank my seniors Dr. S. Bhattacharjee, Dr. A. Singh, Dr. V. Tiwari, Dr. A. Mishra, Shri J. P. Patel and Dr. R. S. Solanki for their valuable advice. I acknowledge some of the research scholars from the school namely: Rishikesh, Ashutosh, Narendra, Karun, Dinesh, Rajiv, Gopal, Sandeep, Pappu, Shukhdev, Arun, Sushil, Pramaod, Kehsav for their cordial gesture. I thank my friends; Hemanta, Rajib, Arabinda, Satish, Sudheer, Mirgender, Pinaki, Sumnata and Samir for the encouragement, help and support.

Financial assistance from UGC-DAE CSR, Indore and CSIR, India is acknowledged for the Project fellowship and Senior Research Fellowship respectively. Travel support from ICTP, Italy is also acknowledged for carrying out experiments at Elettra, Trieste and to participate in a School at ICTP. Financial assistance from IIT BHU to participate in conferences is also acknowledged.

I specially thank my father Shri Kshitindra Mohanty and mother Smt. Abhaylaxmi Mohanty for being patient enough to bear my long absence from home, so that I could complete the course. During my course, I have lost my beloved uncle Late Shri J. N. Mohanty. I heartily thank for his help and pray God for his soul to rest in peace. I offer my humble gratitude to Lord *Kashi Vishwanath* for giving me the courage and strength to complete my research work in his holy abode *Kashi*. Lastly, I thank the founder, *Mahamana Pt. Madan Mohan Malviyaji* for providing me this glorious place to work.

(Pankaj Mohanty)