ACKNOWLEDGMENTS

I would like to express my sincere gratitude to my Ph.D. Supervisor, Prof. S. Mukherjee at Physics Department, M.S. University of Baroda, Vadodara, Gujarat for his invaluable guidance and encouragement throughout my thesis work. He is a wonderful teacher, and is a source of knowledge that I will be very thankful for throughout my career.

Words are scrimpy to express my gratefulness to Dr. D. C. Biswas, Nuclear Physics Division, BARC, Mumbai, for his guidance, endless support, and encouragement. It was only because of his guidance that I was able to improve my understanding of concepts and also grasp the vast and ever evolving frontier topics in Nuclear Physics. I have gained valuable knowledge on the experimental as well as theoretical aspects of nuclear measurements. His kind assistance in many aspects is also acknowledged, during my stay at BARC. My visits at BARC has been a great learning experience due to the more interactive people over there.

It was a great pleasure to work under the supervision of Prof. S. Mukherjee and Dr.D. C. Biswas that has helped me in focusing and understanding the present research work. I warmly thank both for giving me an opportunity to visit and work at Bhabha Atomic Research Centre (BARC).

I would like to thank Prof. N. L. Singh, Head, Physics Department, M.S. University of Baroda, Vadodara, for providing me all the necessary facilities and encouragement during this research work. I also wish to thank Prof. A. C. Sharma, Dean of Faculty of Science, for his support in pursuing this work. I thank my all professors at M. S. University of Baroda, for their support and motivations in carrying out this work.

I am very grateful to the UGC-DAE-CSR Kolkata, India, for providing the fellow-

ship. I express sincere thanks to Dr. A. Saxena, Head Nuclear Physics Division, for his many helpful discussions, suggestions and his advice in performing experiments. I would like to express my sincere appreciation to Dr. S.V. Suryanarayana for his help and guidance. He has been a constant source of help at all times.

I would like to express my profound gratitude to Dr. Y.K. Gupta for his keen interest and concern about my work. I am very thankful for his valuable suggestions at every step of this work that has improved its quality substantially. I gratefully acknowledge, Mr. G. K. Prajapati, Mr. L. S. Danu, Dr. B. N. Joshi, Dr. S. Mukhopadhyay, Dr. B. V. John, and Mr. R. P. Vind for hours spent explaining the various aspects of nuclear Physics, electronics, data acquisition system, and data the analysis in the early part of my Ph.D. From them, I learned many things and enjoyed performing different experiments.

I thank Dr. B.K. Nayak, Dr. S. Santra for their active participation in my experiments and their valuable suggestions and help during the experiments.

I thank Mr. R.V. Jangle, Mr. A. Inkar, Mr. Lalit Kinanje for their help during my experiments. I also thank all the administrative staff at BARC, NPD office, for their cooperation related to administrative paperwork. I am very grateful to the Pelletron accelerator staff at TIFR operating staff for smooth operation of the accelerator during the experiments.

I would like to thank all the staff members at M. S. University of Baroda, Vadodara and Nuclear Physics Division BARC Mumbai. For their cooperation in administrative paper work. I would like to acknowledge all the teachers I learned from, since my childhood, I would not have been here without their guidance, blessing, and support. I would like to thank all my friends for their support and motivation during this work.

Finally, I express my heartfelt thanks to my husband Jay, Mummy and Papaji, and my family (parents and in-laws) for their unconditional love and support. Their words of encouragement have always been the greatest source for me to strive towards doing my best and also, the reason I have been able to keep a positive attitude towards

all things in life. I also thank all those people who have helped and inspired me in direct and indirect way.