ACKNOWLEDGEMENT

I would like to acknowledge everybody who has supported me in one way or the other during my amazing academic journey. I would like to name few, who made special contribution.

First of all, I would like to thank Professor R. V. Mehta for being an inspiration and a supporter as well as for introducing me to my supervisor, Professor R. V. Upadhyay. I am extremely grateful to my supervisor for his guidance and all the useful discussion and brainstorming sessions, especially during the difficult conceptual development stage. His deep insights helped me at various stages of my research. I would like to thank my supervisor for his endless support, tutoring and innovative ideas which always challenging for me to explore new and interesting field. To work with him has been a real pleasure to me. He has been a steady influence throughout my Ph.D.carrier; he has oriented and supported me with promptness and care, and has always been patient and encouraging in times of new ideas and difficulties; he has listened to my ideas and discussions frequently led to key insights. The joy and enthusiasm he has for research work contagious and motivational for me, even during tough times in the Ph.D. carrier.

I am very grateful to my co-supervisor Dr. V. K. Aswal for insightful comments on my work, for his support, and for many motivating discussions.

I especially thank Charotar University of Science and Technology (CHARUSAT) for providing me all basic facilities and all the rest of the academic and generous support.

Financial support from Gujarat Council of Science and Technology (GUJCOST) and Board of Research in Nuclear Sciences (BRNS), Government of India for these projects are gratefully acknowledged.

I would like to express special thanks to Prof. T. K. Chaudhuri for his kind support and encouragement from the earlier stages of my studies.

It is my privilege to thank Dr. Debabrata Benarjee for his encouragement for research at the earlier stage of my post-graduate study. I would like to acknowledge the most two important persons in my life – Dr. Anil Kumar Tyagi and Dr. Sanjeev Kumar Gupta. They have been constant source of strength and inspiration for me.

A special thanks to all my school teachers and professors for their contribution to shape my thoughts as a researcher and as a person.

Moreover, I am highly indebted to those who have always been there with their experienced knowledge. To name a few, the list includes Dr. C. S. Patel, Dr. Anjana Kothari, Dr. Mitesh Patel, Mr. Jayesh Patel.

I owe my deepest gratitude to my close friends Ms. Sudesh Bhalothia, Mr. Bablu Mukherjee, Mr. Zulfikar Ali and Mr. Achintya Bera for encouragement and support me during research work.
Besides this I am grateful to numerous colleagues and friends for fruitful and enlightening discussion. In this case it’s nearly impossible to name all those who have been with me during the years, but I would like to mention particularly: Dr. Kinnari Parekh, Ms. Harshida Parmar and Mr. Devendra Tiwari. They helped me with deep and inspiring discussions.

A special gratitude is also extended to my seniors: Dr. Rucha Desai, Dr. Bhupendra Chudasama and Dr. Nidhi Andhariya, Dr. C. K. Cumesh and Dr. Bhavin Patel for their valuable guidance.

I would like to thank Mr. Rasmi Dave for his valuable guidance. I was privileged to share many minor but important matters with my close friends – Ami, Harshita, Neelima, Dharti, Avni and Sampark who provided steady encouragement during Ph.D. carrier.

Last but not the least, I deeply thank My Family for their love, support and encouragement throughout my life. For my parents who raised me with a love of science and support me in all pursuits. I can honestly say that it was only their determination and constant encouragement that ultimately made it possible for me to see this project through to the end. I can never fully emphasize the role that my parents and family have played in shaping me and creating the person I am today.

Ms. Kruti Shah
CHARUSAT
March 2013