ACKNOWLEDGMENTS

I gratefully acknowledge the constant and invaluable academic and personal support received from my supervisor Dr. Dinesh K. Srivastava throughout my thesis work.

I would very much like to thank, Prof. Bikash Sinha, former Director, VECC and Homi Bhabha Chair, HBNI, DAE, former Director, Prof. Rakesh Kumar Bhandari, VECC, Dr. Santanu Pal, former Head, Theoretical Physics Division, VECC, Dr. Jan-e Alam, VECC, Dr. Sourav Sarkar, VECC, Dr. Munshi G. Mustafa, SINP, Dr. Asis K. Chaudhari, Head, Theoretical Physics Division, VECC, Dr. Tapan K. Nayak, VECC, Dr. Bedangadas Mohanty, NISER, Dr. A. K. Dubey, VECC, Dr. Subhashish Chattopadhyay, VECC, Dr. Partha Barat, VECC, Prof. Steffen A. Bass, Duke Univ., Prof. Berndt Müller, Duke Univ., US., Dr. Quangyou Qin Wuhan Univ., China, Mr. C. E. Coleman-Smith, Duke Univ., US, Prof. Rainer J. Fries, Texas A&M Univ., Prof. Ralph Rapp, Texas A&M Univ., Texas, US, my colleagues Dr. Umme Jamil, Miss Surasree Mazumder, Mr. Trambak Bhattacharyya, Dr. Nirupam Dutta, Dr. Somanth De and all of my colleagues and predecessors for their useful scientific discussions with me.

I am deeply indebted and grateful to my parents, maternal uncles, grand parents, Mr. Prabir Mazumder, Mrs. Tulana Bhattacharyya, my younger brother and my sisters for their support, love and encouragement during my Ph.D. tenure. Thank you very much. At this moment, I very much remember with gratitude, my father, Late Abul Kalam Azad who was instrumental in building up my limitless confidence and passion for my studies and to produce my best.

I sincerely apologize inadvertent omission of any name from the above list of acknowledgment.

Mohammed Younus