

Acknowledgement

I would like to take this opportunity to express my deepest appreciation to all those who supported me throughout the period of my research work in some or the other way.

Firstly I would like to thank Prof. Jayanta Kumar Sarma for his guidance and helpfulness during my research work, and for providing me with a nice atmosphere for doing research. I am grateful to him for his encouragement and for giving me freedom to learn on my own.

I am thankful to Tezpur University for providing me with the research facility and the institutional scholarship for the first two years of my research. I also extend my sincere thanks to all the administrative staffs. My thanks also goes to all the staffs of the central library for their wonderful services.

I offer my heartfelt gratitude to all the faculty members of Physics Department, Tezpur University for their inspiration and valuable suggestions. I wish to express my special thanks to Prof. N. Das and Prof. N. Bhattacharyya for their encouragement and invaluable constructive criticism. Moreover, I am thankful to all the technical and non technical staffs of Physics Department for their help during my research work.

I must acknowledge the University Grants Commission for financial support in the form of a research project, I got in some part of my research period.

I would like to offer my heartiest thanks to all my friends and colleagues at Tezpur University, specially Sovan, Nayanmoni, Nomita, Sourav, Rathinda, Momiba, Sanchita ba, Ranjitda, Anjanda, Ananya, Mahmuda and Bobby baideu for their wonderful company, help and well wishes. I really enjoyed the wonderful moments spent with my friends and colleagues at TU.

I would also like to thank the anonymous reviewers of my publications for their constructive comments and helpful suggestions that greatly contributed to improve the quality of my work.

Finally, from the depth of my heart with love and faith, I would like to thank my family- my beloved parents, my dearest younger brother and my darling husband for their constant support and encouragement, without which this work would not have

been possible. Their appreciation, even for small achievements, has always been a source of motivation for me. It is their unconditional love and care that enables me to deal with the tough situations. I find no words to convey how much I love them. I am very much indebted to Maa and Baba (my parents), who have always been there for me and believed in all my efforts. Their invaluable advices, suggestions, blessings and prayers helped me at every stage of my personal as well as academic life. Especially, I would like to thank my mother for being a continual source of my strength and support. She has faith in me and my ability even when I felt like giving up. My mother, taught me that even the largest task can be accomplished if it is done one step at a time. Her love, sacrifice, patience, optimism, sense of humour, and guidance was more valuable than one could ever imagine. Without her presence, this thesis would probably never have existed. She is always the role model and the biggest inspiration of my life. I further owe my love and deepest gratitude to my younger brother Amit who always encourages me to work hard and achieve my goals. Being a software engineer by profession, he has helped me a lot in all computer related matters throughout my research work, enabling me to its successful completion. His love, endless support, care and inspiration have always been invaluable to my life. I am also very grateful to my husband who supported me in every possible way to see the completion of this work. The love, support and constant patience of my husband have taught me much about sacrifice and compromise. I thank him for always being there, cheering me up and standing by me through ups and downs of my life. I also owe to him as he spent endless hours proofreading my thesis.

Above all, I thank the Almighty GOD for his blessings and mercy, and granting me the knowledge, fitness and strength to complete this work.

Date:

(Mayuri Devee)