Acknowledgements

I am indebted to many people who have helped me in completing this thesis.

I owe everything to my parents without whose help, support, guidance and sheer presence, I would not have reached even this stage. Their love and sacrifice strengthened my determination to complete this work, in spite of numerous obstacles that came my way.

My thesis supervisor, Dr. Amitava Raychaudhuri, by his confident and dynamic nature encouraged me immensely. I can never forget his inspiring and friendly presence which was a crucial factor in imbuing confidence in myself.

I owe a lot to my teachers in Lady Brabourne College, Science College and Saha Institute of Nuclear Physics, especially Dr. Gautam Bhattacharya and Prof. Binayak Dutta Roy for their brilliant teaching. My acknowledgements are also due to Dr. Amitava Datta of Jadavpur University who was a very good friend and an enjoyable collaborator.

I am grateful to my friends at the Saha Institute of Nuclear Physics who have helped in their own ways. I acknowledge a fellowship received from the Indian National Science Academy (sanction No. BS/RP-373) during my work.

Finally, mention must be made of my colleague (and husband) Biswarup who has helped immensely.

Aditi Ray