Acknowledgements

It is a great pleasure to me for taking this opportunity to convey my thanks and gratitude to my respected teacher and supervisor, Dr. Nilakshi Das for her valuable guidance and immense help during the course of my Ph. D. work. It would have not been possible for me to bring out this thesis without her help and constant encouragement.

During my tenure as research scholar I got an opportunity to work with Dr. Manoj Warrier of Computational Analysis Division, Bhabha Atomic Research Center, Visakhapatnam, Andhra Pradesh, during my stay at Institute of Plasma Research (IPR), Ahmedabad. It was a privilege to learn Molecular Dynamics (MD) Simulation from him. I am really grateful to him for sparing so much time from his busy schedule to guide me during the development of our own MD code and in offering his useful suggestions from time to time.

I am grateful to Prof. K. S. Goswami, Center of Plasma Physics, Sonapur, for his concern about my work and for giving me the opportunity to search literature in their institute relating to my research. I sincerely thank to Dr. Utpal Kr. Das, for his help during the implementation of C-programming and fruitful discussions. I am greatly benefited by the idea given by him. I would like to specially thanks to Dr. Gazi A. Ahmed for helping me in different ways at different point of time whenever required. I convey my gratitude and thank to the honorable faculty members and staff of Department of Physics, staff of computer center, library and administration.
of Tezpur University, for extending their help to me.

I am deeply indebted to my parents and well-wishers for their moral support and encouragement throughout my Ph. D. work. I also express my thank to all of my colleagues and friends for offering co-operative assistance in various manners during my stay in Tezpur University.

I further acknowledge my indebtedness to the authorities of Tezpur University, Plasma Science Society of India (PSSI) and University Grants Commission (UGC) for the research fellowships, under which this work has been performed.

Looking back at all the hurdles, twists and turns that I have crossed at various stages in my life, I honestly agree it is not only me who did everything to reach this stage. At each difficult moment there has been someone who rescued me.

Date: 1.1.2011
Place: Tezpur

(Swati Baruah)