ACKNOWLEDGEMENTS

I would like to acknowledge the direct financial support, in the form of my fellowship, from the Department of Atomic Energy, Government of India. The financial support from other funding agencies for attending various schools and conferences in India and abroad, including short academic visits, is also greatly acknowledged. I would also like to thank all the active members of the Indian high energy physics community for continuing the effort of making it one of the most organized research communities in India. Special thanks to the organizers and participants of the SERC Schools in Theoretical High Energy Physics which I attended as a beginning graduate student. I should also thank the countable members of Indian RADCOR group for organizing an Advanced School on Radiative Corrections and the RADCOR 2011 Symposium first time in India and fortunately during my PhD career.

Although Pankaj is my official supervisor, I have always seen him as a good friend and collaborator. I would like to thank him for whatever academic and non-academic support he could provide me in last five years. I wish to thank other supporting members of the Institute also. I have extensively used the small cluster-computing facility of the Institute computer centre. I give special thanks to all those who kept the facility alive during my crucial PhD projects. I have gone through many wonderful experiences during my stay in the campus, and I wish to thank all the people who were responsible for them.

During my PhD career, I have been greatly benefited by interacting with many individuals. I must thank my all such teachers which include friends, professional teachers and professional researchers for showing great patience with me and helping me out in difficult situations. The unconditional love and support of my family members; my parents, my brother, my sisters and their lovely kids have continuously helped in reaching this milestone.

Date: Ambresh Kumar Shivaji