Acknowledgements

This is a great opportunity for me to express my gratitude to the following persons without the guidance and cooperation of whom this work would not have been possible. First of all, I would like to express my profound respect and sincere gratitude to my esteemed supervisor Prof. Kalyanee Boruah of Department of Physics, Gauhati University for her encouraging guidance in carrying my work.

I am grateful to University Grant Commission for Granting me Faculty Development Programme without which this work would have been impossible. In this regard I would like to express my thankfulness to Mr. Girindra Nath Sarma, former Principal i/c, Tihu College, Dr. Kishore Kr. Talukdar, Principal, Tihu College, Governing Body, Tihu College, and, to all the members of Tihu College Family.

I would like to express my gratitude to Prof. Pradip Kumar Boruah of Department of USIC, Gauhati University for his valuable suggestions and kind words of encouragement in tough times to keep our enthusiasm alive. I render my heartiest gratefulness to Dr. Umananda Dev Goswami, Reader, Department of Physics Dibrugarh University. This work was next to impossible for me prior to his kind help. I would like to thank Md. Mustafizur Rahman for his help during my enrollment into the Ph.D. course.

I acknowledge my indebtedness to my respected teachers of the Department of Physics, Gauhati University Prof. B. K. Sarma, Dr. M. P. Bora, Prof. N. N. Singh, Prof. D. K. Choudhury, Late Prof. S. A. S Ahmed, Dr. B. Bhattacharya, Prof. H. L. Das, Dr. K. Kalita, Prof. A. Rahman, Prof. M. Devi, Prof. H. L. Duara, Prof. K. Duara, Dr. A. G. Baruah, Dr. K. Bora, Dr. B. Tiru, Dr. M. P. C. Kalita, and Dr. Utpal Sarmah for their valuable suggestions in need.

I am grateful to Prof. S. K. Gupta for giving me the opportunity to visit TIFR, Mumbai, P. K. Mahanty for introducing me to the world of ROOT, Prof. B. Acharya, Prof. S. Dugal, P. K. Nayak, Prof. V. Chintis, R. Britto for their valuable suggestions and guidance during that period and whenever in need. I am also highly indebted to Prof. A. Insolia of INFN, Italy for the hospitality during CRIS-2010.
I express my respect and indebtedness to all my co-workers Dr. Subhash Ch. Rajbonshi, Dr. Nayan Moni Saikia, Dr. Hemen Ch. Medhi, Sri Pradip Deka, Mrs. Dipsikha Kalita, Sri Manab Bharali, Miss Bonita Das, and Miss Punam Patgiri for their help and co-operation and above all for bearing me whenever I made joke at tough times.

I am very thankful to Dr. Bhaskar Jyoti Hazarika of Pandu College, Dr. Hiranya Sarmah of BBK College, Dr. Naba Choudhury of Pub Kamrup College, Mr. Balen Deb Choudhury of Birjhara Mahabidyalaya, Dr. Simanta Hazarika of Darang College, Dr. Ranjit Choudhury of Goalpara College, and Dr. Dhrubajyoti Kalita of Tihu College for their encouragement and help.

We are thankful to UGC for providing infrastructure for computational work under SAP.

It is my pleasure to thank all the research scholars, and, all the members of the Department of Physics, Gauhati University, for their help and support in due time.

Finally I thank Nandita, Jonmani, Ramen, Jayashri, Rudra, Dhruba, Rumi, Mumu, Baba, Babu, Dhun, Bhantrimahi, Maha, maa(Golaghat), deuta(Golaghat), Dodo, Pari, Pankaj, Bou and all the family members for their support.

Thank you all!

Chabin Thakuri.

(Chabin Ch. Thakuria.)