ACKNOWLEDGEMENTS

I take this opportunity to express my deep sense of gratitude to Prof. S. Balakrishnan, my research supervisor and Dean, School of Physical, Chemical and Applied Sciences, Pondicherry University, for his valuable guidance, support and constant encouragement throughout the course of my research work. He has been a constant source of inspiration. His inputs helped me a lot to give my ideas a better shape. I wholeheartedly thank him for all his help towards the successful completion of this work.

I am thankful to my doctoral committee members Prof. M.S Pandian, Head, Dept. of Earth Sciences, Pondicherry University and Prof. G. Govindaraj, Dept of Physics, Pondicherry University for their valuable suggestions and constructive comments that helped me to improve the quality of this work.

I would like to extend my sincere thanks to Dr. Rajneesh Bhutani and Dr. Pramod Singh for their scientific advices and constant encouragement. At the time of difficulties they were kind enough to provide me selfless help. I thank them for timely clearing my doubts and helping me to gain a better understanding on several topics.

I am also thankful to Dr. D. Senthilnathan and Dr. S. Bhadra, Dept. of Earth Sciences and Dr. P. Sambasiva Rao, Head, Dept of Chemistry, Pondicherry University. I extend my thanks to Dr. K. L. Purseth and Dr. Vivek Laul for their encouragement.

In my earlier days I was lucky enough to have the support, care and blessings of some of my teachers who have influenced me in different phases of my life through their unique vision and insights. Many discussions with Kar Sir during my college days have helped me to develop a spiritual inclination towards life. The constructive criticism and special bond with Khageswar Sir has always encouraged me for continuous improvement in my study. The selfless help and support provided by Dhruba Sir during my school days are unforgettable. I gratefully acknowledge all their efforts towards the betterment of my future life.

I am grateful to Dr. Amit Roy, Director, IUAC, New Delhi for granting me permission to use AMS facility, without which it would have been difficult for me to carry out this research work successfully at IUAC. I was lucky to have boundless help and encouragement from him.

I extend my sincere thanks to Dr. S. K Dutta, IUAC for guiding me at different stages of my work. Discussions with him were quite useful in refining my ideas regarding the development of AMS facility. I would also like to thank Dr. Sandeep Chopra, scientist-G, IUAC for his help and support in various ways at different phases of this work.

I am not able to find right words to express my feelings towards dear friend Pankaj Kumar, scientist, IUAC. Besides being a great friend he has been a constant source of encouragement and support. At this occasion I would like to remember his help, co-operation, care and affection that have been shown to me throughout.

Many thanks to the members of AMS group, IUAC especially Ranjan Joshi, Satyanath Gargari, Sunil Ojha, T. K Nandi, Devrani Devi and K.S. Golda for their nice company and support. I also thank Rajesh, Suman, Satya and Suraj for their helping hand during the experiments.
I am thankful to Dr. G. Chandrasekharan Dept. of Physics Coordinator and Staff of Central Instrumentation Facility (CIF), Pondicherry University are acknowledged for providing me.

I thank Balmurugan, Karunakaran and Ranganathan (thatta) for their technical assistance and Jayanti & Nirmala Madam, Vaithianathan, Shankar, Vettri, Arunachalam and other non-teaching staff of the department for their help and co-operation. Special thanks to Srikant and Nagarajesh for their help during my field trip.

This acknowledgement would be incomplete if I won’t mention the name of my friends who made my lab atmosphere equally enthusiastic and enjoyable. I am highly indebted to all of them – Anand anna, Deepthy didi, Manish, Jitu bhai, Zubair, Maya, Smitha, Jina, Kambatan, Kamal, Arun, Sujit, Vijayanand, Suresh Raja, Shiva anna, Ravi anna, Chandru, Perumal, Utpol, Balaji, and Thilakavi for their great company and support. Special thanks to Soumya for his helping hand during the final phase of the thesis.

There are some people, who were there for me with their kindness and unconditional love at each and every step of my journey. When I was in need of any kind of help, they were there to hold my hands to provide me the much needed moral and financial support. They are my beloved friends. I wholeheartedly thank Diku, Balu, Ranjan, Rakhi, Suman Bhai, Mouli, Sambit, Deba, Badri, Balaram, Jk Bhai and Pandu Bhai for all their affection, care and encouragement. I also thank Senthil, Sundee, Puru, Bhauna, Kailash, Chhayakant, Biswa, Jitu Mishra, Debra, Uma, Debasish, Jaga, Atanu, Ramesh, Rafi, Shiva Reddy, Jayesh, Unnu, didi, Sonali, Arundhati, Lucky, Luee, Nanoo and Krishna for their love and support. I thank my IUAC friends Nissar, Anukul, Yashpal, Bikash, Dinesh, Hardev, Surender, Patra, Sashi and Rishi for their company which made my stay in IUAC a pleasant one.

I owe to express my heartfelt gratitude to Nana, Bhauja, Aru dei, Anju dei, Kapu dei, Madhi dei, Guna dei, Guddu, Kanhu Bhai and all other family members for their patience, endless love and affection throughout my journey. I am grateful to all of them for providing me the moral support and being so understanding.

A special word of thanks to all the members of “UTKAL CHHATRA PARISHAD” for their constant love, care, affection, support, strength and encouragement over all these years.

I also acknowledge the financial support from University Grant Commission (India) in the form of Junior Research Fellowship and Senior Research Fellowship to carry out this research work.

Finally, I thank one and all who were there with me in different phases of my journey and make my endeavour a successful one.

Place : Puducherry

Date : (PATTANAIK JITENDRA KUMAR)