

ACKNOWLEDGEMENTS

మాతృ దేవోభవ: పితృ దేవోభవ: ఆచార్య దేవోభవ: అతిది దేవోభవ:

I would like to recall all those people who have encouraged me to achieve goals. First I would like to thank my supervisor Prof. E. D. Jemmis, whose guidance taught me the art of doing research. I extend my deep sense of gratitude for his immense patience, kindness, constant encouragement in learning things, and due support in times of need. I especially like to thank his family for their hospitality and intimacy.

I also thank my co-supervisor Prof. Lalitha Guruprasad and for her valuable support. I am grateful to the Director of IISc, Prof. P. Balram whose kindness helped me to stay inside the IISc campus in peace. I express my sincere thanks to past and present Deans and all the faculty members of the School of Chemistry, UoH and to the past and present Chairmen and all the faculty members of IPC, IISc. Special thanks are due to Prof. K. L. Sebastian, Dr. Prabal Maiti of IISc and Prof. M. V Rajashekar, Prof. K. D. Sen of UoH for their valuable course work. I would like to thank Prof. Umapathy for his support. I wish to thank all the faculty of JNCASR, Prof. Prasad V. Bharatam of NIPER for organizing workshops, summer schools and symposia which has given an opportunity to learn basics of many new areas. I am also gratefully to Dr. G. Madhavi Sastry, Dr. G. Narahari Sastry, Dr. Soujanya, Dr. Nagasuma Chandra for their intimacy.

I greatly acknowledge Prof. John. F. Nixon, Dr. G. Narahari Sastry, Dr. Nagasuma Chandra and Prof. Santhanu Bhattacharya for their effective collaboration that led to understand wider range of problems.

I thank CSIR for the Junior and the Senior research fellowship. I am also thankful to the Centre for Modeling Simulation and Design (CMSD) at UoH and the Supercomputer Education and Research Centre (SERC) at IISc for

computational facilities. Special thanks to Mr. Vinod Kumar and Mr. Kiran for their technical support. I like to thank all the non-teaching staff of the School of Chemistry, IPC and the hostel office of IISc for their timely help.

I am very delightful to have highly co-operative colleagues of past and present in the lab. I thank Anoop and Param who helped me in learning computers and Molecular orbital concepts. The healthy group discussions of lab mates, especially clarifying the conceptual doubts of Quantum chemistry from Shameema and Prasad has immensely helped me in writing the thesis. I would like to thank others Bishu, Susmita, Jorly, Hari, Dibyendu, Subhendu and Anne for their friendliness. I thank all of them once again for love, attention and affection toward my son. I thank the summer students Shanthi, Rajesh, Umayal, Clàire, Deepthi and Renuka.

I thank my friends at School of Chemistry, JayaPrakash, Rajesh, Saritha, Narahari, Jayachandra, RajaGopal, Bhaswathi and Kishore babu for their help. I would like to thank all my friends at IICT, Srivani, Gayathri, Nagaraju, Satish, Dolly, Srinivas Reddy, Srinivas, Punagai and Mukesh and at IISc, RamKumar, Swathi, Ondrilla, Sinda, Kalidas, Santosh, Srinu, Jyothi, Neenu, Nicky, Raima, Linta, Nima, Sanjukta, Rogers, Mathew, Sandya for their best wishes.

I am indebted to my elder and younger sisters Madhavi and Roja, for their moral support, courage, taking care of my son, assurance and excellent advice to overcome problems. I am grateful even to my both brothers-in law and my sister's mothers-in laws for their best wishes. I thank my brother Pasi for his encouragement. It is incomplete to thank my father Manilal, my mother late Rajeshwari and son Chandrasekhar who are the strength of my life. I also like to thank care takers of IISc who have taught good manners to my son in my absence. Lastly I thank almighty God for having grace on me.

Dandamudi Usharani