Acknowledgements

This is perhaps the most challenging but also the most important part of my Thesis, as I strongly feel that this Thesis would have been impossible without people who supported me and believed in me. While I feel glad in expressing my heartfelt gratitude to all such people, I am afraid, lest I might fail to do proper justice to them. I, nonetheless, try ...

First of all, I extend my overwhelming thanks to my research supervisor Dr. Hema Ramachandran, who was more like a friend than a guide to me for the entire duration of our scientific collaboration. Her amazing experimental skills and remarkable ability to maintain her composure, think and act shrewdly at critical stages of our experiments/work highly impressed me. Most importantly, she is a kind person. In fact, it would not be an exaggeration to say that Hema was there, wherever and whenever I needed her; be it an academic or a personal exigency. Thus, she ensured that I am not "scattered" off the "light scattering" experiments!! I sincerely hope and wish that I continue to benefit by maintaining this close scientific touch with her in future too.

I express my whole-hearted gratitude to Prof N. Kumar, whose abundant scientific passion and excitement was a perennial source of inspiration and encouragement. I thoroughly enjoyed long stretches of discussions regarding my work with him; each one of which was not only highly informative but also left me with stronger scientific spirit and curiosity. Above all his great sense of humour and liveliness made our discussions, usually accompanied by cups of tea at RRI canteen, very healthy and friendly apart from being an encouraging rejuvenation for me. I sincerely thank him for his contribution to my Thesis.

I express my deepest appreciation to all the members of the Light and Matter Physics (LAMP) Group as each one of them in their own distinct way, make this group an ideal one to pursue one's research. While Prof. R. Srinivasan and Dr. Andal were highly accessible for discussions regarding my work, Dr. Reji and Dr. Sadiq were prompt in their critical comments on varied issues/topics. I am specially indebted to
Meena, Sanjay, Raghavan, Jimmy, Ajay, Srihari, Amudha, Nandan, Karthik, Srikanth, Archana, Uday, Dhanalakshmi and Preethi for providing a highly scientific, cooperative, healthy, fun-filled and enjoyable laboratory environment. I thank Latha, Shiva and Manju for their help in maintaining the LAMP group.

Further, I enjoyed the company of my peer group at RRI especially Arun, Anija, Amit, Resmi, Atish, Chandreyee and Dipanjan. Arun’s sincerity to work, Resmi’s caring and loving attitude, Anija’s golden silence and perennial smile, Amit and Atish’s lively, humorous and playful nature, Chandreyee’s readiness to help and Dipanjan’s happy go lucky spirit, made our group special.

I was highly benefited from the computing knowledge and expertise of Ravi BT. His rare quality of going out of his ways to help others has always impressed me. Apart from the enormous academic help that I sought from him, I found a trustworthy and a reliable friend in him. He saw me through the ups and downs of my academic career and was not merely a patient listener to my cribs but was in fact, a sane and sound adviser too. Thanks a lot for everything, Ravi !!

Just before I commenced writing my Thesis, I found a true and sincere friend in Sowmya. As our collaboration made the LAMP pantry a hotter place to enjoy hot “adrak Wali” tea, we were soon joined by Sudipto, Jyoti, Shreoysi, Tridib, Gayathri and Ritayon in enjoying cups of tea, while having heated arguments and discussions on varied social, political and economic issues. I take this opportunity to thank all of them for their pleasant, enthusiastic company and the interesting discussions.

My academic acquaintance to RRI was brought out by the Summer School. Recalling those memorable days at RRI, I thank Sushil, Anshu, Viswa, Pani, Ashish, Rekesh, Amitesh, Niruj, Murthy and Reddy for their wonderful company.

I enjoyed the company of Ram and G.B. Suresh during our regularly, irregular music sessions at RRI and while organizing the RRI Badminton tournaments. Further, I benefited from the regular yoga classes held by Shantha at RRI clinic. I thank Ram, Suresh and Shantha for their nice and hearty company.

I would like to acknowledge my debt to RRI administration, library staff, computer
section, workshop, canteen staff, security staff and hostel cooks who in their own ways and capacities made my stay at RRI, very comfortable and memorable.

Last but not the least, I am much beholden to my family for it being a constant source of inspiration and encouragement to me throughout my life. I am extremely grateful to my elder brother Rahul and elder sisters Rashmi and Swati, who have been my best friends till date, for their patience and affectionate care. Further, I am very much obliged to my sister-in-law Jyoti and brothers-in law Ashutosh and Ankur, who have become an integral part of our family within no time and have given me a sense of belongingness, affection and emotional support. Finally, I express my whole-hearted gratitude to my parents who have all throughout supported my dreams and aspirations, even if it amounted to sacrificing their own comforts and pleasures.

To them, I dedicate this thesis.