

# *Acknowledgments*

Along with the blessings of God, the help and support of a number of people have made this doctoral work possible. Here I will be able to mention only a few of them. Dr. Y. B. Acharya has been of immense help in the development of this system. His great expertise in working with satellite payloads and other space based experimental instruments has assured the high quality of the developed instrument.

My heartiest gratitude goes to Dr. B. S. Chakrabarty. It has been a pleasure working under him. In spite of his heavy schedule and other responsibilities he has steered this thesis to its final destination. It was a great learning experience, both in the field of science and for life, to be associated with him.

Words fail to describe the great help of Prof. A. K. Singhvi in this work. He has been the main driving force behind it. His timely encouragements and guidance have gone a long way in this work. It has been a great learning experience to be associated with him. This work would not have seen the light of the day if it were not for the expertise of Mr. Pranav Adayaru. The amount of time and energy that he has given for his work makes me very grateful to him. From day one he has been involved in this work. His help has been very valuable especially during the critical moments of the development of the system.

Many valuable discussions with Mr. Manan Shah were very helpful. The technical expertise of Mr. Lakhansinh Chavada has made a valuable contribution to the development of this system. The atmosphere of the electronics lab was always lively and conducive for work thanks to Mr. Pranav Adhyaru, Mr. Manan Shah and Mr. Lakhansinh Chavada.

Along with the electronics lab, the work in the luminescence lab has been possible due to the cooperation of a number of people. I would like to specially thank Dr. P. Morthekai for the many insights that he gave me on the subject. Dr. Naveen Chauhan has been of great help in the final testing and assembly of the system. Special mention needs to be made for his help in developing the optics of the system. The work on the annealing would not have been possible without the help and guidance of Dr. Rabiul Biswas. I thank Vaidehi Varma for her help in the dose recovery tests, analysis of the images in the Matlab programs, and in the use of Risoe and Daybreak systems. I would also like to thank the other lab members Dr. Linto Alappat, Komal Sharma, Haresh Rajapara and Nikita Parmar.

The mechanical work involved in the development of this system was possible only due to the help of the PRL workshop. Special thanks to Mr. Hiteshbhai Waghela for all the mechanical designs and fabrication of the different components. He was ably assisted by Mr. Bipinkumar Kaila, Mr. Shahpura R.M., and Mr. Vipul Patel. I would also like to thank Mr. Bumkim and Natubhai Waghela for their help for vacuum annealing.

A special thanks to the PRL authorities for their cooperation and help in the successful completion of this study.

I would also like to specially thank my colleagues at MS university of Baroda: Sohan Chauhan, Laxmi Tomar, Kavita Kolte, Piyus Bhatt, Rahul Desai and Nemesh Patel.

Finally I would like to thank the management of St. Xavier's College, Ahmadabad: the Jesuit family. I am grateful to Keith Abranches, Jose Changanacherry, Francis Parmar, Vincent Braganza, Sebastian V, Ornellas Coutinho, Lancy D'Cruz, Robert Arokiasamy, Hedwig Lewis, Lawrence Dharmaraj, Richard Lopes, Vincent Saldanha, Ferdez Franco, K. T. Mathew, Arokiadass Daniel, Roland D'Souza, Ronald Sanctis, Vinayak Jadav, David Roy and many others.

This acknowledgmet will be incomplete without a special mention of Joseph Valiamangalam, Jimmy Dabhi, Sebastian Vazhapilly, George Kodithottam, Joseph Mattam, Vincent Pereira, I Raj, R. Arasakumar, Rethnaswamny and Tomy Pothanappara.