ACKNOWLEDGEMENTS

The present work will remain incomplete unless, I express my feelings of gratitude towards a number of persons, who delightfully co-operated with me in the process of this research work.

No amount of words can adequately express the debt, I owe to my revered teachers: Supervisor, Prof. Darshan Singh (Head, Department of Physics, Punjabi University, Patiala) and Co-Supervisor Dr. S.S. Bawa (Scientist-G and Former Head of Engineering Science Division, National Physical Laboratory, New Delhi) for their constant encouragement, able guidance and thought provoking discussions during the course of the present investigation. I shall always treasure their affectionate guidance, thoughtful ideas, wise criticism, wholehearted co-operation, help and his patience during the study.

I am thankful to Dr. Samriti Khosla, (Asst. Professor, JC DAV College, Dasuya) for providing the materials used in the present work.

Words will be inadequate in expressing my sincere thankfulness to Dr. Nahar Singh, National Physical Laboratory, New Delhi who helped me in various ways during my stay in NPL. My special thanks are for my friends and lab mates especially to Mr. Jai Parkash, Mr. Ajay, Ms. Anu, Mr. Tilak (NPL, New Delhi) and Ms. Deepti (Punjabi University, Patiala) for their help and most of all for their cheerful companionship during the course of the work.

I am grateful to Dr. A. M. Biradar Chief Scientist, National Physical Laboratory, New Delhi for allowing me to work in his lab.

Above all, I bestowed my head in the name of ALMIGHTY for the blessings HE bestowed on me. HIS knowledge shines forth forever.

(Nitin Sood)