ACKNOWLEDGEMENT

Foremost, I would like to express my sincere gratitude to my guide Prof. K. Y. Rajpure, Department of Physics, Shivaji University, Kolhapur, for the continuous support to my Ph.D study and research, for his patience, motivation, enthusiasm, and immense knowledge. His guidance helped me in all the time of research and writing of this thesis. I could not have imagined having a better guide and teacher for my Ph.D study. This work would not have been possible without his guidance, support and encouragement. Under his able guidance I successfully overcame many difficulties and learned a lot from his meticulous planning, implementation, dedication and hard work. His unflinching courage and conviction will always inspire me.

I am very much thankful to Prof. C. D. Lokhande, Head, Department of Physics, Shivaji University, Kolhapur for encouragement and providing facilities to carry out the experiment and complete this work.

I want to give my deep gratitude to Prof. C. H. Bhosale, former Head Department of Physics, Shivaji University, Kolhapur for giving me valuable guidance and suggestions throughout my research work. I gratefully acknowledge Prof. P. S. Patil and Prof. V. J. Fulari for their encouragement and personal attention which have provided good and smooth basis for my Ph.D. tenure. I warmly thank Dr. S. D. Lotake, for his valuable advice, constructive criticism and his extensive discussions around my work. My sincere thank also goes to Dr. A. V. Moholkar and Dr. R. S. Vhatkar for their co-operation and encouragement to me during every movement of my research work. I am also thankful to teaching and non-teaching staff of the Physics Department and all the members of C.F.C., U.S.I.C. and P.I.F.C Shivaji University, Kolhapur for the co-operation during the research work.

I take this opportunity to sincerely acknowledge University Grand Commission (UGC), Government of India, New Delhi, for providing financial
assistance in the form of Maulana Azad Senior Research Fellowship which buttressed me to perform my work comfortably.

Furthermore I have to offer my thanks to my seniors Dr. R. C. Kamble, Dr. A. R. Babar, Mr. S. K. Patil, Mr. S. P. Yadav, Mrs. Amruta Kadam, Mr. V. S. Sawant for co-operation, fruitful discussion, encouragement and homely behavior to me at every moment of research work. I thank my fellow labmates Vinayak, Amit, Santosh, Shahin and Vinay for the stimulating discussions, for the working together before deadlines and for all the fun we have had in the last three years.

I believe, it is my pleasant duty to offer thanks to my dear friends Vidya, Poonam, Resham, Rahul, Ajit, Pravin, Kishore, Archana, Priyanka, Sujata, Snehal, Supriya, Sarita, Mahadev, Swati, Gaurav, Ninad, Sidhu and many more for their endless moral support in the very walk of life.

I wish to express my deep gratitude and pay high regards to my Aabba and Maa for their implicit and myriad endeavors which made me learn my own existence. I hereby express my deepest appreciation and regards to my sisters Rihana and Shamim, my brothers-in-low Sikandar and Asif and all of my family members for continuous support and encouragement throughout my life.

Sumayya