ACKNOWLEDGEMENTS

I take this opportunity to express my deep sense of gratitude and sincere thanks to **Dr. L. P. Deshmukh**. my advisor and a renowned researcher, Reader in Physics (Appl. Elect.), Shivaji University Centre for P G. Studies, Solapur, Fellow Semiconductor Society of India, Fellow Society for Advancement of Electrochemical Science and Technology, Member Institution of Electronics and Telecommunication Engineers, Fellow Indian National Science Academy (INSA-Award 1997-98) for his scholastic guidance, constant encouragement and spontaneous help throughout the progress of these investigations. I find in him a real researcher, who through his own example inspired me with devotion towards a common goal.

I am thankful to **Prof. P. B. Joshi**, Head and **Dr. S. S. Suryavanshi**, Department of Physics, Centre for P. G. Studies, Solapur for their encouragement.

I am also thankful to **Dr. P. N. Bhosale**, Reader, Department of Chemistry, Shivaji University, Kolhapur and **Dr. S. I. Patil**, Department of Physics, Pune University, Pune for their helpful discussions and timely cooperation.

Thanks are due to University Grants Commission, Govt. of India, New Delhi, for the award of a teacher fellowship to me under Faculty Improvement Programme during 9th plan. I am indebted to the authorities of Rayat Shikshan Sanstha, Satara for granting me study leave and **Prin. Dr. G. T. Sangale**, Dada Patil Mahavidyalaya, Karjat for his moral support.

I am grateful to Shri S. G. Thube, Head, Department of Physics and my colleague Mr. V. M. Nikale, Dada Patil Mahavidyalaya, Karjat, for their generous help and constant encouragement I will be failing in my duties if I do not acknowledge my research coworkers Dr. G. S. Shahane, Dr. D. S. Sutrave, Mr. R. N. Mulik, Mr. A. R. Patil, Mr. V. B. Patil, Mr. P. D. More, Mr. B. T. Raut, Mr. E. U. Masumdar, Mr. V. B. Pujari, Mr. V. S. Karande and Mr. S. H. Mane for their active participation and help received during every phase work of this programme and Mr. S. A. Pawar, Mr. S. A. Ghodke and Mr. Z. J. Maner for their friendly co-operation during development of this dissertation and generating the healthy atmosphere throughout these days.

I am also thankful to all the non-teaching staff of the Physics Department at Solapur for their co-operation during my tenure.

My deepest appreciations are reserved for my wife Sou. Sangita, children Snehal and Tejes and my family members who have shared my feelings during the course of these investigations.

At the last but not least, I am very much thankful to Mrs. S. G. Shahane for careful and punctual typing of this dissertation.

I trust that I have made due and full acknowledgements and apologise for any accidental omissions.

Place : Solapur Date : 31 / 8 / 2001

(Mr. V. B. Gaikwad)