ACKNOWLEDGEMENTS

It gives me an immense pleasure to express my deep sense of gratitude towards my Research Guide, Dr. A. Venkateswara Rao, Professor, Department of Physics, Shivaji University, Kolhapur, for suggesting the research topic of the thesis and inspiring guidance throughout the progress of the work. Working with him has indeed helped me to mature both as a student and an individual as well.

I am thankful to the authorities of University Grants Commission and the Department of Science and Technology (DST), New Delhi, Government of India, for the Project fellowship and Senior Research Fellowship under the research projects No. F.10-68/2001 (SR-I) and SR/S2/CMP-01/2002, respectively, sanctioned to Prof. A. Venkateswara Rao.

My sincere regards to Hon. Prof. M. M. Salunkhe, Vice-Chancellor and Dr. S. N. Desai, Registrar, Shivaji University, Kolhapur, Prof. B. K. Chougule and Prof. M. K. Soudagar, who in their capacity as Heads of the Institution and Department, during the tenure of this work have been very helpful in extending the departmental facilities to me.

I am grateful to Prof. G. M. Pajonk, Laboratory of Catalytic Materials, Claude Bernard University, Lyon, France, Prof. G. W. Scherer, Princeton University, Princeton, N. J., USA, Prof. Y. H. Kim, Pukyong National University, Busan, South Korea for the valuable discussions during the work.

I deserve to thank Prof. Hiroshi Hirashima, Keio University, Japan for his help in transmission electron microscopy and scientific discussions.
I am highly thankful to Dr. D. P. Amalnerkar and Dr. Tanay Seth, Center for Materials for Electronics Technology (CMET), Pune for their help in the SEM studies.

I am highly grateful to Dr. (Mrs.) A. Parvathy Rao for her valuable guidance and encouragement during the work.

I sincerely appreciate the timely help rendered by Dr. M. M. Kulkarni, Dr. R. R. Kalesh and Mr. N. D. Hegde, other research scholars in the Physics Department and my friends. It has been a memorable time working with them.

I am very grateful to Mr. P. V. Ravan for drafting the line drawings, Mr. Kalas, and other staff of the USIC and CFC, Shivaji University, for their help in FTIR characterization.

I am also thankful to the teaching and non-teaching staff of the Physics Department and all the members of the university office for their wholehearted co-operation during this work.

Last but not the least, I take this opportunity to acknowledge the constant support and encouragement rendered by my family members and relatives whose love and affection towards me has helped me to sail through the difficult times and provided the requisite motivation to complete the work.

Place: Kolhapur
Date: 28/09/2005

Sharad Devidas Bhagat