

## **ACKNOWLEDGEMENTS**

I consider it to be my prime obligation to humbly offer my deepest sense of gratitude to my thesis guide **Dr. D. K. Kanchan**, Reader, M.S. University of Baroda, Vadodara for his excellent supervision, encouragement, constructive criticism and inspiring guidance throughout my research work.

I also feel privileged to acknowledge **Prof. D.R.S. Somayajulu**, Head of the Department, for his valuable advice and providing other necessary facilities for my research work.

I also wish to all the members of the teaching staff and non teaching staff of Physics Department for the help rendered by them. It might seem unfair to single out any individuals for special mention: but there is a deep appreciation of their constructive criticism and stimulating discussions not unmixed with fruitful suggestions.

I would like to thank, **Prof. Ajay Gupta**, Director, IUC, DAEF, Indore who gave me valuable suggestions during my work and provide me experimental facilities at IUC, Indore to do DSC and Mössbauer measurements. Thanks to Head, Physics Department and Librarian IIT, Delhi to allow me to consult their library and journals during my work. I am also thankful to Head, Physics Department, S. P. University, Vidyanagar for providing me the facilities for doing Seebeck measurements.

I also thank Dr. R. N. Ram, Dr. Hitesh Sharma, Dr. Prakash Samnani and Mr. Samir Mistry of Chemistry Department, Faculty of Science for providing cooperation during chemical analysis.

I thank Dr. M. Srinivas, Department of Physics for their encouraging support.

It has been of immense benefit to have had the close co-operation of my colleagues K.N. Vyas, D.J. Shah, N. V. Patel, Mitesh Sarkar, Dr. Sandip Vyas, Dr. P. H. Soni, Saurabh Bhavsar, Sumi Dhar, K. Padmasree and my friends, who have helped and provided me a friendly and cooperative atmosphere throughout this endeavor.

This work is incomplete without mentioning and acknowledging stimulation provided to me by my friends and close relatives, I thank them all.

I have no words to express my thanks to my parents and other family members and last but not least to my wife Maheshwari, whose constant encouragement and untired support to me to complete and submit this work.

**H. R. Panchal**