ACKNOWLEDGEMENTS

This thesis is the result of three years of work and it would never have materialized without the support, advice and companionship that I got from so many people, both in my professional, as well as my personal life. This thesis is incomplete without a mention of all those names who helped me during the phase of my graduate life in so many ways and I thank all who in one way or another helped in the completion of this thesis.

Grateful acknowledgment is expressed to our beloved Chancellor Dr. G. Viswanathan, Vice-Chancellor, Pro-Vice Chancellor, Vice-Presidents, and Deputy Director (Academic Research) for their support especially through the Research Associateship.

I am highly indebted to Dr. V.M. Chandrasekaran, Dean, SAS, VIT University for his support.

I owe my deepest gratitude to my research supervisor Dr. N. Madhusudhana Rao, Associate Professor, SAS, VIT University, who offered creative ideas and guidance in my research work. He was always generous with me along the way. His wise insight and integral view on research has made a deep impression on me. Working with him is an invaluable experience.

I take this opportunity to sincerely acknowledge the Defence Research and Development Organization (DRDO), New Delhi, India for providing financial support in the form of Project Fellow which buttressed me to carry out the present research work.

Sincere appreciation is extended to all my doctoral committee members Dr. R. Vijayalakshmi, Asso. Professor, S.V. University, Tirupati, Dr. Y. Venkata Subbaiah, Asst. Professor, Yogi Vemana University, Kadapa and Dr. S. Kaleemulla, Asst. Professor, SAS, VIT University for reviewing this work and giving me helpful suggestions. I would like to acknowledge Dr. G. Hema Chandra, Asso. Professor, VNIT Nagpur for his support and fruitfull discussions and Dr. C. Venkateswaran, Asso. Professor, University of Madras, Guindy, Chennai, who helped me in result analysis.
A journey will be easier if you travel together, Interdependence is certainly more appreciated than independence. Most of the results described in this thesis would not have been obtained without the help of these peoples. I extend my thanks to DST-FIST–VIT, Sophisticated Instrumentation Facility (SIF) – VIT University for providing the XRD and UV-Vis-NIR facilities, SAIF-IIT Madras for providing the VSM, HRSEM and EDAX facilities, Central Instrumentation Facility (CIF), Pondicherry University for providing VSM facility and S.V.University, Tirupati for providing facility to carry out Raman studies. I also thank Dr. M. Malathi, Asso. Professor and Dr. Girish Mukundrao Joshi, Asso. Professor, SAS, VIT University for providing the hydraulic pellet press and dielectric measurements facility.

I also take this opportunity to thank all Faculty and Staff members of SAS, my colleagues and research scholars of VIT University for their help and support for sharing their view in various aspects.

It’s my fortune to acknowledge the support of some special individuals. Words fail me to express my appreciation to Dr. G. Meenakshi, Asso. Professor, KMCPGS, Pondicherry. She was always with me as a well-wisher, friend and mentor.

My special acknowledgement goes to all the people who helped in sending the needed research articles. I take this opportunity to thank Ms. Soumee Chakraborty, Ms. Gurpreet Kaur, Ms. Vinitha Daiya, Mr. Deepak Kumar Gupta and Ms. Nitu Sinha, Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam, TN, India. I would also like to thank Dr. Rahul Pal, Central University of Rajasthan, Rajasthan, India.

This list is incomplete without acknowledging Dr. Prasana Kumar Sahoo, University of Campinas, Campinas, Sau Paulo (SP), Brazil. Mr. Prasad Gonugunta, Delft University of Technology, Delft, Netherlands. Mr. Bikas Ranjan, Osaka University, Suita, Osaka, Japan. Dr. Jenish Patel, University of Ulster, United Kingdom. Mr. Sandeep Keshavan, Italian Institute of Technology, Italy. Ms. Runjun Sarma, Tezpur University, Assam, India. Mr. Pradeep Reddy Vanga, NIT Trichy, India and Mr. K. Saravana Kumar, University of Madras, Chennai, India. Thank you doesn’t seem sufficient but it is said with appreciation and respect to all of them for their support and encouragement.
I would also like to extend huge, warm thanks to my roommates Jean Shilpa, Derin Mary Thomas, Merlene Ann Babu, Yoga Malar, Shiny John and Vanitha. R who gave me the feeling “a home away from home” by sharing their love, care and affection.

Last but not least, I would like to pay high regards to my mom, who took the lead to heaven 12 years ago. I am eternally grateful to my family for their unfailing belief, unconditional love, support and their blessings.

Finally “Shukran Jazilan” is the only two meaningful words I would like to use for extending my heartfelt gratitude to all of you.

M. Rigana Begam