ACKNOWLEDGEMENT

It gives me great pleasure to express my sincere thanks to my research guide Dr. H.P. Deshmukh Ex- Head Department of Physics, Ex-Vice-principal, Y.M. College, Bharati Vidyapeeth, Pune, who had given me constant guidance, valuable suggestions, constant stimulation and encouragement during the entire tenure of research work.

I am greatly indebted to Hon’ble Dr. Patangrao Kadam, Founder-chancellor and Hon’ble Prof. Dr. Shivajirao Kadam Vice-chancellor, Bharati Vidyapeeth University, Pune as they have been a great source of inspiration.

I owe my sincere thanks to principal Prof. K.D. Jadhav, Y.M. College, Pune for providing necessary laboratory facilities and valuable help when I needed it during my research work. I am also thankful to Dr. B.N. Pawar, Head, Department of Physics and Vice-Principal, Y.M. College, Pune.

I am very pleased to acknowledge my sincere thanks to Prof. Keshav Rajpure, Shivaji University, Kolhapur, who introduced me to the world of research and development with great enthusiasm and encouragement during various stages of research work. I am also thankful to Dr. Satish Ogale, NCL Pune, Prof. P. S. Patil and Prof. Dr. V.J. Phulari, Dept. Physics, Prof. Dr. D. V. Muley, Registrar, Shivaji University, Kolhapur for providing time to time support to do some research work in their laboratories and other support.

I am grateful to Dr. Arvind Bhurungale, Principal, S.M. Joshi College Hadapsar, Pune for extending spirit and encourage during entire tenure of my research work. I am also grateful to Dr. Arun Andhale, Principal Mahatma Phule Mahavidyalaya Pimpri, Pune for teacher fellowship and his kind co-operation during my research work.

I am thankful to Pri. Ashok Mahadar, Pri. Deepa Mahanawar, Pri. Dr. N.S. Gaikwad, for their long time support and continuous inspiration.

Words are not sufficient to express my sincere thanks to Dr. Sarfaraj Mujawar and Mr. Vinayak Ganbavle for sharing their research experience, suggestions and help in my research work. I also extend my thanks to Dr. Vivek Rane, Akbar Inamdar, South Korea, Dr. Datta Mhamane, Anil Suryawanshi, Mrs. Shruti Agarakar, Dr. Omkar Game, Vishal Thakre NCL Pune and Namdeo Harale, Archana kamble, Santosh, Amit, Ms. Sumayya, Ms. Shahin Dept. of Physics Shivaji University, Kolhapur. Their help for sample characterization was immense.
I wish to express my thanks to Dr. A. M. Dhumal (vice principal), Dr. R.S.Nimbalkar (HOD), my colleagues Mrs. S. H. Pisal, Dr. M.L. Dongare, Prof. Jade, Dr. J. A. Magdum, Dr. S. P. Khunte, Mr. B. K. Waghmode, Dr. Date, Dr. Sanjay Mesri, Dr. Pandurang Lohote, Mr. Uddhav Ghodke, Ashwini, Nilrmla, Anjana, Vishal and all teaching and non-teaching staff of Mahatma Phule college, Pimpri and S. M. Joshi college, Hadapsar for their kind co-operation during my research work.

I greatly appreciate the help from my co-workers Mr. R.S. Gaikwad, Mrs. Guar Patil, Mrs. Shukla, Mr. Pradeep Atre, Mr. Sudhir Wavle, shri Tanaji kadam, also all teaching and non-teaching staff of Y. M. College Pune.

I also my deep sense of gratitude to my beloved mother Smt. Jayawantabai and mother in law Smt. Ushadevi, without their constant support it could have been quite impossible for me to complete this task.

I must express my gratefulness to my relatives Ad. B. K. Patil, Ad. Pravin Patil, Ad. Datta Patil, Avinash Patil, Ad. Ganesh Patil, Mr. B.S. Thorat, Tai, Usha, Bharati, Chhaya, Kanchan, Dr. Jeevan and Dr. Archana for helping me every way.

I would like to take this opportunity to express my presumable gratitude to my wife Dr. Indira who always supported and kept me going towards completion of this work. I have no words to express my feelings for my daughters Mrudula and Bhargavi for their constant support, patience and understanding.

I dedicate all this work to my beloved father Late Asaram Mahadu Patil who encouraged during my childhood and education and my father in law Late Hindurao Pandurang Patil who gave me moral support so I could reach at this stage today. 

Pune  
July, 2015.

Mahendra Asaram Patil