

ACNOWLEDGEMENTS

It would not have been possible to complete this Ph.D. thesis without the help and support of the people around me. I am indebted to all of them and would like to express my gratitude. God has been really kind to me in providing strength to move forward in this endeavor.

The first person who has been the guiding force and pillar in this journey is Prof. Dinesh K. Kanchan who encouraged and guided me for pursuing my goal. His subject expertise helped me a great deal in overcoming challenges encountered in this research work. I thank him from the bottom of my heart.

I also thank Prof. C.F. Desai, former HOD and coordinator DRS Phase III for providing necessary laboratory facilities in the Department of Physics.

My very special thanks go to my colleagues, Poonam Sharma and Manish Jayswal for helping me throughout my research work and providing insights. They have helped me through this difficult and long journey. I am very thankful to my friends in the lab – Prajakta Joge, Gargi Dave and staff member in Research and Consultancy Cell Ms. Apeksha Patel, for their encouragement, support and friendly environment.

I take this opportunity to express my gratitude towards my late grandparents Shri Deosibhai Surjibhai Kothari and Smt. Radhaben Deosibhai Kothari, whose love and blessings have guided me through the most difficult times in life. I would like to thank my family – My father Shri Harendra Deosibhai Kothari, my mother Smt. Vimlaben Harendra Kothari, my brother Jitendra. They have been my guiding light and without their support I would be nothing.

I thank my wife Poorvi for her continuous patience, support and love. Without her support it would have not been possible to complete this work.

Finally I dedicate all my efforts, work and success in the loving memory of my beloved and doting daughters – Nitya and Sanjeevani. They have been with me with their blessings, all through this journey and are my primary source of motivation. Without their love, this work was impossible. Their cherished memoir throughout my Ph.D. work encouraged me and remained my source of inspiration during my journey.

Dharmesh H. Kothari

