ACKNOWLEDGEMENTS

I would like to express my appreciation for the people who have positively influenced my life and contributed to the innovation and making of this thesis in a successful way.

I would like to express my gratitude to my respected teacher and Research Guide Dr Pradeep Gopalrao Kulkarni for guiding with stimulating discussions and constant encouragement throughout the period of my research work and gave me wonderful opportunities and believed in my ideas.

I am thankful to Dr. Vinodji Tibrewala, Chancellor Shri Jagdishprasad Jhabarmal Tibrewala University, Chudela Jhunjhunu, Rajasthan, for providing me the required research facilities in the Department. I also thankful to Dr. Mahinder Singh Poonia, Coordinator, Institute of science, Dr. Madhu Gupta, Dr.Anju Sing, for helping me all the time during the period of my research work.

I would like to express my sincere thanks to Dr. Manjusha Deshmukh, Principal Saraswati College of Engineering, Kharghar, and Wing commander (Rtd.) L. Devrajan, GM Admin and Mrs.S.V.Lathkar, HOD, ES & H for providing me resources, appreciation and research facility in Physics department at college level.

I would like to express my heartiest thanks to Dr. R. R. Ahire, Prof. P.D. Pawar, Prof. S.S. Sonawane, Dr. L.B. Pawar, Prof. S.N. Wagh, Dr. D.V. Ahire, Dr. R.M. Shewale, Dr. S.J. Mali, Dr. Y. S. Dorik, and Dr. M. D. Mahanubhav and Ashok Kaka who have been mentors in my life of learning physics.

I do not find words to express my sincere thanks to my colleague and Elder brother Mr. Suhas M. Sabnis for helping me whenever I needed. I am also thankful to my Colleagues, coworkers and my friends.

I thank my parents, Tai and Appa (Indubai and Ashok Bhadane), for their blessings and encouraging me. Despite of difficulties being farmer, they made it possible for me with strong belief. I also thank my late grandfather, Daga (Dada) Mahale, for believing in me. I also thank my grandmother, Savitribai, my sister Seema, my brother Bharat and Jitendra, my brother in law Manohar for their continual love, support and joy they have brought to my life.

My sincere gratitude goes to my wife, Poonam, for constant support, encouragement, and understanding without that this work could not have taken place.

Last but not the least; I feel everything happened because of the inner inspiration created by my god Shree Siddhivinayak Ganpati and Sai Baba.