ACKNOWLEDGEMENT

I express immense depth of gratitude to my research supervisor Dr. R. Gopalakrishnan, Lecturer, Dept. of Physics, Anna University, Chennai for his inspiring guidance, scholarly advice and motivation to carry out the investigation.

I am extremely thankful for the help and encouragement rendered by Prof. P. Ramasamy, Dean (Research), SSN Institutions, Kalavakkam, Chennai for his scholarly advice and personal involvement during the course of this investigation.

I am extremely grateful to Prof. Masaya Ichimura, Nagoya Institute of Technology, Nagoya, Japan, for inviting me under Mohnbusho Mext scholarship and guiding the research problem with scholarly advice and personal involvement. I thank Prof. E. Arai, Dr. M. Kato, Mr. M.Azuma, Mr. T. Miyawaki and Mr. K. Omoto NIT, Japan for their Scientific interactions and valuable help. I thank Japanese Government for the award of Mohnbusho Mext scholarship.

I am grateful to Prof. P. K. Palanisamy, HOD Physics and Prof. T.S. Subba Raman, Former HOD Physics, Anna University for their encouragement and help. I thank the doctoral committee members Prof. D. Jayaraman and Prof. C. K. Mahadevan for their kind suggestions and help. I thank Dr. S. Ganesan and other faculty members of Dept. of Physics, Anna University. I thank Dr. N. Vijayan, Mr. R. Ramesh Babu, Dr. R. Sivakumar, Mr. T. Kanagasekaran, Mr. P. Srinivasan, Mr. R. Surendran and all researchers of Dept. of Physics and CGC, Anna University for their help. I thank Miss. J. Jayachitra, HOD Physics, MKJ College, Vaniambadi, Miss. P. Chithradevi, Greifswald Univ. Germany for their homely advice and help. I am grateful to my Father, Mother and Brother for their lovely understanding and encouragement, support to pursue higher studies.

M. GUNASEKARAN