ACKNOWLEDGEMENT

The author is beholden to his supervisor Prof. P. Ramasamy, Director, Crystal Growth Centre, for his inspiring guidance, illimitable encouragement, passionate support, soaring scientific proficiency and profuse personal interest. Thanks are due to Dr. P. Santhanaraghavan, (Supervisor), Assistant Professor, Anna University (M.I.T.) for introducing me to this field, and eminent guidance, firm back-up, scholarly advice to accomplish this humble piece of work. The author acknowledges that this work originates from the vision of Prof. T. Nagarajan, Former Head of the Department, Department of Nuclear Physics, University of Madras and that his expertise and profound experience were invaluable sources for the present investigation.

The author is thankful to Dr. K. Sivaji (MU) and Dr. R. Gopalakrishnan (AU) for their tremendous support and constant encouragement. The author expresses his thanks to Prof. P.R. Subramanian, Prof. R. Dhanasekaran, Dr. J. Kumar, Dr. K. Sivakumar, Prof. M. Palanichamy for their kind support. The author express his deep sense of intellectual debt to Mr. R. Kumar, Mr. S. Muralithar, Mr. S. Chopra, Dr. R.K. Bownik, Dr. S.K. Dutta, Dr. A.K. Sinha, Dr. A. Surma, Mr. R.P. Singh, Mr. F. Singh, Mr. A. Krishnan (NSC, New Delhi), Dr. R.K. Bagai, Dr. L. Durai, Dr. R.C. Narulla, Mr. Inderpal, Dr. U.K. Tiwari, Dr. R. Surma (SSPL, New Delhi), Dr. R. Kesavamoorthy (IGCAR), Mr. S. Selvakumar, Mr. Justin Josephus, Mr. K. Santhakumar, (DNP, MU), Prof. C.K. Lakshmanaperumal, Mr. S.M. Shahul, Mr. M. Jayaprakasan, Dr. P. Jayavel, Mr. R. Ramesh Babu, Mr.N.Vijayan (AU, DP), Mr. N. Balamurugan, Dr.K.Kannan and Dr. R.T. Rajendrakumar. The author is also thankful to Council of Scientific and Industrial Research (CSIR), Govt. of India for the award of Senior Research Fellowship and DAE, UGC and DST Govt. of India for financial support. The author dedicates this work to his late father and expresses his gratitude to his mother, brother and uncle who tried their best to bring him up in education.

A. ARULCHAKKARAVARTHI