Preface and Acknowledgements

The work presented in this thesis has been carried out in the Department of Physics, University of Calcutta during 1991 to 1995. A part of the work has already been published in journals (a list is appended at the end of the thesis).

This thesis presents the study of nuclear structure in the framework of Bose-Fermi symmetry and supersymmetry. Nuclear structure in the mass region $A=60-70$ and $120$ has been investigated for supersymmetry related to vibrational nuclei and in the mass region $A=160$ for supersymmetry related to rotational nuclei. A microscopic study has been undertaken to investigate the mapping from shell model space to boson fermion model space in case of dynamical Bose-Fermi symmetry. It is divided in seven chapters. The references are indicated by the name of the author(s) and the year of publication and detailed at the end of respective chapter. The tables, figures and equations are numbered chapterwise. Lists of tables and figures have also been included for ready reference.

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