

## ACKNOWLEDGMENTS

I must first express my deep sense of gratitude and thankfulness to Professor Kamales Kar for suggesting this thesis problem. He has been my teacher and research supervisor beginning from my Post M. Sc. days at Saha Institute of Nuclear Physics. His constant encouragement, participation and able guidance have been indeed very crucial at every stage of the development of this thesis work. I am indebted to him.

It is a matter of great pleasure for me to thank Professor V K B Kota of Physical Research Laboratory, Ahmedabad, India, for his collaboration, keen interest, valuable suggestions and comments at different stages of this work. I am also thankful to Professor V K B Kota and Professor V Potbhare of M. S. University, Baroda, India, for being kind enough to let me use their computer programmes. Without their help, this work would have been more difficult for me to carry out. I must also thank Dr. Alak Ray of the Tata Institute of Fundamental Research, Bombay, India, for his help and advice during our collaborative work.

Research work, being necessarily of an organisational nature, I have been benefitted from the help and cooperation of many individuals and different sections of my Institution. I am thankful to the persons associated with the Computer Section, the Library and Workshop facilities and to my colleagues of the Theoretical Nuclear Physics Division.

I take this opportunity to thank Dr. S K Dutta, Dr. T K Roy and Dr. C D Mukherjee for their cooperation which has been of great help to me

in the early stages of my learning of computer programming. I also thank Dr. Polash Banerjee who encouraged me always through numerous discussions on different aspects of nuclear physics.

I thank my colleagues Bijoy Bal, Polak Aich, Prabir Banerjee, Arunava Adhikari, Gautum Garai, Gautum Datta, Abhijit Sanyal, Jagat Mukherjee, Muktish Acharya, Abhijit KarGupta, Aruna Aich, Sutapa Ranjan, Sita Janaki and Ajanta Bhowal, to whom I am grateful for different reasons.

Finally I thank the authority of the Saha Institute of Nuclear Physics for providing me with the associateship and a fellowship , thus giving me the opportunity for carrying out this research work.

Sukhendusekhar Sarkar