ACKNOWLEDGMENT

The author wishes to place on record his deep sense of gratitude and indebtedness to his guide Dr. T.R. Rajasekaran, Reader, Department of Physics, Manonmaniam Sundaranar University, Tirunelveli for his valuable guidance, meticulous supervision, constructive comments and constant encouragement throughout the period of his research work.

The author records his grateful thanks to Prof. G. Shanmugam, for his constant encouragement. Frequent advice rendered by him is gratefully acknowledged.

The author is very much thankful to Prof. N. Arunachalam, Department of Physics, Manonmaniam Sundaranar University, Tirunelveli, for his valuable suggestions and discussions. The author is also thankful for his critical reading of this work. It is a pleasure to acknowledge his wisdom and co-operation.

The author appropriately acknowledges the pioneers of statistical theory of nuclei, Prof. V. Devanathan and (Late) Dr. M. Rajasekaran who developed the theory and suggested most of the problems in the field of heavy ion reactions.

The author extends his gratitude to Dr. D. Pathinettam Padiyan, Dr. K. Veluraja, Dr. K. Ganesan and Dr. S. Rajasekar, the Faculty members, Department of Physics, Manonmaniam Sundaranar University, Tirunelveli.
The author acknowledges the constant encouragement offered by Dr. R. Vijayaraghavan and Dr. A. Loganathan, Department of Statistics, Manonmaniam Sundaranar University, Tirunelveli.

The author is thankful to the University Grants Commission for the award of a fellowship under Faculty Improvement Programme and also thankful to the Secretary, the College Committee, and the Principal, The MDT Hindu College, Tirunelveli, for their permission to carry out this research work.

It is a great pleasure for the author to thank Dr. S. Santhoshkumar, Dr. M. Maruthai, and Dr. M. Balasubramaniam for their valuable help and encouragement throughout the period of this research work.

Finally, the author records his gratitude for the constant support and cheerful encouragement offered by his parents, wife and daughter Laya Sowntharya.

S. SELVARAJ