## ACKNOWLEDGEMENTS

It is very difficult to name all the sources of inspiration; moreover, words are often too feeble a mode of revealing one's sentiments and feelings of indebtedness. At the outset I would like to take this opportunity to express my deep sense of gratitude to my research supervisor Dr. Praveen Chandra Pandey for his insightful guidance, patience and constant encouragements during my entire research work. I have learnt many things about research and various skills from him. His passionate devotion in Physics and relentless curiosity in materials research have been and will always remain a great inspiration for me and my future career.

I express my gratitude to Prof. B. N. Dwivedi, Prof. K. S. Dubey, Prof. O. N. Singh and current Head of the Department Prof. Debaprasad Giri for providing me required facilities of the department. I also wish to thank my RPC members Prof. O. N. Singh, Prof. Debaprasad Giri, and Dr. C. Upadhyay for the invaluable inspiration and numerous insightful suggestions during the entire course of this research. I am also grateful to faculty members Prof. Prabhakar Singh, Prof. Sandip Chatterjee, Prof. R. Prasad, Dr. A. Mohan and Dr. S. Upadhyay for their valuable suggestions and help time to time in my research period. I am also appreciative to Dr. U. N. Singh, Dr. A. K. Tripathi, Dr. S. K. Singh, Dr. A. K. Srivastav and Dr. S. K. Mishra and all faculty members of Department of Physics, IIT (BHU) Varanasi for their kind encouragements and motivation. I am also thankful to Sri Anil Kr. Srivastava, Sri Manjul Tiwari, Sri Pankaj Kr. Asthana and the entire official staffs, technical as well as non-teaching of the Department of Physics, IIT (BHU) Varanasi for their assistance when needed and also for providing me numerous reliefs at times.

I would also take this opportunity to extend my sincere thanks to Prof. S. P. Ojha and Dr. K. B. Thapa for his valuable inputs, insightful comments and constructive criticisms at different stages of my research which were thought-provoking and helped me to focus on my ideas.

It is with sincere gratitude that I wish to thank my labmates Mr. S. Tiwari, Mr. P. Kumar, Mr. A. Dixit and my departmental research colleagues Dr. N. K. Singh, Dr. R. K. Singh, Dr. A. K. Mishra, Dr. R. Pandey, Dr. B. P. Singh, Dr. P. Shahi, Mr. A. Kumar, Mr. K. K Shukla, Mr. D. K. Gupta, Mr. P. Kumar, Mr. Md. Javed, Mr. P. K. Gupta, Mr. U. Kumar and all research scholars of the department for the help and their awesome company.

I would like to thanks my close friends Dr. Vineet Srivastava, Mr. Santosh Singh, Mr. Abhishek Kumar Singh, Mr. Yogendra Verma, Mr. Alok Srivastava, Mr. Deepak Gusain and Mr. Digvijay Pandey for their good wishes and many more things in my life.

I feel short of words to express my appreciation, gratitude and indebtedness to my father Sri Janardan Singh and mother Smt. Indu Bala Singh and my uncle Sri Prem Bahadur Singh for their unbounded love, blessings, encouragement and supports in various ways. I thank them for instilling in me the importance of education and balance in life. I would also want to share my love and affection to my younger sister Priti Singh for their kindness, warmth and their lovable company and support. Furthermore, I heartily thank to my uncles and aunts Sri Virendra Pratap Singh and Smt. Neelam Singh, Sri Ratan Singh and Smt. Poonam Singh, and my mama Sri Chandrabhan Singh and Sri Sanjay Singh for his blessings and support during my entire academics.

I cannot conclude my acknowledgements without expressing my deep feeling of indebtedness to my grandfather Late Rajpati Singh and grandmother late Murahi Devi, without whom I would never make it this far in life.

I would also like to acknowledge the funding agencies UGC, DST and MHRD of Government of India, for financial assistance in various forms.

Many others that have been involved also deserve recognition. It is however, not possible to list them all here. Their support in this effort is, however, greatly appreciated but this acknowledgement would be incomplete if the name of great visionary, Pt. Madan Mohan Malviyaji, is not mentioned, who made this divine centre of knowledge —Banaras Hindu University. Deepest regards to him. Last but not least, I wish to thank all my friends and foes and the persons whose names have not been included on this piece of paper for extending their cooperation directly or indirectly.

Finally, I am grateful to Almighty for giving me patience to make this endeavor a success.

Sincerely

(Bipin Kumar Singh)