

# Acknowledgment

Being a member of the theoretical high energy physics group at IIT Jodhpur has been a wonderful and productive experience for me. This thesis work was not possible without motivation, encouragement and continuous help of many people around me. I would like to acknowledge all of them who made this journey beautiful.

First of all, I would like to express my sincere gratitude to my supervisor, Prof. Ashutosh Kumar Alok without whom, this thesis would not have been possible. He provided his continuous support and encouragement during this whole journey. With his vast experience, he not only rescued me every time whenever I trapped in lengthy and complex calculations but also in my personal life issues. It is my fortune to have a guide and mentor like him.

I am very thankful to my teacher and collaborator Dr. Dinesh Kumar (University of Rajasthan) for providing me opportunity to work with him. He helped me to understand many complex and important aspects of particle physics. I am thankful to Prof. S. Umasankar (IIT Bombay) for providing insight and advice in the different stages of my research work. I consider myself lucky that I got a chance to work with him. I am also thankful to one of my other collaborator Suman Kumbhakar (IIT Bombay) for many productive discussions during research work.

I also want to thank all my colleagues Vishal Sharma, Supriyo Dutta, Sanjoy Chatterjee, Priya Malpani, Javid Naikoo and Khushboo Dixit for making my stay at IIT Jodhpur so pleasant and interesting. Thank you all for making this a wonderful and memorable journey. I am also grateful to the office staff members Narendra Singh and Ashwin for their help. A big thank to Suresh Dharu and his wife Mona for giving homly environment and sharing tasty home made food during my stay at Jodhpur.

Specially I am thankful to my husband Ramavtar, who has tolerated all my stress and strain of producing this work. I will always be grateful to him for his unconditional support. I dedicate this achievement to him. Last but not least, I wish to thank my parents and all family members for their love and emotional support of the years.

*Jyoti Saini.*

