It is my great pleasure and honors to acknowledge my sincerest thanks and gratitude to my Supervisor **Prof. R. S. Kasana** who is a marvelous blend of being an eminent scholar of physics and a great human being. I have had a great opportunity of taking advantage of his knowledge and invaluable guidance. I am deeply indebted to his constant support and cooperation through all thick and thin of my life during working for this thesis.

It is a great privilege to acknowledge my gratitude and deep hearted thanks to my mentor and honourable **Prof. R. A. Singh**, Head, Department of Physics & Electronics, Dr. H. S. Gour Vishwavidyalaya, Sagar for providing all the necessary facilities required for the research work.

I wish to record my special thanks, from the core of my heart, to **Prof. N. S. Gajbhiye**, Vice-Chancellor, Dr. Hari Singh Gour Vishwavidyalaya, Sagar for constant inspiration to conduct research work and to strengthen technical know-how.

I am extremely thankful to Shrimant. Jyotriaditya Shindhia (Minister, Govt of India), Dr. Balram Jakhad (Ex Governor of M.P. Govt.) and Dr. Prabhu Ram Choudhary (Ex Minister of M.P. Govt), Mr. V. K. Suryavansi (SP Sagar) for their help at various stage.

It is my proud privilege to record sincere thanks and profound gratitude to Prof. M.S. Tiwari, Dr. Diwakar Shukla, Dr. Ashish Verma, Dr. S. K. Shrivastava, Dr. Ranvir Kumar, Dr. Mohan Tiwari, Dr. Poornima Verma, Dr. (Smt.) Sandhya Patel, Dr. Pankaj Chaturvedi, Dr. R. K. Dubey, Dr. Shishir Jain, Dr. Anurag Sharaf, and all faculty members, Department of Physics and Electronics Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

My heartfelt thanks are also due to Mr. R. Mishra, Mr. Anil Jain, Mr. S. S. Tiwari, Mr. Vidyhaya Bhushan, Mr. P. Rajak, Mr. Salim Khan, Mr. Manish Chhetrapal, Mr. V. K. Namdeo, Mr. R. K. Yadav all from Department of Physics and Electronics, Dr. Hari Singh Gour Vishwavidyalaya, for always been very affectionate to me and giving constantly full moral support.

There are certain people to whom words are not sufficient to express feelings for them. It is mere a formality because of what they have done for me is inexplicable. Among such persons are adorable and most respectful my mother Smt. Shanti Devi Ahirwar and my father Shri Chenka Prasad Ahirwar. Their constant and esteemed support, ungrudging help have always been sources of inspiration, patience and strength to me.
I want to thank my wife Mrs. Pallavi Choudhary who showed a great will of strength, constant encouragement and without her cooperation I would have not been able to complete this work.

I am thankful to my brother Mr. Satya Prakash Ahirwar, Jija ji Shri B.M. Ahirwar and Sister Smt. Kamlesh Bharti and also thankful to my Uncle Mr. P. L. Jain, Mr. Manohar Lal, Mr. Janki Prasad Ahirwar, for their affection and moral support during the odd times.

I wish to express my deep sense of appreciation Dr. (Mrs) Kirti Soni, Scientist (NPL), Dr. Anil Kishor Purohit, Dr. Manish Purohit, Dr. Ajay Choudhary, and Dr. Ganpat Ahirwar, Mr. Bhart Choudhary, Mr. Jagannath Lariya, Mr. K. K. Prajapati for encouragement and kind co-operation during my work.

Let me take this opportunity to thank the members of the staff of the Library and Research Section of Dr. Hari Singh Gour Vishwavidyalaya, Sagar for their kind co-operation.

Above all, I feel great worship and dedication to My Almighty, Grand-Mother Smt. Nunia Devi and Grand-Father Shri Majire Lal Ahirwar who always strengthened my soul and inner sense to accomplish the present goal.

I have also derived a great inspiration and advice from Mr. Ashish Ahirwal, Mr. Rajendra Botany, Mr. Rajendra Ahirwar (TC), Mr. Khusiram Ahirwar and many other colleagues.

I am grateful to all the teachers of Department of Computer Science and Application especially of Dr. R. K. Pathak, Dr. Sanjay Thakur, Dr. Virendra Tiwari, Mr. Neelesh Jain, Dr. Saurabh Jain, Mrs. Sweta Ojha, Mr. Rajesh Bunker, Mr. Rahul Singhai, and Mr. Ratnesh Jain for their inspiring academic support.

I wish to record my thanks to the staff members, Department of Computer Science and Applications Mr. R. K. Rajak, Mr. U. S. Rajak, Mr. S. K. Shrivastava, Mr. D. S. Sharma, Mr. Abhay Singh, Mr. Vikash Mishara, Dr. Lakshmi Das., Mrs. Maya Sharma, Mr. Jitendra Sainy, Mr. Bhanu Nigam, Mr. Vinod Yadav, Mr. Shyam Lal, Mr. Ajit and Mr. Pawan Kumar for their continuous support during my Ph.D. program.

Finally, from the soul of my heart I am grateful to Goddess Maa Vaishno Devi the supreme for making my will strong in order to shape this work well within time.

ARVIND KUMAR DESHMUKH


5. Arvind Kumar Deshmukh and R.S. Kasana, "Refractometry of lens material by using interferrerometric techniques" *International Journal of Physics & Applications*, RIP-3946-IJPA (Accepted)

6. Arvind Kumar Deshmukh and R.S. Kasana, "Refractometry of lens by using Lummer Gehrcke plate interferometer" (Communicated).


