

# Preface

The present dissertation embodies the research carried out by me at the Feroze Gandhi College Raebareli, affiliated to C.S.J.M. University, Kanpur from the year 2010 to 2015. The thesis comprises of five chapters dealing some aspects of generalized Hankel transforms, product of distributions with neutrix limit, convolution and neutrix convolution of associated generalized Fresnel integrals with generalized functions.

In a series of papers, my teacher and different mathematicians have studied the fractional operators for generalized functions and obtained their relations with the operators of Extended Hankel transformations. In future we will concentrate our study on these operators.

First chapter is an introductory one which contains some important definitions and necessary results. Second chapter deals with the study of generalized Hankel transformations  $B_{1,\mu,m}$  and  $B_{2,\mu,m}$  on the testing function spaces  $H_\mu$ ,  $H$  and their dual spaces. In the third chapter the product of distributions with neutrix limit are discussed. In the fourth chapter we have defined the associated function of generalized Fresnel integrals with Ramp function and then studied the convolution and neutrix convolution product with distributions  $x_+^r$ ,  $x_-^r$  and  $x^r$ . In the fifth chapter we have generalized the definition of Mellin convolution product and then defined some results on Mellin convolution product of distribution with neutrix limit. Lastly the bibliography is also given.

(Alka Singh)