

P R E F A C E

The present thesis entitled "CONVERGENCE AND SUMMABILITY OF ORTHOGONAL SERIES" is the outcome of researches which I have been carrying on since June, 1971 at the U. S. University of Baroda, under the guidance of Dr. C. H. Patel, Reader in Mathematics, Faculty of Technology and Engineering, U. S. University of Baroda, Baroda.

The thesis consists of seven chapters. Chapter I is introductory, where I present a resume of hitherto known results that are relevant to my investigations. In chapter II, I have established certain results on the Riesz means of orthogonal expansions in reference to their connection with Euler and Logarithmic means. Chapter III is devoted to the study of Euler and Riesz means of orthogonal series. Chapter IV deals with the absolute summability of orthogonal expansion by Euler method and extension of Rader's theorem. Chapter V and VI deal respectively with strong and very strong summability of orthogonal series by Euler method. In the last chapter I have investigated some problems of absolute convergence

and absolute cosine summability of double orthogonal series.

These chapters are followed by a fairly complete bibliography of the publications to which reference has been made in the body of thesis.

The results given in Chapters II, V, VI and VII have been either published or accepted for publication and the rest of the results have been communicated for publication to various Mathematical Journals abroad as well as in India.

It has been my proud privilege to have worked under the supervision of Dr. C. R. Patel. I take this opportunity of acknowledging my indebtedness to him for the valuable guidance, kind advice and generous encouragement he has throughout extended to me.

Lastly, I also express my gratitude to the University Grants Commission, New Delhi (India), for having awarded me a Research Fellowship.

R. K. Patel

(R. K. PATEL)