

Preface

The theory of summability arises from the process of summation of series and the significance of the concept of summability has been strikingly demonstrated in various contexts, e.g., in analytic continuation, quantum mechanics, probability theory, Fourier analysis, approximation theory, and fixed point theory. The methods of almost summability and statistical summability have become an active area of research in recent years.

This short monograph is the first one to deal exclusively with the study of some summability methods and their interesting applications. We consider here some special regular matrix methods as well as non-matrix methods of summability. This book consists of 12 chapters. In Chap. 1, we recall some basic definitions of sequence spaces, matrix transformations, regular matrices, and some special matrices. Chapter 2 deals with the proof of the prime number theorem by using Lambert's summability and Wiener's Tauberian theorem. In Chap. 3, we give some results on summability tests for singular points of an analytic function. In Chap. 4, we study analytic continuation through Lototski summability. In Chap. 5, we give application of summability methods to independent identically distributed random variables. In Chap. 6, we study a non-matrix method of summability, i.e., almost summability which is further applied in Chaps. 7 and 8 to study the summability of Taylor series, Fourier series, and Walsh-Fourier series. We further use almost summability in Chap. 9 to prove Korovkin type approximation theorems. In Chap. 10, we study another non-matrix method of summability, i.e., statistical summability. In Chap. 11, we study statistical approximation, and in the last chapter, we give some applications of summability methods in fixed point theorems. For the convenience of readers, all chapters of this book are written in a self-contained style and all necessary background and motivations are given per chapter. As such this brief monograph is suitable for researchers, graduate students, and seminars on the above subject.

The author is very much thankful to all three learned referees for their valuable and helpful suggestions.

The author would also like to thank his family for moral support during the preparation of this monograph.

Aligarh, India
October 15, 2013

M. Mursaleen



<http://www.springer.com/978-3-319-04608-2>

Applied Summability Methods

Mursaleen, M.

2014, X, 124 p., Softcover

ISBN: 978-3-319-04608-2