The present thesis entitled "Integrability and $L^1$-Convergence of Trigonometric Series with Special Coefficients" embodies the investigations carried out by me at the Department of Mathematics, Maharshi Dayanand University, Rohtak under the supervision of Dr. Babu Ram, Professor, Department of Mathematics, Maharshi Dayanand University, Rohtak.

The whole work is divided into eight chapters. The first chapter is introductory. In this chapter, apart from setting up the notations and terminology to be used in the sequel, we give a résumé of hitherto known results interrelated with our results along with a brief plan of our results presented in the subsequent chapters. In Chapter II, we have introduced a new class $R_r$ of coefficient sequences of trigonometric series and obtained some results concerning $L^1$-convergence of modified trigonometric sums with coefficients belonging to this class. Also, the $L^1$-convergence under a separate condition $S_{\alpha r}$ has been studied. The aim of Chapter III is to study the $L^1$-convergence of the complex form of the trigonometric sums, discussed in Chapter II, with coefficients belonging to a new class $R^*$ of sequences. In Chapter IV, we generalize the results of Chapter III for $r$-th differential of the complex trigonometric sums introduced in Chapter III. The aim of Chapter V is to find certain new necessary and sufficient condition for integrability and $L^1$-convergence of complex trigonometric series with coefficients belonging to the class $S_{\alpha r}^*$. In Chapter VI, some results of Ferenc Móricz on $L^1$-convergence of complex trigonometric series...
have been generalized. Chapter VII is devoted to find necessary and sufficient conditions for the weighted integrability of double cosine series satisfying specific conditions. Also, some results of Askey and Wainger have been generalized from one-dimensional series to two-dimensional series. The last chapter deals with \( L^1 \) convergence of complex double trigonometric series with special coefficients. Towards the end, we give references of various publications cited in the present thesis.

The work reported in the thesis has been communicated for publication to various international journals.

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