

CONTENTS

	Page
CHAPTER I: BASIC PROPERTIES OF TRIGONOMETRIC INTEGRALS.....	1
§1. Trigonometric Integrals Over Finite Intervals.....	1
§2. Trigonometric Integrals Over Infinite Intervals.....	5
§3. Order of Magnitude of Trigonometric Integrals.....	10
§4. Uniform Convergence of Trigonometric Integrals.....	13
§5. The Cauchy Principal Value of Integrals.....	18
CHAPTER II: REPRESENTATION — AND SUM FORMULAS.....	23
§6. A General Representation Formula.....	23
§7. The Dirichlet Integral and Related Integrals.....	27
§8. The Fourier Integral Formula.....	31
§9. The Wiener Formula.....	35
§10. The Poisson Summation Formula.....	39
CHAPTER III: THE FOURIER INTEGRAL THEOREM.....	46
§11. The Fourier Integral Theorem and the Inversion Formulas	46
§12. Trigonometric Integrals with e^{-x}	51
§13. The Absolutely Integrable Functions. Their Faltung and Their Summation.....	54
§14. Trigonometric Integrals with Rational Functions.....	63
§15. Trigonometric Integrals with e^{-x^2}	67
§16. Bessel Functions.....	70
§17. Evaluation of Certain Repeated Integrals.....	74
CHAPTER IV: STIELTJES INTEGRALS.....	78
§18. The Function Class \mathfrak{B}	78
§19. Sequences of Functions of \mathfrak{B}	85
§20. Positive-Definite Functions.....	92
§21. Spectral Decomposition of Positive-Definite Functions. An Application to Almost Periodic Functions.....	97
CHAPTER V: OPERATIONS WITH FUNCTIONS OF THE CLASS \mathfrak{F}_0	104
§22. The Question.....	104
§23. Multipliers.....	108
§24. Differentiation and Integration.....	114
§25. The Difference-Differential Equation.....	120
§26. The Integral Equation.....	130
§27. Systems of Equations.....	134
CHAPTER VI: GENERALIZED TRIGONOMETRIC INTEGRALS.....	138
§28. Definition of the Generalized Trigonometric Integrals..	138
§29. Further Particulars About the Functions of \mathfrak{F}_k	145
§30. Further Particulars About the Functions of \mathfrak{E}_k	153
§31. Convergence Theorems.....	160
§32. Multipliers.....	166
§33. Operator Equations.....	173
§34. Functional Equations.....	178
CHAPTER VII: ANALYTIC AND HARMONIC FUNCTIONS.....	182
§35. Laplace Integrals.....	182
§36. Union of Laplace Integrals.....	189
§37. Representation of Given Functions by Laplace Integrals.	194
§38. Continuation. Harmonic Functions.....	202

CONTENTS

	Page
§39. Boundary Value Problems for Harmonic Functions.....	208
CHAPTER VIII: QUADRATIC INTEGRABILITY.....	214
§40. The Parseval Equation.....	214
§41. The Theorem of Plancherel.....	219
§42. Hankel Transform.....	224
CHAPTER IX: FUNCTIONS OF SEVERAL VARIABLES.....	231
§43. Trigonometric Integrals in Several Variables.....	231
§44. The Fourier Integral Theorem.....	239
§45. The Dirichlet Integral.....	249
§46. The Poisson Summation Formula.....	255
APPENDIX.....	264
Concerning Functions of Real Variables.....	264
Measurability.....	264
Summability.....	266
Differentiability.....	270
Approximation in the Mean.....	271
Complex Valued Functions.....	276
Extension of Functions.....	277
Summation of Repeated Integrals.....	279
REMARKS - QUOTATIONS.....	281
MONOTONIC FUNCTIONS, STIELTJES INTEGRALS AND HARMONIC ANALYSIS.....	292
Introduction.....	292
I: MONOTONIC FUNCTIONS.....	295
§1. Definition of the Monotonic Functions.....	295
§2. Continuity Intervals.....	299
§3. Sequences of Monotonic Functions.....	303
II: STIELTJES INTEGRALS.....	307
§4. Definition and Important Properties.....	307
§5. Uniqueness and Limit Theorems.....	312
III: HARMONIC ANALYSIS.....	316
§6. Fourier-Stieltjes Integrals.....	316
§7. Uniqueness and Limit Theorems.....	320
§8. Positive-Definite Functions.....	325
§9. Spectral Decomposition of Square Integrable Functions..	328
SYMBOLS - INDEX.....	332

