Mathematics

One of the masters in the differential equations community, the late F.V. Atkinson contributed seminal research to multiparameter spectral theory and Sturm-Liouville theory. His ideas and techniques have long inspired researchers and continue to stimulate discussion. With the help of co-author Angelo B. Mingarelli, **Multiparameter Eigenvalue Problems: Sturm-Liouville Theory** reflects much of Dr. Atkinson's final work.

After covering standard multiparameter problems, the book investigates the conditions for eigenvalues to be real and form a discrete set. It gives results on the determinants of functions, presents oscillation methods for Sturm-Liouville systems and other multiparameter systems, and offers an alternative approach to multiparameter Sturm-Liouville problems in the case of two equations and two parameters. In addition to discussing the distribution of eigenvalues and infinite limit-points of the set of eigenvalues, the text focuses on proofs of the completeness of the eigenfunctions of a multiparameter Sturm-Liouville problem involving finite intervals. It also explores the limit-point, limit-circle classification as well as eigenfunction expansions.

Features

- Reflects the extensive work of the late F.V. Atkinson
- Treats the study of the multiparameter eigenvalue problem in a unified manner
- Reviews the history and main results of Sturm-Liouville theory
- Illustrates examples using Maple™
- Includes notes and remarks on research problems at the end of each chapter

A lasting tribute to Dr. Atkinson's contributions that spanned more than 40 years, this book covers the full multiparameter theory as applied to second-order linear equations. It considers the spectral theory of multiparameter problems in detail for both regular and singular cases.

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6000 Broken Sound Parkway, NW
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270 Madison Avenue
New York, NY 10016
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Abingdon, Oxon OX14 4RN, UK

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