Introduction To Hilbert Spaces

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Introduction to the Theory of Linear Nonselfadjoint Operators - Israel Gohberg 1978

Elements of Hilbert Spaces and Operator Theory - Harkrishan Lal Vasudeva 2017-03-27
The book presents an introduction to the geometry of Hilbert spaces and operator theory, targeting graduate and senior undergraduate students of mathematics. Major topics discussed in the book are inner product spaces, linear operators, spectral theory and special classes of operators, and Banach spaces. On vector spaces, the structure of inner product is imposed. After discussing geometry of Hilbert spaces, its applications to diverse branches of mathematics have been studied. Along the way are introduced orthogonal polynomials and their use in Fourier series and approximations. Spectrum of an operator is the key to the understanding of the operator. Properties of the spectrum of different classes of operators, such as normal operators, self-adjoint operators, unitaries, isometries and compact operators have been discussed. A large number of examples of operators, along with their spectrum and its splitting into point spectrum, continuous spectrum, residual spectrum, approximate point spectrum and compression spectrum, have been worked out. Spectral theorems for self-adjoint operators, and normal operators, follow the spectral theorem for compact normal operators. The book also discusses invariant subspaces with special attention to the Volterra operator and unbounded operators. In order to make the text as accessible as possible, motivation for the topics is introduced and a greater amount of explanation than is usually found in standard texts on the subject is provided. The abstract theory in the book is supplemented with concrete examples. It is expected that these features will help the reader get a good grasp of the topics discussed. Hints and solutions to all the problems are collected at the end of the book. Additional features are introduced in the book when it becomes imperative. This spirit is kept alive throughout the book.
Linear Operators in Hilbert Spaces - Joachim Weidmann 2012-12-06
This English edition is almost identical to the German original Lineare Operatoren in Hilbertriiumen, published by B. G. Teubner, Stuttgart in 1976. A few proofs have been simplified, some additional exercises have been included, and a small number of new results has been added (e.g., Theorem 11.11 and Theorem 11.23). In addition a great number of minor errors has been corrected. Frankfurt, January 1980 J. Weidmann vii Preface to the German edition The purpose of this book is to give an introduction to the theory of linear operators on Hilbert spaces and then to proceed to the interesting applica tions of differential operators to

mathematical physics. Besides the usual introductory courses common to both mathematicians and physicists, only a fundamental knowledge of complex analysis and of ordinary differential equations is assumed. The most important results of Lebesgue integration theory, to the extent that they are used in this book, are compiled with complete proofs in Appendix A. I hope therefore that students from the fourth semester on will be able to read this book without major difficulty. However, it might also be of some interest and use to the teaching and research mathematician or physicist, since among other things it makes easily accessible several new results of the spectral theory of differential operators.

Introduction to Hilbert Spaces with Applications - Lokenath Debnath 2005-09-29

"Continuing on the success of the two previous editions, Introduction to Hilbert Spaces with Applications, Third Edition, offers an overview of the basic ideas and results of Hilbert space theory complemented by a variety of applications. Students and researchers will benefit from the enhanced presentation of results and proofs and new and revised examples. A completely new section on Sobolev spaces has been added, and the treatment of finite dimensional normed spaces has been expanded. The chapter on wavelets has been updated."--BOOK JACKET.

Introduction to Hilbert Space - Sterling K. Berberian 1999

From the Preface: ``This textbook has evolved from a set of lecture notes ... In both the course and the book, I have in mind first- or second-year graduate students in Mathematics and related fields such as Physics ... It is necessary for the reader to have a foundation in advanced calculus which includes familiarity with: least upper bound (LUB) and greatest lower bound (GLB), the concept of function, ϵ's and their companion δ's, and basic properties of sequences of real and complex numbers (convergence, Cauchy's criterion, the Weierstrass-Bolzano theorem). It is not presupposed that the reader is acquainted with vector spaces ... , matrices ... , or determinants ... There are over four hundred exercises, most of them easy ... It is my hope that this book, aside from being an exposition of certain basic material on Hilbert space, may also serve as an introduction to other areas of functional analysis.''

An Introduction to Hilbert Space - N. Young 1988-07-21

The notion of a Hilbert space is a central idea in functional analysis and this text demonstrates its applications in numerous branches of pure and applied mathematics.

A Hilbert Space Problem Book - P.R. Halmos 2012-12-06

From the Preface: "This book was written for the active reader. The first part consists of problems, frequently preceded by definitions and motivation, and sometimes followed by corollaries and historical remarks... The second part, a very short one, consists of hints... The third part, the longest, consists of solutions: proofs, answers, or contructions, depending on the nature of the problem.... This is not an introduction to Hilbert space theory. Some knowledge of that subject is a prerequisite: at the very least, a study of the elements of Hilbert space theory should proceed concurrently with the reading of this book."

An Introduction to Frames and Riesz Bases - Ole Christensen 2016-05-24

This revised and expanded monograph presents the general theory for frames and Riesz bases in Hilbert spaces as well as its concrete realizations within Gabor analysis, wavelet analysis, and generalized shift-invariant systems. Compared with the first edition, more emphasis is put on explicit constructions with attractive properties. Based on the exiting development of frame theory over the last decade, this second edition now includes new sections on the rapidly growing fields of LCA groups, generalized shift-invariant systems, duality theory for as well Gabor frames as wavelet frames, and open problems in the field. Key features include: *Elementary introduction to frame theory in finite-dimensional spaces * Basic results presented in an accessible way for both pure and applied mathematicians * Extensive exercises make the work suitable as a textbook for use in graduate courses * Full proofs includ ed in introductory chapters; only basic knowledge of functional analysis required * Explicit constructions of frames and dual pairs of frames, with applications and connections to time-frequency analysis, wavelets, and generalized shift-invariant systems * Discussion of frames on LCA groups and the concrete realizations in terms of Gabor systems on the elementary groups; connections to sampling theory * Selected research

topics presented with recommendations for more advanced topics and further readin g * Open problems to stimulate further research An Introduction to Frames and Riesz Bases will be of interest to graduate students and researchers working in pure and applied mathematics, mathematical physics, and engineering. Professionals working in digital signal processing who wish to understand the theory behind many modern signal processing tools may also find this book a useful self-study reference. Review of the first edition: "Ole Christensen's An Introduction to Frames and Riesz Bases is a first-rate introduction to the field ... . The book provides an excellent exposition of these topics. The material is broad enough to pique the interest of many readers, the included exercises supply some interesting challenges, and the coverage provides enough background for those new to the subject to begin conducting original research." — Eric S. Weber, American Mathematical Monthly, Vol. 112, February, 2005

Banachâ□□Hilbert Spaces, Vector Measures and Group Representations - Tsoyâ□□Wo Ma 2002-06-13

This book provides an elementary introduction to classical analysis on normed spaces, with special attention paid to fixed points, calculus, and ordinary differential equations. It contains a full treatment of vector measures on delta rings without assuming any scalar measure theory and hence should fit well into existing courses. The relation between group representations and almost periodic functions is presented. The mean values offer an infinitedimensional analogue of measure theory on finitedimensional Euclidean spaces. This book is ideal for beginners who want to get through the basic material as soon as possible and then do their own research immediately.

Theory of Linear Operators in Hilbert Space - Naum Il'ich Akhiezer 1961

Functional Analysis - Joseph Muscat 2014-07-23

This textbook is an introduction to functional analysis suited to final year undergraduates or beginning graduates. Its various applications of Hilbert spaces, including least squares approximation, inverse problems, and Tikhonov regularization, should appeal not only to mathematicians interested in applications, but also to researchers in related fields. Functional Analysis adopts a self-contained approach to Banach spaces and operator theory that covers the main topics, based upon the classical sequence and function spaces and their operators. It assumes only a minimum of knowledge in elementary linear algebra and real analysis; the latter is redone in the light of metric spaces. It contains more than a thousand worked examples and exercises, which make up the main body of the book.

Convex Analysis and Monotone Operator Theory in Hilbert Spaces - Heinz H. Bauschke 2017-02-28

This reference text, now in its second edition, offers a modern unifying presentation of three basic areas of nonlinear analysis: convex analysis, monotone operator theory, and the fixed point theory of nonexpansive operators. Taking a unique comprehensive approach, the theory is developed from the ground up, with the rich connections and interactions between the areas as the central focus, and it is illustrated by a large number of examples. The Hilbert space setting of the material offers a wide range of applications while avoiding the technical difficulties of general Banach spaces. The authors have also drawn upon recent advances and modern tools to simplify the proofs of key results making the book more accessible to a broader range of scholars and users. Combining a strong emphasis on applications with exceptionally lucid writing and an abundance of exercises, this text is of great value to a large audience including pure and applied mathematicians as well as researchers in engineering, data science, machine learning, physics, decision sciences, economics, and inverse problems. The second edition of Convex Analysis and Monotone Operator Theory in Hilbert Spaces greatly expands on the first edition, containing over 140 pages of new material, over 270 new results, and more than 100 new exercises. It features a new chapter on proximity operators including two sections on proximity operators of matrix functions, in addition to several new sections distributed throughout the original chapters. Many existing results have been improved, and the list of references has been updated.

Heinz H. Bauschke is a Full Professor of Mathematics at the Kelowna campus of the University of British Columbia, Canada. Patrick L. Combettes, IEEE Fellow, was on the faculty of the City University of New York and of Université Pierre et Marie Curie – Paris 6 before joining North Carolina State University as a Distinguished Professor of Mathematics in 2016.

An Introduction to Hilbert Space - George F. Barrick 1981

An Introduction to Models and Decompositions in Operator Theory - Carlos S. Kubrusly 2012-12-06

By a Hilbert-space operator we mean a bounded linear transformation be tween separable complex Hilbert spaces. Decompositions and models for Hilbert-space operators have been very active research topics in operator theory over the past three decades. The main motivation behind them is the in variant subspace problem: does every Hilbert-space operator have a nontrivial invariant subspace? This is perhaps the most celebrated open question in op erator theory. Its relevance is easy to explain: normal operators have invariant subspaces (witness: the Spectral Theorem), as well as operators on finite dimensional Hilbert spaces (witness: canonical Jordan form). If one agrees that each of these (i. e. the Spectral Theorem and canonical Jordan form) is important enough an achievement to dismiss any further justification, then the search for nontrivial invariant subspaces is a natural one; and a recalcitrant one at that. Subnormal operators have nontrivial invariant subspaces (extending the normal branch), as well as compact operators (extending the finite-dimensional branch), but the question remains unanswered even for equally simple (i. e. simple to define) particular classes of Hilbert-space operators (examples: hyponormal and quasinilpotent operators). Yet the invariant subspace quest has certainly not been a failure at all, even though far from being settled. The search for nontrivial invariant subspaces has undoubtly yielded a lot of nice results in operator theory, among them, those concerning decompositions and models for Hilbert-space operators. This book contains nine chapters.

Introduction to Spectral Theory in Hilbert Space - Gilbert Helmberg 2014-11-28

North-Holland Series in Applied Mathematics and Mechanics, Volume 6: Introduction to Spectral Theory in Hilbert Space focuses on the mechanics, principles, and approaches involved in spectral theory in Hilbert space. The publication first elaborates on the concept and specific geometry of Hilbert space and bounded linear operators. Discussions focus on projection and adjoint operators, bilinear forms, bounded linear mappings, isomorphisms, orthogonal subspaces, base, subspaces, finite dimensional Euclidean space, and normed linear spaces. The text then takes a look at the general theory of linear operators and spectral analysis of compact linear operators, including spectral decomposition of a compact selfadjoint operator, weakly convergent sequences, spectrum of a compact linear operator, and eigenvalues of a linear operator. The manuscript ponders on the spectral analysis of bounded linear operators and unbounded selfadjoint operators. Topics include spectral decomposition of an unbounded selfadjoint operator and bounded normal operator, functions of a unitary operator, step functions of a bounded selfadjoint operator, polynomials in a bounded operator, and order relation for bounded selfadjoint operators. The publication is a valuable source of data for mathematicians and researchers interested in spectral theory in Hilbert space.

Functional Analysis - Yuli Eidelman 2004

This textbook provides an introduction to the methods and language of functional analysis, including Hilbert spaces, Fredholm theory for compact operators, and spectral theory of self-adjoint operators. It also presents the basic theorems and methods of abstract functional analysis and a few applications of these methods to Banach algebras and the theory of unbounded self-adjoint operators. The text corresponds to material for two semester courses (Part I and Part II, respectively) and is essentially self-contained. Prerequisites for the first part are minimal amounts of linear algebra and calculus. For the second part, some knowledge of topology and measure theory is recommended. Each of the 11 chapters is followed by numerous exercises, with solutions given at the end of the book. The amount of mathematics presented in the book can well be

absorbed in a year's study and will provide a sound basis for future reading. It is suitable for graduate students and researchers interested in operator theory and functional analysis.

From Vector Spaces to Function Spaces - Yutaka Yamamoto 2012-10-31

A guide to analytic methods in applied mathematics from the perspective of functional analysis, suitable for scientists, engineers and students.

Introduction to Hilbert Space and the Theory of Spectral Multiplicity - Paul R. Halmos 2017-11-15

Concise introductory treatment consists of three chapters: The Geometry of Hilbert Space, The Algebra of Operators, and The Analysis of Spectral Measures. A background in measure theory is the sole prerequisite. 1957 edition.

Introduction to Hilbert Spaces with Applications - Lokenath Debnath 1999

The Second Edition of this successful text offers a systematic exposition of the basic ideas and results of Hilbert space theory and functional analysis. It includes a simple introduction to the Lebesgue integral and a new chapter on wavelets. The book provides the reader with revised examples and updated diverse applications to differential and integral equations with clear explanations of these methods as applied to optimization, variational and control problems, and problems in approximation theory, nonlinear instability, and bifurcation.

An Introduction to Functional Analysis - James C. Robinson 2020-03-12

Accessible text covering core functional analysis topics in Hilbert and Banach spaces, with detailed proofs and 200 fully-worked exercises.

An Introduction to Hilbert Spaces and Operators on Hilbert Spaces - Brooke D. Walters 2015-05-23

Thought-provoking and accessible in approach, this updated and expanded second edition of the An Introduction to Hilbert Spaces And Operators On Hilbert Spaces provides a user-friendly introduction to the subject, Taking a clear structural framework, it guides the reader through the subject's core elements. A flowing writing style combines with the use of illustrations and diagrams throughout the text to ensure the reader understands even the most complex of concepts. This succinct and enlightening overview is a required reading for advanced graduate-level students. We hope you find this book useful in shaping your future career. Feel free to send us your enquiries related to our publications to info@smpress.co.uk Science & Management Press of London

Hilbert Space Methods in Signal Processing - Rodney A. Kennedy 2013-03-07

An accessible introduction to Hilbert spaces, combining the theory with applications of Hilbert methods in signal processing.

An Introduction to Operators on the Hardy-Hilbert Space - Ruben A. Martinez-Avendano 2007-03-12

This book offers an elementary and engaging introduction to operator theory on the Hardy-Hilbert space. It provides a firm foundation for the study of all spaces of analytic functions and of the operators on them. Blending techniques from "soft" and "hard" analysis, the book contains clear and beautiful proofs. There are numerous exercises at the end of each chapter, along with a brief guide for further study which includes references to applications to topics in engineering.

Applied Analysis by the Hilbert Space Method - Samuel S. Holland 2012-05-04

Numerous worked examples and exercises highlight this unified treatment. Simple explanations of difficult subjects make it accessible to undergraduates as well as an ideal self-study guide. 1990 edition.

Introduction to Operator Theory in Riesz Spaces - Adriaan C. Zaanen 2012-12-06

Since the beginning of the thirties a considerable number of books on func tional analysis has been published. Among the first ones were those by M. H. Stone on Hilbert spaces and by S. Banach on linear operators, both from 1932. The amount of material in the field of functional analysis (in cluding operator theory) has grown to such an extent that it has become impossible now to include all of it in one book. This holds even more for text books. Therefore, authors of textbooks usually restrict themselves to normed spaces (or even to Hilbert space exclusively) and linear operators in these spaces. In more advanced texts Banach algebras and (or)

topological vector spaces are sometimes included. It is only rarely, however, that the notion of order (partial order) is explicitly mentioned (even in more advanced exposi tions), although order structures occur in a natural manner in many examples (spaces of real continuous functions or spaces of measurable function~). This situation is somewhat surprising since there exist important and illuminating results for partially ordered vector spaces, in . particular for the case that the space is lattice ordered. Lattice ordered vector spaces are called vector lattices or Riesz spaces. The first results go back to F. Riesz (1929 and 1936), L. Kan torovitch (1935) and H. Freudenthal (1936).

An Introduction to Hilbert Space and Quantum Logic - David W. Cohen 2012-12-06

Historically, nonclassical physics developed in three stages. First came a collection of ad hoc assumptions and then a cookbook of equations known as "quantum mechanics". The equations and their philosophical underpinnings were then collected into a model based on the mathematics of Hilbert space. From the Hilbert space model came the abstaction of "quantum logics". This book explores all three stages, but not in historical order. Instead, in an effort to illustrate how physics and abstract mathematics influence each other we hop back and forth between a purely mathematical development of Hilbert space, and a physically motivated definition of a logic, partially linking the two throughout, and then bringing them together at the deepest level in the last two chapters. This book should be accessible to undergraduate and beginning graduate students in both mathematics and physics. The only strict prerequisites are calculus and linear algebra, but the level of mathematical sophistication assumes at least one or two intermediate courses, for example in mathematical analysis or advanced calculus. No background in physics is assumed.

Introduction to Hilbert Spaces and Oerators on Hilbert Spaces - Harley L Hayward 2015-02-10

Introduction to Hilbert Spaces and Oerators on Hilbert Spaces is one of the series of books covering various topics of science, technology and management published by London School of Management Studies. The book will cover the introduction to the Topic and can be used as a very useful course study material for students pursuing their studies in undergraduate and graduate levels in universities and colleges and those who want to learn the topic in brief via a short and complete resource. We hope you find this book useful is shaping your future career, Please send us your enquiries related to our publications to press@lsms.org.uk London School of Management Studies www.lsms.org.uk

Introduction to Spectral Theory - P.D. Hislop 2012-12-06

The intention of this book is to introduce students to active areas of research in mathematical physics in a rather direct way minimizing the use of abstract mathematics. The main features are geometric methods in spectral analysis, exponential decay of eigenfunctions, semi-classical analysis of bound state problems, and semi-classical analysis of resonance. A new geometric point of view along with new techniques are brought out in this book which have both been discovered within the past decade. This book is designed to be used as a textbook, unlike the competitors which are either too fundamental in their approach or are too abstract in nature to be considered as texts. The authors' text fills a gap in the marketplace.

Hilbert Space Methods in Partial Differential Equations - Ralph E. Showalter 2011-09-12

This graduate-level text opens with an elementary presentation of Hilbert space theory sufficient for understanding the rest of the book. Additional topics include boundary value problems, evolution equations, optimization, and approximation.1979 edition.

Real Analysis - Gerald B. Folland 2013-06-11

An in-depth look at real analysis and its applications-now expandedand revised. This new edition of the widely used analysis book continues tocover real analysis in greater detail and at a more advanced levelthan most books on the subject. Encompassing several subjects thatunderlie much of modern analysis, the book focuses on measure andintegration theory, point set topology, and the basics offunctional analysis. It illustrates the use of the general theoriesand introduces readers to other branches of analysis such asFourier analysis, distribution theory, and

probabilitytheory. This edition is bolstered in content as well as in scope-extendingits usefulness to students outside of pure analysis as well asthose interested in dynamical systems. The numerous exercises,extensive bibliography, and review chapter on sets and metricspaces make Real Analysis: Modern Techniques and TheirApplications, Second Edition invaluable for students ingraduate-level analysis courses. New features include: * Revised material on the n-dimensional Lebesgue integral. * An improved proof of Tychonoff's theorem. * Expanded material on Fourier analysis. * A newly written chapter devoted to distributions and differentialequations. * Updated material on Hausdorff dimension and fractal dimension.

Introduction to Hilbert Space and the Theory of Spectral Multiplicity - Paul R. Halmos 2013-09

2013 Reprint of 1951 Edition. Full facsimile of the original edition, not reproduced with Optical Recognition Software. The subject matter of the book is funneled into three chapters: [1] The geometry of Hubert space; [2] the structure of self-adjoint and normal operators; [3] and multiplicity theory for a normal operator. For the last, an expert knowledge of measure theory is indispensable. Indeed, multiplicity theory is a magnificent measure-theoretic tour de force. The subject matter of the first two chapters might be said to constitute an introduction to Hilbert space, and for these, an a priori knowledge of classic measure theory is not essential. Paul Richard Halmos (1916-2006) was a Hungarian-born American mathematician who made fundamental advances in the areas of probability theory, statistics, operator theory, ergodic theory, and functional analysis (in particular, Hilbert spaces). He was also recognized as a great mathematical expositor.

Introduction to Operator Space Theory - Gilles Pisier 2003-08-25

The theory of operator spaces is very recent and can be described as a non-commutative Banach space theory. An 'operator space' is simply a Banach space with an embedding into the space B(H) of all bounded operators on a Hilbert space H. The first part of this book is an introduction with emphasis on examples that illustrate various aspects of the theory. The second part is devoted to applications to C*-algebras, with a systematic exposition of tensor products of C*-algebras. The third (and shorter) part of the book describes applications to non self-adjoint operator algebras, and similarity problems. In particular the author's counterexample to the 'Halmos problem' is presented, as well as work on the new concept of 'length' of an operator algebra. Graduate students and professional mathematicians interested in functional analysis, operator algebras and theoretical physics will find that this book has much to offer.

Spectral Theory of Operators on Hilbert Spaces - Carlos S. Kubrusly 2012-06-01

This work is a concise introduction to spectral theory of Hilbert space operators. Its emphasis is on recent aspects of theory and detailed proofs, with the primary goal of offering a modern introductory textbook for a first graduate course in the subject. The coverage of topics is thorough, as the book explores various delicate points and hidden features often left untreated. Spectral Theory of Operators on Hilbert Spaces is addressed to an interdisciplinary audience of graduate students in mathematics, statistics, economics, engineering, and physics. It will also be useful to working mathematicians using spectral theory of Hilbert space operators, as well as for scientists wishing to apply spectral theory to their field.

An Introduction to the Theory of Reproducing Kernel Hilbert Spaces - Vern I. Paulsen 2016-04-11

Reproducing kernel Hilbert spaces have developed into an important tool in many areas, especially statistics and machine learning, and they play a valuable role in complex analysis, probability, group representation theory, and the theory of integral operators. This unique text offers a unified overview of the topic, providing detailed examples of applications, as well as covering the fundamental underlying theory, including chapters on interpolation and approximation, Cholesky and Schur operations on kernels, and vector-valued spaces. Self-contained and accessibly written, with exercises at the end of each chapter, this unrivalled treatment of the topic serves as an ideal introduction for graduate students across mathematics, computer science, and engineering, as well as a useful reference for researchers working in functional analysis or its applications.

An Introduction to the Theory of Reproducing Kernel Hilbert Spaces - Vern

I. Paulsen 2016-04-11
A unique introduction to reproducing kernel Hilbert spaces, covering the fundamental underlying theory as well as a range of applications.
A Primer on Hilbert Space Theory - Carlo Alabiso 2021-04-04
This book offers an essential introduction to the theory of Hilbert space, a fundamental tool for non-relativistic quantum mechanics. Linear, topological, metric, and normed spaces are all addressed in detail, in a rigorous but reader-friendly fashion. The rationale for providing an introduction to the theory of Hilbert space, rather than a detailed study of Hilbert space theory itself, lies in the strenuous mathematics demands that even the simplest physical cases entail. Graduate courses in physics rarely offer enough time to cover the theory of Hilbert space and operators, as well as distribution theory, with sufficient mathematical rigor. Accordingly, compromises must be found between full rigor and the practical use of the instruments. Based on one of the authors's lectures on functional analysis for graduate students in physics, the book will equip readers to approach Hilbert space and, subsequently, rigged Hilbert space, with a more practical attitude. It also includes a brief introduction to topological groups, and to other mathematical structures akin to Hilbert space. Exercises and solved problems accompany the main text, offering readers opportunities to deepen their understanding. The topics and their presentation have been chosen with the goal of quickly, yet rigorously and effectively, preparing readers for the intricacies of Hilbert space. Consequently, some topics, e.g., the Lebesgue integral, are treated in a somewhat unorthodox manner. The book is ideally suited for use in upper undergraduate and lower graduate courses, both in Physics and in Mathematics.
Introduction To Hilbert Spaces With Applications, 3E - Loknath 2005
Reproducing Kernel Hilbert Spaces in Probability and Statistics - Alain Berlinet 2011-06-28
The book covers theoretical questions including the latest extension of the formalism, and computational issues and focuses on some of the more fruitful and promising applications, including statistical signal processing, nonparametric curve estimation, random measures, limit theorems, learning theory and some applications at the fringe between Statistics and Approximation Theory. It is geared to graduate students in Statistics, Mathematics or Engineering, or to scientists with an equivalent level.
Introduction to Hilbert Spaces with Applications - Lokenath Debnath 2005-09-29
Building on the success of the two previous editions, Introduction to Hilbert Spaces with Applications, Third Edition, offers an overview of the basic ideas and results of Hilbert space theory and functional analysis. It acquaints students with the Lebesgue integral, and includes an enhanced presentation of results and proofs. Students and researchers will benefit from the wealth of revised examples in new, diverse applications as they apply to optimization, variational and control problems, and problems in approximation theory, nonlinear instability, and bifurcation. The text also includes a popular chapter on wavelets that has been completely updated. Students and researchers agree that this is the definitive text on Hilbert Space theory. Updated chapter on wavelets Improved presentation on results and proof Revised examples and updated applications Completely updated list of references
Introduction to Partial Differential Equations and Hilbert Space Methods - Karl E. Gustafson 2012-04-26
Easy-to-use text examines principal method of solving partial differential equations, 1st-order systems, computation methods, and much more. Over 600 exercises, with answers for many. Ideal for a 1-semester or full-year course.