Course In Mathematical Physics

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A Course in Modern Mathematical Physics - Peter Szekeres 2004-12-16
This textbook, first published in 2004, provides an introduction to the major mathematical structures used in physics today.

A Course in Mathematical Physics 3 - Walter Thirring 2013-11-11
In this third volume of A Course in Mathematical Physics I have attempted not simply to introduce axioms and derive quantum mechanics from them, but also to progress to relevant applications. Reading the axiomatic litera ture often gives one the impression that it largely consists of making refined axioms, thereby freeing physics from any trace of down-to-earth residue and cutting it off from simpler ways of thinking. The goal pursued here, however, is to come up with concrete results that can be compared with experimental

facts. Everything else should be regarded only as a side issue, and has been chosen for pragmatic reasons. It is precisely with this in mind that I feel it appropriate to draw upon the most modern mathematical methods. Only by their means can the logical fabric of quantum theory be woven with a smooth structure; in their absence, rough spots would . inevitably appear, especially in the theory of unbounded operators, where the details are too intricate to be comprehended easily. Great care has been taken to build up this mathematical weaponry as completely as possible, as it is also the basic arsenal of the next volume. This means that many proofs have been tucked away in the exercises. My greatest concern was to replace the ordinary cal culations of uncertain accuracy with better ones having error bounds, in order to raise the crude manners of theoretical physics to the more cultivated level of experimental physics.

Mathematical Physics - P. K. Chattopadhyay 1990

The Book Is Intended As A Text For Students Of Physics At The Master S Level. It Is Assumed That The Students Pursuing The Course Have Some Knowledge Of Differential Equations And Complex Variables. In Addition, A Knowledge Of Physics Upto At Least The B.Sc. (Honours) Level Is Assumed. Throughout The Book The Applications Of The Mathematical Techniques Developed, To Physics Are Emphasized. Examples Are, To A Large Extent, Drawn From Various Branches Of Physics. The Exercises Provide Further Extensions To Such Applications And Are Often ``Chosen`` To Illustrate And Supplement The Material In The Text. They Thus Form An Essential Part Of The TextDistinguishing Features Of The Book: * Emphasis On Applications To Physics. The Examples And Problems Are Chosen With This Aspect In Mind. * More Than One Hundred Solved Examples And A Large Collection Of Problems In The Exercises. * A Discussion On Non-Linear

Differential Equations-A Topic Usually Not Found In Standard Texts. There Is Also A Section Devoted To Systems Of Linear, First Order Differential Equations. * One Full Chapter On Linear Vector Spaces And Matrices. This Chapter Is Essential For The Understanding Of The Mathematical Foundations Of Quantum Mechanics And The Material Can Be Used In A Course Of Quantum Mechanics. * Parts Of Chapter-6 (Greens Function) Will Be Useful In Courses On Electrodynamics And Quantum Mechanics. * One Complete Chapter Is Devoted To Group Theory Within Special Emphasis On The Applications In Physics. The Subject Matter Is Treated In Fairly Great Detail And Can Be Used In A Course On Group Theory.

A Course in Mathematics for Students of Physics: Volume 1 - Paul G. Bamberg 1991-08-30

A textbook covering the theory and physical applications of linear algebra and the calculus of several variables.

Mathematical Physics - Robert Geroch 2015-08-01

Mathematical Physics is an introduction to such basic mathematical structures as groups, vector spaces, topological spaces, measure spaces, and Hilbert space. Geroch uses category theory to emphasize both the interrelationships among different structures and the unity of mathematics. Perhaps the most valuable feature of the book is the illuminating intuitive discussion of the "whys" of proofs and of axioms and definitions. This book, based on Geroch's University of Chicago course, will be especially helpful to those working in theoretical physics, including such areas as relativity, particle physics, and astrophysics.

A Course in Mathematical Physics- Walter Thirring 1986

Mathematical Methods for Physics and Engineering - Mattias Blennow 2018-01-03

Suitable for advanced undergraduate and graduate students, this new textbook

contains an introduction to the mathematical concepts used in physics and engineering. The entire book is unique in that it draws upon applications from physics, rather than mathematical examples, to ensure students are fully equipped with the tools they need. This approach prepares the reader for advanced topics, such as quantum mechanics and general relativity, while offering examples, problems, and insights into classical physics. The book is also distinctive in the coverage it devotes to modelling, and to oft-neglected topics such as Green's functions.

Mathematical Physics with Partial Differential Equations - James Kirkwood 2018-02-26

Mathematical Physics with Partial Differential Equations, Second Edition, is designed for upper division undergraduate and beginning graduate students taking mathematical physics taught out by math departments. The new edition is based on the success of the first, with a continuing focus on clear presentation, detailed examples, mathematical rigor and a careful selection of topics. It presents the familiar classical topics and methods of mathematical physics with more extensive coverage of the three most important partial differential equations in the field of mathematical physics—the heat equation, the wave equation and Laplace's equation. The book presents the most common techniques of solving these equations, and their derivations are developed in detail for a deeper understanding of mathematical applications. Unlike many physics-leaning mathematical physics books on the market, this work is heavily rooted in math, making the book more appealing for students wanting to progress in mathematical physics, with particularly deep coverage of Green's functions, the Fourier transform, and the Laplace transform. A salient characteristic is the focus on fewer topics but at a far more rigorous level of detail than comparable undergraduate-facing textbooks. The depth of some of these topics, such as

the Dirac-delta distribution, is not matched elsewhere. New features in this edition include: novel and illustrative examples from physics including the 1-dimensional quantum mechanical oscillator, the hydrogen atom and the rigid rotor model; chapter-length discussion of relevant functions, including the Hermite polynomials, Legendre polynomials, Laguerre polynomials and Bessel functions; and all-new focus on complex examples only solvable by multiple methods. Introduces and evaluates numerous physical and engineering concepts in a rigorous mathematical framework Provides extremely detailed mathematical derivations and solutions with extensive proofs and weighting for application potential Explores an array of detailed examples from physics that give direct application to rigorous mathematics Offers instructors useful resources for teaching, including an illustrated instructor's manual, PowerPoint presentations in each chapter and a solutions manual

The Structures of Mathematical Physics Steven P. Starkovich 2021

This textbook serves as an introduction to groups, rings, fields, vector and tensor spaces, algebras, topological spaces, differentiable manifolds and Lie groups --- mathematical structures which are foundational to modern theoretical physics. It is aimed primarily at undergraduate students in physics and mathematics with no previous background in these topics. Applications to physics --- such as the metric tensor of special relativity, the symplectic structures associated with Hamilton's equations and the Generalized Stokes's Theorem --- appear at appropriate places in the text. Worked examples, end-of-chapter problems (many with hints and some with answers) and guides to further reading make this an excellent book for self-study. Upon completing this book the reader will be well prepared to delve more deeply into

advanced texts and specialized monographs in theoretical physics or mathematics.

Mathematical Methods for Physicists - Tai L. Chow 2000-07-27

This text is designed for an intermediate-level, two-semester undergraduate course in mathematical physics. It provides an accessible account of most of the current, important mathematical tools required in physics. The book bridges the gap between an introductory physics course and more advanced courses in classical mechanics, electricity and magnetism, quantum mechanics, and thermal and statistical physics. It contains a large number of worked examples to illustrate the mathematical techniques developed and to show their relevance to physics. The highly organized coverage allows instructors to teach the basics in one semester. The book could also be used in courses in engineering, astronomy, and mathematics.

Mathematical Tools for Physics - James Nearing 2021-08

Having the right answer doesn't guarantee understanding. This book helps physics students learn to take an informed and intuitive approach to solving problems. It assists undergraduates in developing their skills and provides them with grounding in important mathematical methods.Starting with a review of basic mathematics, the author presents a thorough analysis of infinite series, complex algebra, differential equations, and Fourier series. Succeeding chapters explore vector spaces, operators and matrices, multi-variable and vector calculus, partial differential equations, numerical and complex analysis, and tensors. Additional topics include complex variables, Fourier analysis, the calculus of variations, and densities and distributions. An excellent math reference guide, this volume is also a helpful companion for physics students as they work through their assignments.

Mathematical Methods in the Physical Sciences - Mary L. Boas 2006

Market_Desc: · Physicists and Engineers· Students in Physics and Engineering Special Features: · Covers everything from Linear Algebra, Calculus, Analysis, Probability and Statistics, to ODE, PDE, Transforms and more· Emphasizes intuition and computational abilities· Expands the material on DE and multiple integrals· Focuses on the applied side, exploring material that is relevant to physics and engineering· Explains each concept in clear, easy-to-understand steps About The Book: The book provides a comprehensive introduction to the areas of mathematical physics. It combines all the essential math concepts into one compact, clearly written reference. This book helps readers gain a solid foundation in the many areas of mathematical methods in order to achieve a basic competence in advanced physics, chemistry, and engineering.

Equations in Mathematical Physics - Victor P. Pikulin 2012-01-05

Many physical processes in fields such as mechanics, thermodynamics, electricity, magnetism or optics are described by means of partial differential equations. The aim of the present book is to demontstrate the basic methods for solving the classical linear problems in mathematical physics of elliptic, parabolic and hyperbolic type. In particular, the methods of conformal mappings, Fourier analysis and Green`s functions are considered, as well as the perturbation method and integral transformation method, among others. Every chapter contains concrete examples with a detailed analysis of their solution.The book is intended as a textbook for students in mathematical physics, but will also serve as a handbook for scientists and engineers.

Bridge Course In Mathematical Physics- Biplab Das Gupta

When a student begins with the course of Class XI he/she is

bound to encounter difficulty at initial level of study due to huge gap in the syllabus of secondary and higher secondary stage. This book will serve as a Bridge course for all students moving from class X to class XI, who will take the course of Physics. This book can act as a Prerequisite for learning Physics in class XI and XII. Since this book has been aimed at the students to cover the essential mathematics Calculus & Vectors in quick time, the number of problems and questions has been restricted. Stress has been given to develop the fine link or connection between mathematics and physics and application of mathematical ideas in understanding Physics. This book will also be useful for those students who are preparing for NEET or similar Biological examinations but do not have mathematics at 10+2, but have Physics in their course of study.

Mathematics for Physics Michael Stone 2009-07-09

An engagingly-written account of mathematical tools and ideas, this book provides a graduate-level introduction to the mathematics used in research in physics. The first half of the book focuses on the traditional mathematical methods of physics – differential and integral equations, Fourier series and the calculus of variations. The second half contains an introduction to more advanced subjects, including differential geometry, topology and complex variables. The authors' exposition avoids excess rigor whilst explaining subtle but important points often glossed over in more elementary texts. The topics are illustrated at every stage by carefully chosen examples, exercises and problems drawn from realistic physics settings. These make it useful both as a textbook in advanced courses and for self-study. Password-protected solutions to the exercises are available to instructors at www.cambridge.org/9780521854030.

Mathematical Physics - Bruce R. Kusse 2010-01-05

What sets this volume apart

from other mathematics texts is its emphasis on mathematical tools commonly used by scientists and engineers to solve real-world problems. Using a unique approach, it covers intermediate and advanced material in a manner appropriate for undergraduate students. Based on author Bruce Kusse's course at the Department of Applied and Engineering Physics at Cornell University, Mathematical Physics begins with essentials such as vector and tensor algebra, curvilinear coordinate systems, complex variables, Fourier series, Fourier and Laplace transforms, differential and integral equations, and solutions to Laplace's equations. The book moves on to explain complex topics that often fall through the cracks in undergraduate programs, including the Dirac delta-function, multivalued complex functions using branch cuts, branch points and Riemann sheets, contravariant and covariant tensors, and an introduction to group theory. This expanded second edition contains a new appendix on the calculus of variation -- a valuable addition to the already superb collection of topics on offer. This is an ideal text for upper-level undergraduates in physics, applied physics, physical chemistry, biophysics, and all areas of engineering. It allows physics professors to prepare students for a wide range of employment in science and engineering and makes an excellent reference for scientists and engineers in industry. Worked out examples appear throughout the book and exercises follow every chapter. Solutions to the odd-numbered exercises are available for lecturers at www.wiley-vch.de/textbooks/.

A First Course in Mathematical Physics - Colm T. Whelan 2016-06-27

The book assumes next to no prior knowledge of the topic. The first part introduces the core mathematics, always in conjunction with the physical context. In the second part of the book, a series of examples showcases some of the more

conceptually advanced areas of physics, the presentation of which draws on the developments in the first part. A large number of problems helps students to hone their skills in using the presented mathematical methods. Solutions to the problems are available to instructors on an associated password-protected website for lecturers.

Mathematical Methods for Physicists - Tai L. Chow 2000-07-27

This text is designed for an intermediate-level, two-semester undergraduate course in mathematical physics. It provides an accessible account of most of the current, important mathematical tools required in physics these days. It is assumed that the reader has an adequate preparation in general physics and calculus. The book bridges the gap between an introductory physics course and more advanced courses in classical mechanics, electricity and magnetism, quantum mechanics, and thermal and statistical physics. The text contains a large number of worked examples to illustrate the mathematical techniques developed and to show their relevance to physics. The book is designed primarily for undergraduate physics majors, but could also be used by students in other subjects, such as engineering, astronomy and mathematics.

A Course in Mathematical Physics - Walter E. Thirring 1978

A Course in Mathematical Physics - Walter Thirring 2012-12-16

In this final volume I have tried to present the subject of statistical mechanics in accordance with the basic principles of the series. The effort again entailed following Gustav Mahler's maxim, "Tradition = Schlamperei" (i.e., filth) and clearing away a large portion of this tradition-laden area. The result is a book with little in common with most other books on the subject. The ordinary perturbation-theoretic calculations are not very useful

in this field. Those methods have never led to propositions of much substance. Even when perturbation series, which for the most part never converge, can be given some asymptotic meaning, it cannot be determined how close the nth order approximation comes to the exact result. Since analytic solutions of nontrivial problems are beyond human capabilities, for better or worse we must settle for sharp bounds on the quantities of interest, and can at most strive to make the degree of accuracy satisfactory.

Structure and Strategy - Edward Hiram Theil 1972

A Course in Mathematical Physics - Walter Thirring 1992

A Course in Mathematical Physics: Quantum mechanics of atoms and molecules - Walter E. Thirring 1978

Introduction to Mathematical Physics - Michael T. Vaughn 2008-09-26

A comprehensive survey of all the mathematical methods that should be available to graduate students in physics. In addition to the usual topics of analysis, such as infinite series, functions of a complex variable and some differential equations as well as linear vector spaces, this book includes a more extensive discussion of group theory than can be found in other current textbooks. The main feature of this textbook is its extensive treatment of geometrical methods as applied to physics. With its introduction of differentiable manifolds and a discussion of vectors and forms on such manifolds as part of a first-year graduate course in mathematical methods, the text allows students to grasp at an early stage the contemporary literature on dynamical systems, solitons and related topological solutions to field equations, gauge theories, gravitational theory, and even string theory. Free solutions manual available for lecturers at www.wiley-vch.de/supplements/.

Mathematical Physics - Sadri Hassani 2002-02-08

For physics students interested in the mathematics they use, and for math students interested in seeing how some of the ideas of their discipline find realization in an applied setting. The presentation strikes a balance between formalism and application, between abstract and concrete. The interconnections among the various topics are clarified both by the use of vector spaces as a central unifying theme, recurring throughout the book, and by putting ideas into their historical context. Enough of the essential formalism is included to make the presentation self-contained.

Lectures on Selected Topics in Mathematical Physics - William A. Schwalm 2015-12-31

This volume is a basic introduction to certain aspects of elliptic functions and elliptic integrals. Primarily, the elliptic functions stand out as closed solutions to a class of physical and geometrical problems giving rise to nonlinear differential equations. While these nonlinear equations may not be the types of greatest interest currently, the fact that they are solvable exactly in terms of functions about which much is known makes up for this. The elliptic functions of Jacobi, or equivalently the Weierstrass elliptic functions, inhabit the literature on current problems in condensed matter and statistical physics, on solitons and conformal representations, and all sorts of famous problems in classical mechanics. The lectures on elliptic functions have evolved as part of the first semester of a course on theoretical and mathematical methods given to first and second year graduate students in physics and chemistry at the University of North Dakota. They are for graduate students or for researchers who want an elementary introduction to the subject that nevertheless leaves them with enough of the details to address real problems. The style is supposed to be informal. The intention is to introduce the

subject as a moderate extension of ordinary trigonometry in which the reference circle is replaced by an ellipse. This entre depends upon fewer tools and has seemed less intimidating that other typical introductions to the subject that depend on some knowledge of complex variables. The first three lectures assume only calculus, including the chain rule and elementary knowledge of differential equations. In the later lectures, the complex analytic properties are introduced naturally so that a more complete study becomes possible.

A Complete Course on Theoretical Physics - Albrecht Lindner 2018-12-30
Kompakt und verständlich führt dieses Lehrbuch in die Grundlagen der theoretischen Physik ein. Dabei werden die üblichen Themen der Grundvorlesungen Mechanik, Elektrodynamik, Relativitätstheorie, Quantenmechanik , Thermodynamik und Statistik in einem Band zusammengefasst, um den Zusammenhang zwischen den einzelnen Teilgebieten besonders zu betonen. Ein Kapitel mit mathematischen Grundlagen der Physik erleichtert den Einstieg. Zahlreiche Übungsaufgaben dienen der Vertiefung des Stoffes.

A Course in Mathematical Physics 1 - Walter Thirring 2012

Density Functional Theory Eberhard K.U. Gross 2013-06-29
The first Nato Advanced Studies Institute entirely devoted to density functional theory was held in Portugal in September 1983. The proceedings of this School, publis hed in early 1985, is still used as a standard reference covering the basic development of the theory and applications in atomic, molecular, solid state and nuclear physics. Ho wever, astonishing progress has been achieved in the intervening years: The foundations of the theory have been extended to cover excited

states and time dependent problems more fully, density functional theory of classical liquids and superconducting systems has been addressed and extensions to relativistic, that is, field theoretical systems, as well as a more thorough discussion of magnetic field problems have been presented. In addition, new functionals have been devised, for instance under the heading of ge neralised gradient expansions, and the number of applications in the traditional fields has steadily increased, in particular in chemistry. Applications in new fields, as for instance the structure of atomic clusters and the marriage of density functional theory with molecular dynamics and simulated annealing, have provided additional impetus to the field of density functional theory.

Mathematical Methods For Physics - H. W. Wyld 2018-03-14

This classic book helps students learn the basics in physics by bridging the gap between mathematics and the basic fundamental laws of physics. With supplemental material such as graphs and equations, Mathematical Methods for Physics creates a strong, solid anchor of learning. The text has three parts: Part I focuses on the use of special functions in solving the homogeneous partial differential equations of physics, and emphasizes applications to topics such as electrostatics, wave guides, and resonant cavities, vibrations of membranes, heat flow, potential flow in fluids, plane and spherical waves. Part II deals with the solution of inhomogeneous differential equations with particular emphasis on problems in electromagnetism, Green's functions for Poisson's equation, the wave equation and the diffusion equation, and the solution of integral equations by iteration, eigenfunction expansion and the Fredholm series. Finally, Part II explores complex variable techniques, including evalution of itegrals, dispersion

relations, special functions in the complex plane, one-sided Fourier transforms, and Laplace transforms.

A Course in Mathematical Methods for Physicists - Russell L. Herman 2013-12-04

Based on the author's junior-level undergraduate course, this introductory textbook is designed for a course in mathematical physics. Focusing on the physics of oscillations and waves, A Course in Mathematical Methods for Physicists helps students understand the mathematical techniques needed for their future studies in physics. It takes a bottom-u

A Course in Mathematical Physics: Classical field theory - Walter Thirring 1986

Real Analysis: A Comprehensive Course in Analysis, Part 1 - Barry Simon 2015-11-02

A Comprehensive Course in Analysis by Poincaré Prize winner Barry Simon is a five-volume set that can serve as a graduate-level analysis textbook with a lot of additional bonus information, including hundreds of problems and numerous notes that extend the text and provide important historical background. Depth and breadth of exposition make this set a valuable reference source for almost all areas of classical analysis. Part 1 is devoted to real analysis. From one point of view, it presents the infinitesimal calculus of the twentieth century with the ultimate integral calculus (measure theory) and the ultimate differential calculus (distribution theory). From another, it shows the triumph of abstract spaces: topological spaces, Banach and Hilbert spaces, measure spaces, Riesz spaces, Polish spaces, locally convex spaces, Fréchet spaces, Schwartz space, and spaces. Finally it is the study of big techniques, including the Fourier series and transform, dual spaces, the Baire category, fixed point theorems, probability ideas, and Hausdorff dimension. Applications include the constructions of nowhere

differentiable functions, Brownian motion, space-filling curves, solutions of the moment problem, Haar measure, and equilibrium measures in potential theory.

Mathematical Methods for Physics and Engineering - K. F. Riley 2006-03-13

The third edition of this highly acclaimed undergraduate textbook is suitable for teaching all the mathematics for an undergraduate course in any of the physical sciences. As well as lucid descriptions of all the topics and many worked examples, it contains over 800 exercises. New stand-alone chapters give a systematic account of the 'special functions' of physical science, cover an extended range of practical applications of complex variables, and give an introduction to quantum operators. Further tabulations, of relevance in statistics and numerical integration, have been added. In this edition, half of the exercises are provided with hints and answers and, in a separate manual available to both students and their teachers, complete worked solutions. The remaining exercises have no hints, answers or worked solutions and can be used for unaided homework; full solutions are available to instructors on a password-protected web site, www.cambridge.org/9780521679718.

An Invitation to Mathematical Physics and Its History - Jont Allen 2020-09-22

This state of the art book takes an applications based approach to teaching mathematics to engineering and applied sciences students. The book lays emphasis on associating mathematical concepts with their physical counterparts, training students of engineering in mathematics to help them learn how things work. The book covers the concepts of number systems, algebra equations and calculus through discussions on mathematics and physics, discussing their intertwined history in a chronological order. The book includes examples, homework problems,

and exercises. This book can be used to teach a first course in engineering mathematics or as a refresher on basic mathematical physics. Besides serving as core textbook, this book will also appeal to undergraduate students with cross-disciplinary interests as a supplementary text or reader.

A Course in Mathematical Physics: Classical field theory - Walter E. Thirring 1978

A Course in Mathematical Physics 2 - Walter Thirring 2014-07-08

In the past decade the language and methods ofmodern differential geometry have been increasingly used in theoretical physics. What seemed extravagant when this book first appeared 12 years ago, as lecture notes, is now a commonplace. This fact has strengthened my belief that today students of theoretical physics have to learn that language-and the sooner the better. Afterall, they willbe the professors ofthe twenty-first century and it would be absurd if they were to teach then the mathematics of the nineteenth century. Thus for this new edition I did not change the mathematical language. Apart from correcting some mistakes I have only added a section on gauge theories. In the last decade it has become evident that these theories describe fundamental interactions, and on the classical level their structure is suffi cientlyclear to qualify them for the minimum amount ofknowledge required by a theoretician. It is with much regret that I had to refrain from in corporating the interesting developments in Kaluza-Klein theories and in cosmology, but I felt bound to my promise not to burden the students with theoretical speculations for which there is no experimental evidence. I am indebted to many people for suggestions concerning this volume. In particular, P. Aichelburg, H. Rumpf and H. Urbantke have contributed generously to corrections and improvements. Finally, I would like to thank Dr. 1. Dahl-Jensen for redoing some of the figures

on the computer.

Classical Dynamical Systems - Walter Thirring 2013-12-01

Classical Mathematical Physics - Walter Thirring 2003-10-17

This volume combines the enlarged and corrected editions of both volumes on classical physics of Thirring's famous course in mathematical physics. With numerous examples and remarks accompanying the text, it is suitable as a textbook for students in physics, mathematics, and applied mathematics. The treatment of classical dynamical systems uses analysis on manifolds to provide the mathematical setting for discussions of Hamiltonian systems, canonical transformations, constants of motion, and pertubation theory. Problems discussed in considerable detail include: nonrelativistic motion of particles and systems, relativistic motion in electromagnetic and gravitational fields, and the structure of black holes. The treatment of classical fields uses the language of differenial geometry throughout, treating both Maxwell's and Einstein's equations in a compact and clear fashion. The book includes discussions of the electromagnetic field due to known charge distributions and in the presence of conductors as well as a new section on gauge theories. It discusses the solutions of the Einstein equations for maximally symmetric spaces and spaces with maximally symmetric submanifolds; it concludes by applying these results to the life and death of stars.

A First Course in String Theory - Barton Zwiebach 2009-01-22

String theory made understandable. Barton Zwiebach is once again faithful to his goal of making string theory accessible to undergraduates. He presents the main concepts of string theory in a concrete and physical way to develop intuition before formalism, often through simplified and illustrative examples. Complete and thorough in its coverage, this new edition now includes

AdS/CFT correspondence and introduces superstrings. It is perfectly suited to introductory courses in string theory for students with a background in mathematics and physics. New sections cover strings on orbifolds, cosmic strings, moduli stabilization, and the string theory landscape. Now with almost 300 problems and exercises, with password-protected solutions for instructors at www.cambridge.org/zwiebach.