
A First Course In String Theory

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*A First
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**MARKS
HARDY**

Geometry of
String Theory
Compactificati

ons
Cambridge
University
Press
This book
introduces the
theory of
modular
forms, from
which all

rational
elliptic curves
arise, with an
eye toward
the Modularity
Theorem.
Discussion
covers elliptic
curves as
complex tori

and as algebraic curves; modular curves as Riemann surfaces and as algebraic curves; Hecke operators and Atkin-Lehner theory; Hecke eigenforms and their arithmetic properties; the Jacobians of modular curves and the Abelian varieties associated to Hecke eigenforms. As it presents these ideas, the book states the Modularity Theorem in various forms, relating them

to each other and touching on their applications to number theory. The authors assume no background in algebraic number theory and algebraic geometry. Exercises are included. Gravitation Penguin The universe has many secrets. It may hide additional dimensions of space other than the familiar three we recognize. There might even be another universe adjacent to

ours, invisible and unattainable . . . for now. Warped Passages is a brilliantly readable and altogether exhilarating journey that tracks the arc of discovery from early twentieth-century physics to the razor's edge of modern scientific theory. One of the world's leading theoretical physicists, Lisa Randall provides astonishing scientific possibilities that, until recently, were

restricted to the realm of science fiction. Unraveling the twisted threads of the most current debates on relativity, quantum mechanics, and gravity, she explores some of the most fundamental questions posed by Nature—taking us into the warped, hidden dimensions underpinning the universe we live in, demystifying the science of the myriad worlds that may exist just

beyond our own.
The Theory of Complex Angular Momenta
 Springer
 Nature
 A systematic introduction to string phenomenology, outlining how string theory is connected to the real world of particle physics.
The Trouble with Physics
 Cambridge University Press
 Volume 2: Superstring Theory and Beyond, begins with an introduction to supersymmetric string

theories and goes on to a broad presentation of the important advances of recent years. The book first introduces the type I, type II, and heterotic superstring theories and their interactions. It then goes on to present important recent discoveries about strongly coupled strings, beginning with a detailed treatment of D-branes and their dynamics, and covering string duality,

M-theory, and black hole entropy, and discusses many classic results in conformal field theory. The final four chapters are concerned with four-dimensional string theories, and have two goals: to show how some of the simplest string models connect with previous ideas for unifying the Standard Model; and to collect many important and beautiful general results on world-sheet and spacetime

symmetries. *A First Course in Scientific Computing* Alfred Music A concise and pedagogical introduction to string theory for graduate students featuring examples and homework problems. [A First Course In String Theory \(South Asian Edition\)](#) [2/E World Scientific](#) This book provides an accessible introduction to loop quantum gravity and some of its applications, at a level suitable for undergraduat

e students and others with only a minimal knowledge of college level physics. In particular it is not assumed that the reader is familiar with general relativity and only minimally familiar with quantum mechanics and Hamiltonian mechanics. Most chapters end with problems that elaborate on the text, and aid learning. Applications such as loop quantum cosmology, black hole

entropy and spin foams are briefly covered. The text is ideally suited for an undergraduate course in the senior year of a physics major. It can also be used to introduce undergraduates to general relativity and quantum field theory as part of a 'special topics' type of course.

Mastering Quantum Mechanics

CRC Press
Computers and computation are extremely important components

of physics and should be integral parts of a physicist's education. Furthermore, computational physics is reshaping the way calculations are made in all areas of physics. Intended for the physics and engineering students who have completed the introductory physics course, A First Course in Computational Physics, Second Edition covers the different types of

computational problems using MATLAB with exercises developed around problems of physical interest. Topics such as root finding, Newton-Cotes integration, and ordinary differential equations are included and presented in the context of physics problems. A few topics rarely seen at this level such as computerized tomography, are also included. Within each chapter, the student is led

<p>from relatively elementary problems and simple numerical approaches through derivations of more complex and sophisticated methods, often culminating in the solution to problems of significant difficulty. The goal is to demonstrate how numerical methods are used to solve the problems that physicists face. Read the review published in Computing in Science & Engineering magazine,</p>	<p>March/April 2011 (Vol. 13, No. 2) ? 2011 IEEE, Published by the IEEE Computer Society <u>Supersymmetric Gauge Field Theory and String Theory</u> Jones & Bartlett Learning String theory has played a highly influential role in theoretical physics for nearly three decades and has substantially altered our view of the elementary building principles of the Universe. However, the</p>	<p>theory remains empirically unconfirmed, and is expected to remain so for the foreseeable future. So why do string theorists have such a strong belief in their theory? This book explores this question, offering a novel insight into the nature of theory assessment itself. Dawid approaches the topic from a unique position, having extensive experience in both</p>
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philosophy and high-energy physics. He argues that string theory is just the most conspicuous example of a number of theories in high-energy physics where non-empirical theory assessment has an important part to play. Aimed at physicists and philosophers of science, the book does not use mathematical formalism and explains most technical terms.

A First

Course in String Theory 2ed
 Springer Science & Business Media
 This book offers a detailed guide on the journey towards the minimal supersymmetric standard model down the orbifold road. It takes the viewpoint that the chirality of matter fermions is an essential aspect that orbifold compactification allows to derive from higher-dimensional string theories

in a straightforward manner. Halfway between textbook and tutorial review, the book is intended for the graduate student and particle phenomenologist wishing to get acquainted with this field. *String Field Theory*
 Springer
 Cosmology in Gauge Field Theory and String Theory focuses on the cosmological implications of the gauge theories of particle physics and of

string theory. The book first examines the universe's series of phase transitions in which the successive gauge symmetries of the higher-temperature phase were spontaneously broken after the big bang, discussing relics of these phase transitions, more generic relics (baryons, neutrinos, axions), and supersymmetric particles (neutralinos and gravitinos). The author

next studies supersymmetric theory, supergravity theory, and the constraints on the underlying field theory of the universe's inflationary era. The book concludes with a discussion of black hole solutions of the supergravity theory that approximates string theory at low energies and the insight that string theory affords into the microscopic origin of the Bekenstein-Hawking

entropy. Cosmology in Gauge Field Theory and String Theory provides a modern introduction to these important problems from a particle physicist's perspective. It is intended as an introductory textbook for a first course on the subject at a graduate level.

A Brief History of String Theory CRC

Press
Introduces the superstring theory that attempts to unite general

relativity and quantum mechanics

A First Course in String Theory

Cambridge University Press

Spacetime physics -- Physics in flat spacetime -- The mathematics of curved spacetime -- Einstein's geometric theory of gravity -- Relativistic stars -- The universe -- Gravitational collapse and black holes -- Gravitational waves -- Experimental tests of

general relativity -- *Frontiers Superstring Theory* Princeton University Press

String theory is one of the most exciting and challenging areas of modern theoretical physics. This book guides the reader from the basics of string theory to recent developments. It introduces the basics of perturbative string theory, world-sheet supersymmetry, space-time supersymmetry, conformal field theory and the heterotic string, before describing modern developments, including D-branes, string dualities and M-theory. It then covers string geometry and flux compactifications, applications to cosmology and particle physics, black holes in string theory and M-theory, and the microscopic origin of black-hole entropy. It concludes with Matrix

theory, the AdS/CFT duality and its generalizations. This book is ideal for graduate students and researchers in modern string theory, and will make an excellent textbook for a one-year course on string theory. It contains over 120 exercises with solutions, and over 200 homework problems with solutions available on a password protected website for lecturers at www.cambridge.org/978052

1860697.
Enumerative Geometry and String Theory
 Cambridge University Press
 A concise introduction to string theory explaining central concepts, mathematical tools and recent developments in the field of physics. Covering fundamental concepts including how strings interact with each other, this book is perfect for students with no prior knowledge as

well as scholars from other disciplines. [Quantum Fields and Strings](#)
 Springer Science & Business Media
 This is a textbook that derives the fundamental theories of physics from symmetry. It starts by introducing, in a completely self-contained way, all mathematical tools needed to use symmetry ideas in physics. Thereafter, these tools are put into

action and by using symmetry constraints, the fundamental equations of Quantum Mechanics, Quantum Field Theory, Electromagnetism, and Classical Mechanics are derived. As a result, the reader is able to understand the basic assumptions behind, and the connections between the modern theories of physics. The book concludes with first applications of

the previously derived equations. Thanks to the input of readers from around the world, this second edition has been purged of typographical errors and also contains several revised sections with improved explanations. String Theory and the Scientific Method Cambridge University Press We are all agreed that your theory is crazy. The question which divides

us is whether it is crazy enough. Niels Bohr Superstring theory has emerged as the most promising candidate for a quantum theory of all known interactions. Superstrings apparently solve a problem that has defied solution for the past 50 years, namely the unification of the two great fundamental physical theories of the century, quantum field theory and general

relativity. Superstring theory introduces an entirely new physical picture into theoretical physics and a new mathematics that has startled even the mathematicians. Ironically, although superstring theory is supposed to provide a unified field theory of the universe, the theory itself often seems like a confused jumble of folklore, random rules of thumb, and

intuition. This is because the development of superstring theory has been unlike that of any other theory, such as general relativity, which began with a geometry and an action and later evolved into a quantum theory. Superstring theory, by contrast, has been evolving backward for the past 20 years. It has a bizarre history, beginning with the purely accidental discovery of

the quantum theory in 1968 by G. Veneziano and M. Suzuki. Thumbing through old math books, they stumbled by chance on the Beta function, written down in the last century by mathematician Leonhard Euler.

A Primer on String Theory

Houghton Mifflin Harcourt
A unified perspective on new and advanced mathematical techniques used in string theory

research for graduate students and researchers.

String Theory: Volume 2, Superstring Theory and Beyond

American Mathematical Soc.

The essential introduction to modern string theory—now fully expanded and revised *String Theory in a Nutshell* is the definitive introduction to modern string theory.

Written by one of the world's leading authorities on the subject, this concise and accessible

book starts with basic definitions and guides readers from classic topics to the most exciting frontiers of research today. It covers perturbative string theory, the unity of string interactions, black holes and their microscopic entropy, the AdS/CFT correspondence and its applications, matrix model tools for string theory, and more. It also includes 600 exercises and serves as a

self-contained guide to the literature. This fully updated edition features an entirely new chapter on flux compactifications in string theory, and the chapter on AdS/CFT has been substantially expanded by adding many applications to diverse topics. In addition, the discussion of conformal field theory has been extensively revised to make it more student-friendly. The essential one-volume

reference for students and researchers in theoretical high-energy physics. Now fully expanded and revised. Provides expanded coverage of AdS/CFT and its applications, namely the holographic renormalization group, holographic theories for Yang-Mills and QCD, nonequilibrium thermal physics, finite density physics, and entanglement entropy. Ideal for mathematicians and

physicists specializing in theoretical cosmology, QCD, and novel approaches to condensed matter systems. An online illustration package is available to professors. [A First Course in Modular Forms](#) MIT Press. The twenty-fifth anniversary edition featuring a new Preface, invaluable for graduate students and researchers in high energy physics and astrophysics.

A First Course in String Theory CRC Press. 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.