A Most Incomprehensible Thing Notes Towards Very Gentle Introduction To The Mathematics Of Relativity Peter Collier

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A Most Incomprehensible Thing - Peter Collier 2017-04-01
A straightforward, enjoyable guide to the mathematics of Einstein's relativity To really understand Einstein's theory of relativity – one of the cornerstones of modern physics – you have to get to grips with the underlying mathematics. This self-study guide is aimed at the general reader who is motivated to tackle that not insignificant challenge. With a user-friendly style, clear step-by-step mathematical derivations, many fully solved problems and numerous diagrams, this book provides a comprehensive introduction to a fascinating but complex subject. For those with minimal mathematical background, the first chapter gives a crash course in foundation mathematics. The reader is then taken gently by the hand and guided through a wide range of fundamental topics, including Newtonian mechanics; the Lorentz transformations; tensor calculus; the Einstein field equations; the Schwarzschild solution (which gives a good approximation of the spacetime of our Solar System); simple black holes, relativistic cosmology and gravitational waves. Special relativity helps explain a huge range of non-gravitational physical phenomena and has some strangely counter-intuitive consequences. These include time dilation, length contraction, the relativity of simultaneity, mass-energy equivalence and an absolute speed limit. General relativity, the leading theory of gravity, is at the heart of our understanding of cosmology and black holes. "I must observe that the theory of relativity resembles a building consisting of two separate stories, the special theory and the general theory. The special theory, on which the general theory rests, applies to all physical phenomena with the exception of gravitation; the general theory provides the law of gravitation and its relations tothe other forces of nature." – Albert Einstein, 1919 Understand even the basics of Einstein's amazing theory and the world will never seem the same again. Contents: Preface Introduction 1 Foundation mathematics 2 Newtonian mechanics 3 Special relativity 4 Introducing the manifold 5 Scalars, vectors, one-forms and tensors 6 More on curvature 7 General relativity 8 The Newtonian limit 9 The Schwarzschild metric 10 Schwarzschild black holes 11 Cosmology 12 Gravitational waves Appendix: The Riemann curvature tensor Bibliography Acknowledgements January 2019. This third edition has been revised to make the material even more accessible to the enthusiastic general reader who seeks to understand the mathematics of relativity.

In Bluebeard's Castle - George Steiner 1971-01-01
The author presents a penetrating analysis of the collapse of Western culture during the last half of the twentieth century

Mathematics for Physicists - Alexander Altland 2019-02-14
This textbook is a comprehensive introduction to the key disciplines of mathematics - linear algebra, calculus, and geometry - needed in the undergraduate physics curriculum. Its leitmotiv is that success in learning these subjects depends on a good balance between theory and practice. Reflecting this belief, mathematical foundations are explained in pedagogical depth, and computational methods are introduced from a physicist's perspective and in a timely manner. This original approach presents concepts and methods as inseparable entities, facilitating in-depth understanding and making even advanced mathematics tangible. The book guides the reader from high-school level to advanced subjects such as tensor algebra, complex functions, and differential geometry. It contains numerous worked examples, info sections providing context, biographical boxes, several detailed case studies, over 300 problems, and fully worked solutions for all odd-numbered problems. An online solutions manual for all even-numbered problems will be made available to instructors.

Why the Universe Is the Way It Is (Reasons to Believe) - Hugh Ross 2010-06-01
Increasingly astronomers recognize that if the cosmos had not unfolded exactly as it did, humanity would not, could not, exist. Yet these researchers--along with countless ordinary folks--resist belief in the biblical Creator. Why? They say a loving God would have made a better home for us, one without trouble and tragedy. In Why the Universe Is the Way It Is, Hugh Ross draws from his depth of study in both science and Scripture to explain how the universe's design fulfills several distinct purposes. He also reveals God's surpassing love and ultimate purposes for each individual. Why the Universe Is the Way It Is will interest anyone who wonders where and how the universe came to be, what or who is responsible for it, why we are here, or how and when the universe ends. Far from leaving the reader at this philosophical jumping-off point, Ross builds toward answering the big question of human destiny and the specific question of each reader's personal destiny.

The Things They Carried - Tim O'Brien 2009-10-13
A classic work of American literature that has not stopped changing minds and lives since it burst onto the literary scene, The Things They Carried is a ground-breaking meditation on war, memory, imagination, and the redemptive power of storytelling. The Things They Carried depicts the men of Alpha Company: Jimmy Cross, Henry Dobbins, Rat Kiley, Mitchell Sanders, Norman Bowker, Kiowa, and the character Tim O'Brien, who has survived his tour in Vietnam to become a father and writer at the age of forty-three. Taught everywhere—from high school classrooms to graduate seminars in creative writing—it has become required reading for any American and continues to challenge readers in their perceptions of fact and fiction, war and peace, courage and fear and longing. The Things They Carried won France's prestigious Prix du Meilleur Livre Etranger and the Chicago Tribune Heartland Prize; it was also a finalist for the Pulitzer Prize and the National Book Critics Circle Award.

Introduction to Representation Theory - Pavel I. Etingof 2011
Very roughly speaking, representation theory studies symmetry in linear spaces. It is a beautiful mathematical subject which has many applications, ranging from number theory and combinatorics to geometry, probability theory, quantum mechanics, and quantum field theory. The goal of this book is to give a ``holistic'' introduction to representation theory, presenting it as a unified subject which studies representations of associative algebras and treating the representation theories of groups, Lie algebras, and quivers as special cases. Using this approach, the book covers a number of standard topics

in the representation theories of these structures. Theoretical material in the book is supplemented by many problems and exercises which touch upon a lot of additional topics; the more difficult exercises are provided with hints. The book is designed as a textbook for advanced undergraduate and beginning graduate students. It should be accessible to students with a strong background in linear algebra and a basic knowledge of abstract algebra.

A Student's Manual for A First Course in General Relativity - Robert B. Scott 2016

This comprehensive student manual has been designed to accompany the leading textbook by Bernard Schutz, A First Course in General Relativity, and uses detailed solutions, cross-referenced to several introductory and more advanced textbooks, to enable self-learners, undergraduates and postgraduates to master general relativity through problem solving. The perfect accompaniment to Schutz's textbook, this manual guides the reader step-by-step through over 200 exercises, with clear easy-to-follow derivations. It provides detailed solutions to almost half of Schutz's exercises, and includes 125 brand new supplementary problems that address the subtle points of each chapter. It includes a comprehensive index and collects useful mathematical results, such as transformation matrices and Christoffel symbols for commonly studied spacetimes, in an appendix. Supported by an online table categorising exercises, a Maple worksheet and an instructors' manual, this text provides an invaluable resource for all students and instructors using Schutz's textbook.

Human, All Too Human - Friedrich Wilhelm Nietzsche 1915

The Shape of Space - Jeffrey R. Weeks 2001-12-12

Maintaining the standard of excellence set by the previous edition, this textbook covers the basic geometry of two- and three-dimensional spaces Written by a master expositor, leading researcher in the field, and MacArthur Fellow, it includes experiments to determine the true shape of the universe and contains illustrated examples and engaging exercises that teach mind-expanding ideas in an intuitive and informal way. Bridging the gap from geometry to the latest work in observational cosmology, the book illustrates the connection between geometry and the behavior of the physical universe and explains how radiation remaining from the big bang may reveal the actual shape of the universe.

The Road to Reality - Roger Penrose 2021-06-09

WINNER OF THE 2020 NOBEL PRIZE IN PHYSICS The Road to Reality is the most important and ambitious work of science for a generation. It provides nothing less than a comprehensive account of the physical universe and the essentials of its underlying mathematical theory. It assumes no particular specialist knowledge on the part of the reader, so that, for example, the early chapters give us the vital mathematical background to the physical theories explored later in the book. Roger Penrose's purpose is to describe as clearly as possible our present understanding of the universe and to convey a feeling for its deep beauty and philosophical implications, as well as its intricate logical interconnections. The Road to Reality is rarely less than challenging, but the book is leavened by vivid descriptive passages, as well as hundreds of hand-drawn diagrams. In a single work of colossal scope one of the world's greatest scientists has given us a complete and unrivalled guide to the glories of the universe that we all inhabit. 'Roger Penrose is the most important physicist to work in relativity theory except for Einstein. He is one of the very few people I've met in my life who, without reservation, I call a genius' Lee Smolin

Factfulness - Hans Rosling 2018-04-03

INSTANT NEW YORK TIMES BESTSELLER “One of the most important books I’ve ever read—an indispensable guide to thinking clearly about the world.” – Bill Gates “Hans Rosling tells the story of ‘the secret silent miracle of human progress’ as only he can. But Factfulness does much more than that. It also explains why progress is so often secret and silent and teaches readers how to see it clearly.” —Melinda Gates "Factfulness by Hans Rosling, an outstanding international public health expert, is a hopeful book about the potential for human progress when we work off facts rather than our inherent biases." - Former U.S. President Barack Obama Factfulness: The stress-reducing habit of only carrying opinions for which you have strong supporting facts. When asked simple questions about global trends—what percentage of the world’s population live in poverty; why the world’s population is increasing; how many girls finish school—we systematically get the answers wrong. So wrong that a chimpanzee choosing answers at random will consistently outguess teachers, journalists, Nobel laureates, and investment bankers. In Factfulness, Professor of International Health and global TED phenomenon Hans Rosling, together with his two long-time collaborators, Anna and Ola, offers a radical new explanation of why this happens. They reveal the ten instincts that distort our perspective—from our tendency to divide the world into two camps (usually some version of us and them) to the way we consume media (where fear rules) to how we perceive progress (believing that most things are getting worse). Our problem is that we don’t know what we don’t know, and even our guesses are informed by unconscious and predictable biases. It turns out that the world, for all its imperfections, is in a much better state than we might think. That doesn’t mean there aren’t real concerns. But when we worry about everything all the time instead of embracing a worldview based on facts, we can lose our ability to focus on the things that threaten us most. Inspiring and revelatory, filled with lively anecdotes and moving stories, Factfulness is an urgent and essential book that will change the way you see the world and empower you to respond to the crises and opportunities of the future. --- “This book is my last battle in my life-long mission to fight devastating ignorance...Previously I armed myself with huge data sets, eye-opening software, an energetic learning style and a Swedish bayonet for sword-swallowing. It wasn’t enough. But I hope this book will be.” Hans Rosling, February 2017.

Notes on Fermat's Last Theorem - A. J. Van Der Poorten 1996-02-16

Around 1637, the French jurist Pierre de Fermat scribbled in the margin of his copy of the book Arithmetica what came to be known as Fermat's Last Theorem, the most famous question in mathematical history. Stating that it is impossible to split a cube into two cubes, or a fourth power into two fourth powers, or any higher power into two like powers, but not leaving behind the marvelous proof he claimed to have had, Fermat prompted three and a half centuries of mathematical inquiry which culminated only recently with the proof of the theorem by Andrew Wiles. This book offers the first serious treatment of Fermat's Last Theorem since Wiles's proof. It is based on a series of lectures given by the author to celebrate Wiles's achievement, with each chapter explaining a separate area of number theory as it pertains to Fermat's Last Theorem. Together, they provide a concise history of the theorem as well as a brief discussion of Wiles's proof and its implications. Requiring little more than one year of university mathematics and some interest in formulas, this overview provides many useful tips and cites numerous references for those who desire more mathematical detail. The book's most distinctive feature is its easy-to-read, humorous style, complete with examples, anecdotes, and some of the lesser-known mathematics underlying the newly discovered proof. In the author's own words, the book deals with "serious mathematics without being too serious about it." Alf van der Poorten demystifies mathematical research, offers an intuitive approach to the subject-loosely suggesting various definitions and unexplained facts-and invites the reader to fill in the missing links in some of the mathematical claims. Entertaining, controversial, even outrageous, this book not only tells us why, in all likelihood, Fermat did not have the proof for his last theorem, it also takes us through historical attempts to crack the theorem, the prizes that were offered along the way, and the consequent motivation for the development of other areas of mathematics. Notes on Fermat's Last Theorem is invaluable for students of mathematics, and of real interest to those in the physical sciences, engineering, and computer sciences-indeed for anyone who craves a glimpse at this fascinating piece of mathematical history. An exciting introduction to modern number theory as reflected by the history of Fermat's Last Theorem This book displays the unique talents of author Alf van der Poorten in mathematical exposition for mathematicians. Here, mathematics' most famous question and the ideas underlying its recent solution are presented in a way that appeals to the imagination and leads the reader through related areas of number theory. The first book to focus on Fermat's Last Theorem since Andrew Wiles presented his celebrated proof, Notes on Fermat's Last

Theorem surveys 350 years of mathematical history in an amusing and intriguing collection of tidbits, anecdotes, footnotes, exercises, references, illustrations, and more. Proving that mathematics can make for lively reading as well as intriguing thought, this thoroughly accessible treatment Helps students and professionals develop a background in number theory and provides introductions to the various fields of theory that are touched upon * Offers insight into the exciting world of mathematical research * Covers a number of areas appropriate for classroom use * Assumes only one year of university mathematics background even for the more advanced topics * Explains why Fermat surely did not have the proof to his theorem * Examines the efforts of mathematicians over the centuries to solve the problem * Shows how the pursuit of the theorem contributed to the greater development of mathematics

Night - Elie Wiesel 2013-09-10

A New Translation From The French By Marion Wiesel Born in Sighet, Transylvania, Elie Wiesel was a teenager when he and his family were taken from their home in 1944 and deported to the Auschwitz concentration camp, and then to Buchenwald. Night is the terrifying record of Elie Wiesel's memories of the death of his family, the death of his own innocence, and his despair as a deeply observant Jew confronting the absolute evil of man. This new translation by his wife and most frequent translator, Marion Wiesel, corrects important details and presents the most accurate rendering in English of Elie Wiesel's seminal work.

The Underground Railroad - Colson Whitehead 2018-01-30

Winner of the Pulitzer Prize and the National Book Award, this #1 New York Times bestseller chronicles a young slave's adventures as she makes a desperate bid for freedom in the antebellum South. The basis for the acclaimed original Amazon Prime Video series directed by Barry Jenkins. Cora is a slave on a cotton plantation in Georgia. An outcast even among her fellow Africans, she is on the cusp of womanhood—where greater pain awaits. And so when Caesar, a slave who has recently arrived from Virginia, urges her to join him on the Underground Railroad, she seizes the opportunity and escapes with him. In Colson Whitehead's ingenious conception, the Underground Railroad is no mere metaphor: engineers and conductors operate a secret network of actual tracks and tunnels beneath the Southern soil. Cora embarks on a harrowing flight from one state to the next, encountering, like Gulliver, strange yet familiar iterations of her own world at each stop. As Whitehead brilliantly re-creates the terrors of the antebellum era, he weaves in the saga of our nation, from the brutal abduction of Africans to the unfulfilled promises of the present day. The Underground Railroad is both the gripping tale of one woman's will to escape the horrors of bondage—and a powerful meditation on the history we all share. Look for Colson Whitehead’s bestselling new novel, Harlem Shuffle!

The Death of Truth - Michiko Kakutani 2019-08-13

NEW YORK TIMES BESTSELLER • From the Pulitzer Prize–winning critic comes an impassioned critique of America’s retreat from reason We live in a time when the very idea of objective truth is mocked and discounted by the occupants of the White House. Discredited conspiracy theories and ideologies have resurfaced, proven science is once more up for debate, and Russian propaganda floods our screens. The wisdom of the crowd has usurped research and expertise, and we are each left clinging to the beliefs that best confirm our biases. How did truth become an endangered species in contemporary America? This decline began decades ago, and in The Death of Truth, former New York Times critic Michiko Kakutani takes a penetrating look at the cultural forces that contributed to this gathering storm. In social media and literature, television, academia, and politics, Kakutani identifies the trends—originating on both the right and the left—that have combined to elevate subjectivity over factuality, science, and common values. And she returns us to the words of the great critics of authoritarianism, writers like George Orwell and Hannah Arendt, whose work is newly and eerily relevant. With remarkable erudition and insight, Kakutani offers a provocative diagnosis of our current condition and points toward a new path for our truth-challenged times.

In the Land of Good Living - Kent Russell 2021-05-11

A wickedly smart, funny, and irresistibly off-kilter account of an improbable thousand-mile journey on foot into the heart of modern Florida, the state that Russell calls "America Concentrate." In the summer of 2016, Kent Russell--broke, at loose ends, hungry for adventure--set off to walk across Florida. Mythic, superficial, soaked in contradictions, maligned by cultural elites, segregated from the South, and literally vanishing into the sea, Florida (or, as he calls it: "America Concentrate") seemed to Russell to embody America's divided soul. The journey, with two friends intent on filming the ensuing mayhem, quickly reduces the trio to filthy drifters pushing a shopping cart of camera equipment. They get waylaid by a concerned citizen bearing a rifle; buy cocaine from an ex-wrestler; visit a spiritual medium. The narrative overflows with historical detail about how modern Florida came into being after World War II, and how it came to be a petri dish for life in a suddenly, increasingly diverse new land of minority-majority cities and of unrivaled ethnic and religious variety. Russell has taken it all in with his incomparably focused lens and delivered a book that is both an inspired travelogue and a profound rumination on the nation's soul--and his own. It is a book that is wildly vivid, encyclopedic, erudite, and ferociously irreverent--a deeply ambivalent love letter to his sprawling, brazenly varied home state.

The Library of Babel - Jorge Luis Borges 2000

"Not many living artists would be sufficiently brave or inspired to attempt reflecting in art what Borges constructs in words. But the detailed, evocative etchings by Erik Desmazieres provide a perfect counterpoint to the visionary prose. Like Borges, Desmazieres has created his own universe, his own definition of the meaning, topography and geography of the Library of Babel. Printed together, with the etchings reproduced in fine-line duotone, text and art unite to present an artist's book that belongs in the circle of Borges's sacrosanct Crimson Hexagon - "books smaller than natural books, books omnipotent, illustrated, and magical.""--BOOK JACKET.Title Summary field provided by Blackwell North America, Inc. All Rights Reserved

Mathematical Theory of Special and General Relativity - Ashok N. Katti 2016-03-14

See the back of the book's cover for a description.

Design for How People Think - John Whalen Ph.D. 2019-04-05

User experience doesn’t happen on a screen; it happens in the mind, and the experience is multidimensional and multisensory. This practical book will help you uncover critical insights about how your customers think so you can create products or services with an exceptional experience. Corporate leaders, marketers, product owners, and designers will learn how cognitive processes from different brain regions form what we perceive as a singular experience. Author John Whalen shows you how anyone on your team can conduct "contextual interviews" to unlock insights. You’ll then learn how to apply that knowledge to design brilliant experiences for your customers. Learn about the "six minds" of user experience and how each contributes to the perception of a singular experience Find out how your team—without any specialized training in psychology—can uncover critical insights about your customers’ conscious and unconscious processes Learn how to immediately apply what you’ve learned to improve your products and services Explore practical examples of how the Fortune 100 used this system to build highly successful experiences

Flat and Curved Space-times - George Francis Rayner Ellis 2000

The present book explains special relativity and the basics of general relativity from a geometric viewpoint. Space-time geometry is emphasized throughout, and provides the basis of understanding of the special relativity effects of time dilation, length contraction, and the relativity of simultaneity. Bondi's K-calculus is introduced as a simple means of calculating the magnitudes of these effects, and leads to a derivation of the Lorentz transformation as a way of unifying these results. The invariant interval of flat space-time is generalised to that of curved space-times, and leads to an understanding of the basic properties of simple cosmological models and of the collapse of a star to form a black hole. The appendices enable the advanced student to master the application of four-tensors to the relativistic study of energy and momentum, and of electromagnetism. In addition, this new edition contains up-to-date information on black holes, gravitational collapse, and cosmology.

Notes from the Night - Taylor Plimpton 2011-07-05

Here in New York, a good night never ends. We will not let it. Though the hour is late, we are more awake than we have ever been in our lives, we are wild-eyed and grinning and dancing around like fools, and the music is thumping and the lights are flashing and the whole place is pulsating like a massive beating heart, and we do not want to go home, we do not want to go to sleep. Above all, we do not want to miss anything. So begins Notes from the Night, Taylor Plimpton's account of a night out in New York City. Passionately engaged and endlessly curious, Plimpton is part participant, part observer, a student and uniquely apt chronicler of human behavior--particularly at its most absurd. Accompanied by his best friend Zoo and a tight-knit band of other mischief-makers, and fueled by drinks, drugs and big dreams, Plimpton journeys from one Manhattan hotspot to the next with boundless energy and an eye for the dark, often comic realities of club culture. Exploring the myriad pleasures, mysteries and pitfalls of that elusive world, Notes from the Night is guide to a place — and a state of mind — that has never been mapped. With savvy advice and point-on commentary, the book ushers the reader through the velvet ropes to experience New York's most exclusive nightclubs. Surrounded by celebrities, models, and the best of friends, the reader will feel the rush of the party , the wonderful, heart-thumping panic of approaching a beautiful woman and the often forgotten joy of simply having a good time. By relentlessly pursuing the truth of his own experience, Plimpton uncovers the sexy, and seamy, lining of the city that never sleeps, and in so doing exposes what at heart is sought by all those who leave their home well after dark -- the singular thrill of being young and free and full of desire in a world where anything can happen. Plimpton is both an unlikely clubber and a likely seeker--a little bumbling and somewhat aloof, often naïve and unusually erudite. He's an insider who remembers what it was like to be an outsider, and from this unique perspective he invites you to experience the splendor, sorrow and possibility of New York after hours. Lyrically written and vividly described, this brisk, surprising and confident debut will stay with you long after the sun has risen. From the Hardcover edition.

A Student's Guide to Vectors and Tensors - Daniel A. Fleisch 2011-09-22

Vectors and tensors are among the most powerful problem-solving tools available, with applications ranging from mechanics and electromagnetics to general relativity. Understanding the nature and application of vectors and tensors is critically important to students of physics and engineering. Adopting the same approach used in his highly popular A Student's Guide to Maxwell's Equations, Fleisch explains vectors and tensors in plain language. Written for undergraduate and beginning graduate students, the book provides a thorough grounding in vectors and vector calculus before transitioning through contra and covariant components to tensors and their applications. Matrices and their algebra are reviewed on the book's supporting website, which also features interactive solutions to every problem in the text where students can work through a series of hints or choose to see the entire solution at once. Audio podcasts give students the opportunity to hear important concepts in the book explained by the author.

Problems and Solutions in Differential Geometry, Lie Series, Differential Forms, Relativity and Applications - Willi-Hans Steeb 2017-10-20

This volume presents a collection of problems and solutions in differential geometry with applications. Both introductory and advanced topics are introduced in an easy-to-digest manner, with the materials of the volume being self-contained. In particular, curves, surfaces, Riemannian and pseudo-Riemannian manifolds, Hodge duality operator, vector fields and Lie series, differential forms, matrix-valued differential forms, Maurer–Cartan form, and the Lie derivative are covered. Readers will find useful applications to special and general relativity, Yang–Mills theory, hydrodynamics and field theory. Besides the solved problems, each chapter contains stimulating supplementary problems and software implementations are also included. The volume will not only benefit students in mathematics, applied mathematics and theoretical physics, but also researchers in the field of differential geometry. Request Inspection Copy

Six Quantum Pieces - Valerio Scarani 2010

Quantum physics is known to be challenging for two reasons: it describes counter-intuitive phenomena and employs rather advanced mathematics. This title presents a fresh approach to quantum physics, the core of modern physics.

Pluses and Minuses - Stefan Buijsman 2020-08-25

A guide to changing how you think about numbers and mathematics, from the prodigy changing the way the world thinks about math. We all know math is important: we live in the age of big data, our lives are increasingly governed by algorithms, and we're constantly faced with a barrage of statistics about everything from politics to our health. But what might be less obvious is how math factors into your daily life, and what memorizing all of those formulae in school had to do with it. Math prodigy Stefan Buijsman is beginning to change that through his pioneering research into the way we learn math. Plusses and Minuses is based in the countless ways that math is engrained in our daily lives, and shows readers how math can actually be used to make problems easier to solve. Taking readers on a journey around the world to visit societies that have developed without the use of math, and back into history to learn how and why various disciples of mathematics were invented, Buijsman shows the vital importance of math, and how a better understanding of mathematics will give us a better understanding of the world as a whole. Stefan Buijsman has become one of the most sought-after experts in math education after he completed his PhD at age 20. In Plusses and Minuses, he puts his research into practice to help anyone gain a better grasp of mathematics than they have ever had.

The Principles of Quantum Mechanics - P. A. M. Dirac 2019-12-01

"The standard work in the fundamental principles of quantum mechanics, indispensable both to the advanced student and to the mature research worker, who will always find it a fresh source of knowledge and stimulation." --Nature "This is the classic text on quantum mechanics. No graduate student of quantum theory should leave it unread"--W.C Schieve, University of Texas

Quantum Computation and Quantum Information - Michael A. Nielsen 2010-12-09

One of the most cited books in physics of all time, Quantum Computation and Quantum Information remains the best textbook in this exciting field of science. This 10th anniversary edition includes an introduction from the authors setting the work in context. This comprehensive textbook describes such remarkable effects as fast quantum algorithms, quantum teleportation, quantum cryptography and quantum error-correction. Quantum mechanics and computer science are introduced before moving on to describe what a quantum computer is, how it can be used to solve problems faster than 'classical' computers and its real-world implementation. It concludes with an in-depth treatment of quantum information. Containing a wealth of figures and exercises, this well-known textbook is ideal for courses on the subject, and will interest beginning graduate students and researchers in physics, computer science, mathematics, and electrical engineering.

The Theoretical Minimum - Leonard Susskind 2014-04-22

A master teacher presents the ultimate introduction to classical mechanics for people who are serious about learning physics "Beautifully clear explanations of famously 'difficult' things," -- Wall Street Journal If you ever regretted not taking physics in college -- or simply want to know how to think like a physicist -- this is the book for you. In this bestselling introduction to classical mechanics, physicist Leonard Susskind and hacker-scientist George Hrabovsky offer a first course in physics and associated math for the ardent amateur. Challenging, lucid, and concise, The Theoretical Minimum provides a tool kit for amateur scientists to learn physics at their own pace.

Classical Mechanics - Tom W B Kibble 2004-06-03

This is the fifth edition of a well-established textbook. It is intended to provide a thorough coverage of the fundamental principles and techniques of classical mechanics, an old subject that is at the base of all of physics, but in which there has also in recent years been rapid development. The book is aimed at undergraduate students of physics and applied mathematics. It emphasizes the basic principles, and aims to progress rapidly to the point of being able to handle physically and mathematically interesting problems, without getting bogged down in excessive formalism. Lagrangian methods are introduced at a

relatively early stage, to get students to appreciate their use in simple contexts. Later chapters use Lagrangian and Hamiltonian methods extensively, but in a way that aims to be accessible to undergraduates, while including modern developments at the appropriate level of detail. The subject has been developed considerably recently while retaining a truly central role for all students of physics and applied mathematics. This edition retains all the main features of the fourth edition, including the two chapters on geometry of dynamical systems and on order and chaos, and the new appendices on conics and on dynamical systems near a critical point. The material has been somewhat expanded, in particular to contrast continuous and discrete behaviours. A further appendix has been added on routes to chaos (period-doubling) and related discrete maps. The new edition has also been revised to give more emphasis to specific examples worked out in detail. Classical Mechanics is written for undergraduate students of physics or applied mathematics. It assumes some basic prior knowledge of the fundamental concepts and reasonable familiarity with elementary differential and integral calculus. Contents: Linear MotionEnergy and Angular MomentumCentral Conservative ForcesRotating FramesPotential TheoryThe Two-Body ProblemMany-Body SystemsRigid BodiesLagrangian MechanicsSmall Oscillations and Normal ModesHamiltonian MechanicsDynamical Systems and Their GeometryOrder and Chaos in Hamiltonian SystemsAppendices:VectorsConicsPhase Plane Analysis Near Critical PointsDiscrete Dynamical Systems — Maps Readership: Undergraduates in physics and applied mathematics.

Relativity, Gravitation and Cosmology - Ta-Pei Cheng 2010

An introduction to Einstein's general theory of relativity, this work is structured so that interesting applications, such as gravitational lensing, black holes and cosmology, can be presented without the readers having to first learn the difficult mathematics of tensor calculus.

Fahrenheit 451 - Ray Bradbury 2003-09-23

Set in the future when "firemen" burn books forbidden by the totalitarian "brave new world" regime.

TENSORS made easy with SOLVED PROBLEMS - Giancarlo Bernacchi 2015-06

-- New MARCH 2021 REVISED RELEASE -- A friendly and non-formal approach to a subject of abstract mathematics that has important applications in physics, especially in General Relativity, but also in other fields. The purpose of the book is mainly didactic and requires some mathematical background (differential calculus, partial derivatives included).

Incomprehensible! - Wendy Wagner 2019-06-30

The legal system is awash with excessive and incomprehensible information. Yet many of us assume that the unrelenting torrent of information pouring into various legal programs is both inevitable and unstoppable. We have become complacent; but it does not have to be this way. Incomprehensible! argues that surrendering to incomprehensibility is a bad mistake. Drawing together evidence from diverse fields such as consumer protection, financial regulation, patents, chemical control, and administrative and legislative processes, this book identifies a number of important legal programs that are built on the foundational assumption that 'more information is better'. Each of these legal processes have been designed in ways that ignore the imperative of meaningful communication. To rectify this systemic problem, the law must be re-designed to pay careful attention to the problem of incomprehensibility.

Introduction to the Quantum Theory - David Park 1974

The Giver - Lois Lowry 2014

Living in a "perfect" world without social ills, a boy approaches the time when he will receive a life assignment from the Elders, but his selection leads him to a mysterious man known as the Giver, who reveals the dark secrets behind the utopian facade.

- Simon Singh 2005-11-01

A half century ago, a shocking Washington Post headline claimed that the world began in five cataclysmic minutes rather than having existed for all time; a skeptical scientist dubbed the maverick theory the Big Bang. In this amazingly comprehensible history of the universe, Simon Singh decodes the mystery behind the Big Bang theory, lading us through the development of one of the most extraordinary, important, and awe-inspiring theories in science.

The Curious Incident of the Dog in the Night-Time - Mark Haddon 2009-02-24

A bestselling modern classic—both poignant and funny—narrated by a fifteen year old autistic savant obsessed with Sherlock Holmes, this dazzling novel weaves together an old-fashioned mystery, a contemporary coming-of-age story, and a fascinating excursion into a mind incapable of processing emotions. Christopher John Francis Boone knows all the countries of the world and their capitals and every prime number up to 7,057. Although gifted with a superbly logical brain, Christopher is autistic. Everyday interactions and admonishments have little meaning for him. At fifteen, Christopher's carefully constructed world falls apart when he finds his neighbour's dog Wellington impaled on a garden fork, and he is initially blamed for the killing. Christopher decides that he will track down the real killer, and turns to his favourite fictional character, the impeccably logical Sherlock Holmes, for inspiration. But the investigation leads him down some unexpected paths and ultimately brings him face to face with the dissolution of his parents' marriage. As Christopher tries to deal with the crisis within his own family, the narrative draws readers into the workings of Christopher's mind. And herein lies the key to the brilliance of Mark Haddon's choice of narrator: The most wrenching of emotional moments are chronicled by a boy who cannot fathom emotions. The effect is dazzling, making for one of the freshest debut in years: a comedy, a tearjerker, a mystery story, a novel of exceptional literary merit that is great fun to read.

- Morris Kline 1980

Most intelligent people today still believe that mathematics is a body of unshakable truths about the physical world and that mathematical reasoning is exact and infallible. Mathematics: The Loss of Certainty refutes that myth.

One Day in the Life of Ivan Denisovich - Alexander Solzhenitsyn 1984-07-01

"Stark . . . the story of how one falsely accused convict and his fellow prisoners survived or perished in an arctic slave labor camp after the war."—Time From the icy blast of reveille through the sweet release of sleep, Ivan Denisovich endures. A common carpenter, he is one of millions viciously imprisoned for countless years on baseless charges,sentenced to the waking nightmare of the Soviet work camps in Siberia. Even in the face of degrading hatred, where life is reduced to a bowl of gruel and a rare cigarette, hope and dignity prevail. This powerful novel of fact is a scathing indictment of Communist tyranny, and an eloquent affirmation of the human spirit. The prodigious works of Alexander Solzhenitsyn, including his acclaimed The Gulag Archipelago, have secured his place in the great tradition of Russian literary giants. Ironically, One Day in the Life of Ivan Denisovich is the only one of his works permitted publication in his native land. Praise for One Day in the Life of Ivan Denisovich "Cannot fail to arouse bitterness and pain in the heart of the reader. A literary and political event of the first magnitude."—New Statesman "Both as a political tract and as a literary work, it is in the Doctor Zhivago category."—Washington Post "Dramatic . . . outspoken . . . graphically detailed . . . a moving human record."—Library Journal

Exploring Black Holes - Edwin F. Taylor 2008

Big Bang