

The Cosmic Landscape String Theory And The Illusion Of Intelligent Design

The lectures that four authors present in this volume investigate core topics related to the accelerated expansion of the Universe. Accelerated expansion occurred in the ʔ36 very early Universe – an exponential expansion in the in ationary period 10 s after the Big Bang. This well-established theoretical concept had rst been p- posed in 1980 by Alan Guth to account for the homogeneity and isotropy of the observable universe, and simultaneously by Alexei Starobinski, and has since then been developed by many authors in great theoretical detail. An accelerated expansion of the late Universe at redshifts z

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/9780521860697.

This book tells a story that revolves around a single unusual and unappreciated fact: that Albert Einstein's famous theory of relativity describes universes - entire universes. Not many solutions to Einstein's tantalising universe equations have ever been found, but those that have are all very remarkable.

This relatively new field applies equations from string theory to solve the questions of early cosmology, since the standard picture of our universe emerging from a 'big bang' leaves many fundamental issues unanswered. String theory, on the other hand, postulates that fundamental ingredients of nature are not zero-dimensional point particles but tiny one-dimensional filaments. This theory harmoniously unites quantum mechanics and general relativity -- the previously known laws of the small and the large -- which are otherwise incompatible. The field of string cosmology has matured considerably over the past few years, attracting many new adherents. Due to the multidisciplinary nature of the topic, it is difficult for practitioners to be conversant with all the many different aspects. This book thus fills a huge gap by bringing together all the different strains of research into one single volume. The resulting collection of detailed articles presents the latest, ongoing results from renowned experts currently working in the field. From the contents: * Introduction to Cosmology and String Theory * String Inflation: Brane Inflation and Inflation from Moduli * Cosmic Superstrings * The CMB as a Possible Probe of String Theory * String Gas Cosmology * Gauge-gravity Duality and String Cosmology * Heterotic M-theory and C A welcome addition to the literature for graduate students, students in astronomy, astronomers, mathematicians and theoretical physicists.

Argues that geometry is fundamental to string theory—which posits that we live in a 10-dimensional existence--as well as the very nature of the universe, and explains where mathematics will take string theory next.

'Beautifully clear explanations of famously "difficult" things ... It almost makes you think you could have been a Newton yourself' John Gribbin Here is the ultimate master class in modern physics. World-class physicist and father of string theory Leonard Susskind and citizen-scientist George Hrabovsky combine forces in a primer that teaches the skills you need to do physics yourself. Combining crystal-clear explanations of the laws of the universe with basic exercises (including essential equations and maths), the authors cover the minimum that readers should master. They introduce the key concepts of modern physics, from classical mechanics to general relativity to quantum theory, and provide a practical toolkit that you won't find in any other popular science book. 'A good and noble book' Sunday Times 'A wonderful and unique resource. For anyone who is determined to learn physics for real, looking beyond conventional popularizations, this is the ideal place to start' Sean Carroll, physicist and author of The Particle at the End of the Universe 'Very readable ... provides a clear description of advanced classical physics concepts, and gives readers who want a challenge the opportunity to exercise their brain' Physics World

What happens when something is sucked into a black hole? Does it disappear? Three decades ago, a young physicist named Stephen Hawking claimed it did, and in doing so put at risk everything we know about physics and the fundamental laws of the universe. Most scientists didn't recognize the import of Hawking's claims, but Leonard Susskind and Gerard t'Hooft realized the threat, and responded with a counterattack that changed the course of physics. The Black Hole War is the thrilling story of their united effort to reconcile Hawking's revolutionary theories of black holes with their own sense of reality -- effort that would eventually result in Hawking admitting he was wrong, paying up, and Susskind and t'Hooft realizing that our world is a hologram projected from the outer boundaries of space. A brilliant book about modern physics, quantum mechanics, the fate of stars and the deep mysteries of black holes, Leonard Susskind's account of the Black Hole War is mind-bending and exhilarating reading.

With clarity, passion, and authority, renowned theoretical physicist Smolin charts the rise and fall of string theory and takes a fascinating look at what will replace it.

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.

[The Hidden Reality](#)

[An Introduction to String Phenomenology](#)

[String Cosmology](#)

[My Quest for the Ultimate Nature of Reality](#)

[What You Need to Know to Start Doing Physics](#)

[Our Mathematical Universe](#)

[Quantum Mechanics](#)

[String Theory and M-Theory](#)

[String Theory and the Illusion of Intelligent Design](#)

[The Cosmic Landscape](#)

[The Black Hole War](#)

[How Fairytale Physics Betrays the Search for Scientific Truth](#)

This book attempts to explain why 'string theory' may provide the comprehensive underlying theory that describes and explains our world. It is an enthusiastic view of how compactified string/M-theories (plus data that may be reachable) seem to have the possibilities of leading to a comprehensive underlying theory of particle physics and cosmology, perhaps soon. We are living in a hugely exciting era for science, one during which it may be possible to achieve a real and true understanding of our physical world.

In the first two books in his wildly popular The Theoretical Minimum series, world-class physicist Leonard Susskind provided a brilliant first course in classical and quantum mechanics, offering readers not an oversimplified introduction, but the real thing - everything you need to start doing physics, and nothing more. Now, thankfully, Susskind and his former student Art Friedman are back, this time to introduce readers to special relativity and classical field theory. At last, waves, forces and particles will be demystified. Using their typical brand of relatively simple maths, enlightening sketches and the same fictional counterparts, Art and Lenny, Special Relativity and Classical Field Theory takes us on an enlightening journey through a world now governed by the laws of special relativity. Starting in their new watering hole, Hermann's Hideaway, with a lesson on relativity, Art and Lenny walk us through the complexities of Einstein's famous theory. Combining rigor with humour, Susskind and Friedman guarantee that Special Relativity and Classical Field Theory will become part of the reader's physics toolbox.

Not Even Wrong is a fascinating exploration of our attempts to come to grips with perhaps the most intellectually demanding puzzle of all: how does the universe work at its most fundamnetal level? The book begins with an historical survey of the experimental and theoretical developments that led to the creation of the phenomenally successful 'Standard Model' of particle physics around 1975. Despite its successes, the Standard Model does not answer all the key questions and physicists continuing search for answers led to the development of superstring theory. However, after twenty years, superstring theory has failed to advance beyond the Standard Model. The absence of experimental evidence is at the core of this controversial situation which means that it is impossible to prove that superstring theory is either right or wrong. To date, only the arguments of the theory's advocates have received much publicity. Not Even Wrong provides readers with another side of the story.

This book is a comprehensive survey of the current state of knowledge about the dynamics and gravitational properties of cosmic strings treated in the idealized classical approximation as line singularities described by the Nambu-Goto action. The author's purpose is to provide a standard reference to all work that has been published since the mid-1970s and to link this work together in a single conceptual framework and a single notational formalism. A working knowledge of basic general relativity is assumed. The book will be essential reading for researchers and postgraduate students in mathematics, theoretical physics, and astronomy interested in cosmic strings.

Modern physics is heady stuff. It seems that barely a week goes by without some new astounding science story; some revelation about hidden dimensions, multiple universes, the holographic principle or incredible cosmic coincidences. But is it true? What evidence do we have for super-symmetric squarks', or superstrings vibrating in an 11-dimensional space-time? How do we know that we live in a multiverse? How can we tell that the universe is a hologram projected from information encoded on its boundary? Doesn't this sound like a fairy story? In Farewell to Reality Jim Baggott asks whether all that we currently know about the universe is based upon science or fantasy. In addition he wonders whether these high priests of fairy tale physics - such as John Barrow, Paul Davies, David Deutsch, Brian Greene, Stephen Hawking, Michio Kaku, Gordon Kane and Leonard Susskind - are the emperor's latest tailors. Praise for Jim Baggott: A shimmering tour d'horizon. Quantum theory may deny us the possibility of properly comprehending physical reality, but Baggott's account is smart and consoling. Kirkus Reviews. Jim Baggott's inspired - and inspiring - idea of presenting the history of quantum physics in terms of 40 key moments works both as an introduction for the uninitiated and as a refresher for anyone who thinks they know the story. John Gribbin. I never read such a good, comprehensive account as Jim Baggott's...highly recommended. A.N. Wilson. The best popular science book of the year to date by far. popularscience.co.uk

'Compulsively readable...Green threatens to do for string theory what Stephen Hawking did for holes' New York Times In this international bestseller, Columbia University professor Brian Greene provides, in layman's terms, a comprehensive demystification of string theory. Greene, one of the world's leading string theorists, peels away layers of the unknown, through introducing concepts from quantum mechanics to general relativity, to reveal a universe that consists of eleven dimensions. Accessible and enlightening, Greene's inimitable blend of expert scientific insight and literary ingenuity makes The Elegant Universe an exhilarating read that brings us closer to understanding how our magnificent universe works. 'Utterly absorbing...a brilliant achievement. An accessible, equationless account of strings' Sunday Telegraph

'A majestic story' David Bodanis, Financial Times From the international bestselling author of Physics of the Impossible and Physics of the Future This is the story of a quest: to find a Theory of Everything. Einstein dedicated his life to seeking this elusive Holy Grail, a single, revolutionary 'god equation' which would tie all the forces in the universe together, yet never found it. Some of the greatest minds in physics took up the search, from Stephen Hawking to Brian Greene. None have yet succeeded. In The God Equation, renowned theoretical physicist Michio Kaku takes the reader on a mind-bending ride through the twists and turns of this epic journey: a mystery that has fascinated him for most of his life. He guides us through the key debates in modern physics, from Newton's law of gravity via relativity and quantum mechanics to the latest developments in string theory. It is a tale of dazzling breakthroughs and crushing dead ends, illuminated by Kaku's clarity, storytelling flair and infectious enthusiasm. The object of the quest is now within sight: we are closer than ever to achieving the most ambitious undertaking in the history of science. If successful, the Theory of Everything could simultaneously unlock the deepest mysteries of space and time, and fulfil that most ancient and basic of human desires - to understand the meaning of our lives.

An engaging defence and critique of the various arguments from both science and religion on the fine-tuning of the Universe.

In his first book ever, the father of string theory reinvents the world's concept of the known universe and man's unique place within it. Line drawings.

[Parallel Universes and the Deep Laws of the Cosmos](#)

[The Elegant Universe](#)

[Unraveling the Mysteries of the Universe's Hidden Dimensions](#)

[Elementary Cosmology](#)

[From Aristotle's Universe to the Big Bang and Beyond](#)

[The Life of the Cosmos](#)

[The Book of Universes](#)

[Universe Or Multiverse?](#)

[Accelerated Expansion of the Universe](#)

[Farewell to Reality](#)

[Beyond the Standard Model](#)

[Classical Mechanics](#)

[The Theoretical Minimum](#)

The Cosmic LandscapeString Theory and the Illusion of Intelligent DesignHachette UK

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.

Max Tegmark leads us on an astonishing journey through past, present, and future, and through the physics, astronomy, and mathematics that are the foundation of his work, most particularly his hypothesis that our physical reality is a mathematical structure and his theory of the ultimate multiverse. In a dazzling combination of both popular and groundbreaking science, he not only helps us grasp his often mind-boggling theories, but he also shares with us some of the often surprising triumphs and disappointments that have shaped his life as a scientist. Fascinating from first to last – here is a book for the full science-reading spectrum. Max Tegmark is author or co-author of more than 200 technical papers, twelve of which have been cited more than 500 times. He has featured in dozens of science documentaries, and his work with the SDSS collaboration on galaxy clustering shared the first prize in Science magazine's "Breakthrough of the Year: 2003". He holds a Ph.D from the University of California, Berkeley, and is a physics professor at MIT.

A systematic introduction to string phenomenology, outlining how string theory is connected to the real world of particle physics.

These three lectures cover a certain aspect of complexity and black holes, namely the relation to the second law of thermodynamics. The first lecture describes the meaning of quantum complexity, the analogy between entropy and complexity, and the second law of complexity. Lecture two reviews the connection between the second law of complexity and the interior of black holes. Prof. L. Susskind discusses how firewalls are related to periods of non-increasing complexity which typically only occur after an exponentially long time. The final lecture is about the thermodynamics of complexity, and “uncomplexity” as a resource for doing computational work. The author explains the remarkable power of “one clean qubit,” in both computational terms and in space-time terms. This book is intended for graduate students and researchers who want to take the first steps towards the mysteries of black holes and their complexity.

In this unconventional and stimulating primer, world-class physicist Leonard Susskind and citizen-scientist George Hrabovsky combine forces to provide a brilliant first course in modern physics. Unlike most popular physics books – which give readers a taste of what physicists know but not what they actually do – Susskind and Hrabovsky teach the skills you need to do physics yourself. Combining crystal-clear explanations of the laws of the universe with basic exercises, the authors cover the minimum – the theoretical minimum of the title – that readers need to master in order to study more advanced topics. In a lucid, engaging style, they introduce all the key concepts, from classical mechanics to general relativity to quantum theory. Instead of shying away from the equations and maths that are essential to any understanding of physics, The Theoretical Minimum provides a toolkit that you won't find in any other popular science book.

"The Hidden Reality" reveals how major developments in different branches of fundamental theoretical physics -- relativistic, quantum, cosmological, unified, computational -- have all led us to consider one or another variety of parallel universe.

Cosmology is the study of the origin, size, and evolution of the entire universe. Every culture has developed a cosmology, whether it be based on religious, philosophical, or scientific principles. In this book, the evolution of the scientific understanding of the Universe in Western tradition is traced from the early Greek philosophers to the most modern 21st century view. After a brief introduction to the concept of the scientific method, the first part of the book describes the way in which detailed observations of the Universe, first with the naked eye and later with increasingly complex modern instruments, ultimately led to the development of the "Big Bang" theory. The second part of the book traces the evolution of the Big Bang including the very recent observation that the expansion of the Universe is itself accelerating with time.

In this book William A. Dembski brilliantly argues that intelligent design provides a crucial link between science and theology. This is a pivotal work from a thinker whom Phillip Johnson calls "one of the most important of the `design' theorists."

[String Theory and the Geometry of the Universe's Hidden Dimensions](#)

[The Search for Other Universes](#)

[String Theory and the Scientific Method](#)

[A Modern Introduction](#)

[My Battle with Stephen Hawking to Make the World Safe for Quantum Mechanics](#)

[Why String Theory?](#)
[Three Lectures on Complexity and Black Holes](#)
[The Multiverse](#)
[The God Equation](#)
[Supersymmetry and String Theory](#)
[The Failure of String Theory and the Continuing Challenge to Unify the Laws of Physics](#)
[Intelligent Design](#)
[Cosmic Strings in the Wire Approximation](#)

The past decade has witnessed dramatic developments in the field of theoretical physics. This book is a comprehensive introduction to these recent developments. It contains a review of the Standard Model, covering non-perturbative topics, and a discussion of grand unified theories and magnetic monopoles. It introduces the basics of supersymmetry and its phenomenology, and includes dynamics, dynamical supersymmetry breaking, and electric-magnetic duality. The book then covers general relativity and the big bang theory, and the basic issues in inflationary cosmologies before discussing the spectra of known string theories and the features of their interactions. The book also includes brief introductions to technicolor, large extra dimensions, and the Randall-Sundrum theory of warped spaces. This will be of great interest to graduates and researchers in the fields of particle theory, string theory, astrophysics and cosmology. The book contains several problems, and password protected solutions will be available to lecturers at www.cambridge.org/9780521858410.

This accessible volume provides a modern treatment of the cosmological and string-theoretic background necessary to understand inflation in string theory.

Physicists argue from different perspectives for and against the idea of the existence of multiple universes.

A clear, plain-English guide to this complex scientific theory String theory is the hottest topic in physics right now, with books on the subject (pro and con) flying out of the stores. String Theory For Dummies offers an accessible introduction to this highly mathematical "theory of everything," which posits ten or more dimensions in an attempt to explain the basic nature of matter and energy. Written for both students and people interested in science, this guide explains concepts, discusses the string theory's hypotheses and predictions, and presents the math in an approachable manner. It features in-depth examples and an easy-to-understand style so that readers can understand this controversial, cutting-edge theory.

The multiverse is a concept that acknowledges the existence of a multiplicity of worlds or universes. The designs of these universes do not have to be the same as our universe, but we have no clear view of what the "other" designs might be. It is suspected that they can obey different laws of physics and different constants of physics, which further implies different chemistry, biology, and life. Some say that the universes within the multiverse allow for different mathematics or even for different metamathematical logic. This book discusses most of the above aspects of the multiverse concept starting with the philosophy, through all the mathematical and physical subtleties, finally exploring the origin of life and consciousness. This book provides a satisfying intellectual exploration of front-edge advances in contemporary cosmology.

First he taught you classical mechanics. Now, physicist Leonard Susskind has teamed up with data engineer Art Friedman to present the theory and associated mathematics of the strange world of quantum mechanics. In this follow-up to the New York Times best-selling The Theoretical Minimum, Susskind and Friedman provide a lively introduction to this famously difficult field, which attempts to understand the behavior of sub-atomic objects through mathematical abstractions. Unlike other popularizations that shy away from quantum mechanics' weirdness, Quantum Mechanics embraces the utter strangeness of quantum logic. The authors offer crystal-clear explanations of the principles of quantum states, uncertainty and time dependence, entanglement, and particle and wave states, among other topics, and each chapter includes exercises to ensure mastery of each area. Like The Theoretical Minimum, this volume runs parallel to Susskind's eponymous Stanford University-hosted continuing education course. An approachable yet rigorous introduction to a famously difficult topic, Quantum Mechanics provides a tool kit for amateur scientists to learn physics at their own pace.

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 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 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.

Physics World's 'Book of the Year' for 2016 An Entertaining and Enlightening Guide to the Who, What, and Why of String Theory, now also available in an updated reflowable electronic format compatible with mobile devices and e-readers. During the last 50 years, numerous physicists have tried to unravel the secrets of string theory. Yet why do these scientists work on a theory lacking experimental confirmation? Why String Theory? provides the answer, offering a highly readable and accessible panorama of the who, what, and why of this large aspect of modern theoretical physics. The author, a theoretical physics professor at the University of Oxford and a leading string theorist, explains what string theory is and where it originated. He describes how string theory fits into physics and why so many physicists and mathematicians find it appealing when working on topics from M-theory to monsters and from cosmology to superconductors.

A Leading Figure in the Development of the New Cosmology Explains What It All Means Among his peers, Alex Vilenkin is regarded as one of the most imaginative and creative cosmologists of our time. His contributions to our current understanding of the universe include a number of novel ideas, two of which—eternal cosmic inflation and the quantum creation of the universe from nothing—have provided a scientific foundation for the possible existence of multiple universes. With this book—his first for the general reader—Vilenkin joins another select group: the handful of first-rank scientists who are equally adept at explaining their work to nonspecialists. With engaging, well-paced storytelling, a droll sense of humor, and a generous sprinkling of helpful cartoons, he conjures up a bizarre and fascinating new worldview that—to paraphrase Niels Bohr—just might be crazy enough to be true.

[The Bridge Between Science and Theology](#)
[Modern String Theory Concepts from the Big Bang to Cosmic Structure](#)
[An Introduction to Black Holes, Information and the String Theory Revolution](#)
[Not Even Wrong](#)
[The Inflationary Universe](#)
[The Quest for a Theory of Everything](#)
[String Theory and the Real World](#)
[String Theory and Particle Physics](#)
[The Shape of Inner Space](#)
[Quantum Mechanics: The Theoretical Minimum](#)
[Lectures on Cosmology](#)
[The Mathematical Theory of Cosmic Strings](#)
[String Theory For Dummies](#)

'Quantum mechanics for real. This is the good stuff, the most mysterious aspects of how reality works, set out with crystalline clarity. The place to start' Sean Carroll, physicist, California Institute of Technology, author of The Particle at the End of the Universe This is the ultimate practical introduction to quantum mechanics. World-renowned physicist Leonard Susskind and data engineer Art Friedman give you the basic skills you need to tackle this famously difficult topic yourself. They provide clear, lively explanations of basic concepts, introduce the key fields of quantum mechanics and include step-by-step exercises. Making a complex subject 'as simple as possible, but no simpler', this is a practical toolkit for amateur scientists that you won't find anywhere else.

- A unique exposition of the foundations of the quantum theory of black holes including the impact of string theory, the idea of black hole complementarity and the holographic principle bull; Aims to educate the physicist or student of physics who is not an expert on string theory, on the revolution that has grown out of black hole physics and string theory This is the compelling, first-hand account of Alan Guth's paradigm-breaking discovery of the origins of the universe—and of his dramatic rise from young researcher to physics superstar. Guth's startling theory—widely regarded as one of the most important contributions to science during the twentieth century—states that the big bang was set into motion by a period of hyper-rapid “inflation,” lasting only a billion-trillion-billionth of a second. The Inflationary Universe is the passionate story of one leading scientist's effort to look behind the cosmic veil and explain how the universe began.

Lee Smolin offers a new theory of the universe that is at once elegant, comprehensive, and radically different from anything proposed before. Smolin posits that a process of self organization like that of biological evolution shapes the universe, as it develops and eventually reproduces through black holes, each of which may result in a new big bang and a new universe. Natural selection may guide the appearance of the laws of physics, favoring those universes which best reproduce. The result would be a cosmology according to which life is a natural consequence of the fundamental principles on which the universe has been built, and a science that would give us a picture of the universe in which, as the author writes, "the occurrence of novelty, indeed the perpetual birth of novelty, can be understood." Smolin is one of the leading cosmologists at work today, and he writes with an expertise and force of argument that will command attention throughout the world of physics. But it is the humanity and sharp clarity of his prose that offers access for the layperson to the mind bending space at the forefront of today's physics.

One of the world's leading physicists questions some of the most fashionable ideas in physics today, including string theory What can fashionable ideas, blind faith, or pure fantasy possibly have to do with the scientific quest to understand the universe? Surely, theoretical physicists are immune to mere trends, dogmatic beliefs, or flights of fancy? In fact, acclaimed physicist and bestselling author Roger Penrose argues that researchers working at the extreme frontiers of physics are just as susceptible to these forces as anyone else. In this provocative book, he argues that fashion, faith, and fantasy, while sometimes productive and even essential in physics, may be leading today's researchers astray in three of the field's most important areas—string theory, quantum mechanics, and cosmology. Arguing that string theory has veered away from physical reality by positing six extra hidden dimensions, Penrose cautions that the fashionable nature of a theory can cloud our judgment of its plausibility. In the case of quantum mechanics, its stunning success in explaining the atomic universe has led to an uncritical faith that it must also apply to reasonably massive objects, and Penrose responds by suggesting possible changes in quantum theory. Turning to cosmology, he argues that most of the current fantastical ideas about the origins of the universe cannot be true, but that an even wilder reality may lie behind them. Finally, Penrose describes how fashion, faith, and fantasy have ironically also shaped his own work, from twistor theory, a possible alternative to string theory that is beginning to acquire a fashionable status, to "conformal cyclic cosmology," an idea so fantastic that it could be called "conformal crazy cosmology." The result is an important critique of some of the most significant developments in physics today from one of its most eminent figures.

[A First Course in String Theory](#)
[Special Relativity and Classical Field Theory](#)
[The Rise of String Theory, The Fall of a Science and What Comes Next](#)
[Warped Passages](#)
[The Holographic Universe](#)
[Inflation and String Theory](#)
[A Fortunate Universe](#)
[Fashion, Faith, and Fantasy in the New Physics of the Universe](#)
[The Trouble with Physics](#)
[Many Worlds in One](#)