The Great Beyond Higher Dimensions Parallel Universes And The Extraordinary Search For A Theory Of Everything Paul Halpern

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Warped Passages - Lisa Randall 2009-11-10
The universe has many secrets. It may hide additional dimensions of space other than the familier 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.
Strung Together - Sean Miller 2013-03-18
In Strung Together: The Cultural Currency of String Theory as a Scientific Imaginary, Sean Miller examines the cultural currency of string theory, both as part of scientific discourse and beyond it. He demonstrates that the imaginative component of string theory is both integral and indispensable to it as a scientific discourse. While mathematical arguments provide precise prompts for physical intervention in the world, the imaginary that supplements mathematical argument within string theory technical discourse allows theorists to imagine themselves interacting with the cosmos as an abstract space in such a way that strings and branes as phenomena become substantiated and legitimized. And it is precisely this sort of imaginary—which Miller calls a scientific imaginary—duly substantiated and acculturated, that survives the move from string theory technical discourse to popularizations and ultimately to popular and literary discourses. In effect, a string theory imaginary legitimizes the science itself and helps to facilitate a virtual domestication of a cosmos that was heretofore remote, alien, and incomprehensible.
Space, Time, and Spacetime - Vesselin Petkov 2010-09-02

Dedicated to the centennial anniversary of Minkowski's discovery of spacetime, this volume contains papers, most presented at the Third International Conference on the Nature and Ontology of Spacetime, that address some of the deepest questions in physics.

Interface between Literature and Science - Victoria Carpenter 2015-05-13

The boundaries of science and literature are permeable; they are continuously crossed and illuminated by a variety of narrative forms and their interpretations. Changes in our perception of the world are informed in equal measure by scientific and humanistic disciplines. This volume treats both literary and scientific texts as products of the human mind, therefore abiding by all the rules it creates, scientific and humanistic alike. The volume does not propose to replace all literary or discourse analysis with a cross-disciplinary science-based approach, but, rather, uses this theoretical stance when more conventional means fail to explain (or even explore) the intricacies of a text. It argues that scientific discourse can also be analysed through the prism of literary theories, since all texts are governed in varying measure by the unity of contexts that characterize their nature, the process of their creation, and their place in the cognitive realm of humanity. This approach will allow the nature and limitations of scientific research to be questioned, while opening up more venues to explore scientific creativity that crosses the subject boundaries of science and humanities. Latin American literature offers many examples of the interconnection between literary and scientific discourse. Notwithstanding the often explored relationship between Jorge Luis Borges’s literary themes and contemporary scientific discoveries, a more general question should be asked: is the influence of scientific thought a privilege of the select few or is it indeed an all-pervading experience in Latin American literary narrative from late modernism to present day? This book explores the texts that overtly incorporate scientific content or are structured in such a way that immediately reminds the reader of a scientific phenomenon; it will also examine the texts that are presented in such a way that a conventional literary analysis does not help penetrate the many narrative layers that the text comprises. The volume offers cross-disciplinary readings of such authors as Jorge Luis Borges, Gabriel García Márquez, Ernesto Sábato and Gustavo Sainz, to name but a few.

Starstruck - Albert A. Harrison 2007

We live in an era of exploding scientific knowledge about the universe, and our place and future within it. Much of this new knowledge conflicts with earlier wisdom, and some has frightening implications. Cosmic evolution, space exploration, the search for extraterrestrial life, and concerns about humanity's future prompt us to seek new answers to old existential questions. Where did we come from? Why are we here? Are we alone? What will become of us? In our search for answers, we turn to science, religion, myth, and varying combinations thereof. Exploring an ambiguous region between recognized findings and unfettered imagination, Starstruck explores the multifaceted, far-reaching, and often contentious attempts of people with contrasting worldviews to develop convincing and satisfying interpretations of rapidly accumulating discoveries in physics, astronomy, and biology.

Endless Universe - Paul J. Steinhardt 2007-05-29

Two world-renowned scientists present an audacious new vision of the cosmos that “steals the thunder from the Big Bang theory.” —Wall Street Journal The Big Bang theory—widely regarded as the leading explanation for the origin of the universe—posits that space and time sprang into being about 14 billion years ago in a hot, expanding fireball of nearly infinite density. Over the last three decades the theory has been repeatedly revised to address such issues as how galaxies and stars first formed and why the expansion of the universe is speeding up today. Furthermore, an explanation has yet to be found for what caused the Big Bang in the first place. In Endless Universe, Paul J. Steinhardt and Neil Turok, both distinguished theoretical physicists, present a bold new cosmology. Steinhardt and Turok “contend that what we think of as the moment of creation was simply part of an infinite cycle of titanic collisions between our universe and a parallel world” (Discover). They recount the remarkable developments in astronomy, particle physics, and superstring theory that form the basis for their groundbreaking “Cyclic

Universe” theory. According to this theory, the Big Bang was not the beginning of time but the bridge to a past filled with endlessly repeating cycles of evolution, each accompanied by the creation of new matter and the formation of new galaxies, stars, and planets. Endless Universe provides answers to longstanding problems with the Big Bang model, while offering a provocative new view of both the past and the future of the cosmos. It is a “theory that could solve the cosmic mystery” (USA Today).

Hyperspace - Michio Kaku 2016-04-20

Reissued in new covers, this is the run-away bestseller from one of the world's leading theoretical physicists. Are there other dimensions beyond our own? Is time travel possible? Michio Kaku takes us on a tour of the most exciting work in modern physics, including research into the 10th dimension, time warps, and multiple universes, to outline what may be the leading candidate for the Theory of Everything.

Superstrings, P-branes and M-theory -

In Search of the Multiverse - John Gribbin 2010

We once had to abandon the idea of earth being at the centre of the universe. Now, we need to confront an even more profound possibility: the universe itself might just be one universe among many. In Search of the Multiverse takes us on an extraordinary journey, examining the most fundamental questions in science. What are the boundaries of our universe? Can there be different physical laws from the ones we know? Are there in fact other universes? Do we really live in a multiverse? This book is a search – the ultimate search – exploring the frontiers of reality. Ideas that were once science fiction have now come to dominate modern physics. And, as John Gribbin shows, there is increasing evidence that there really is more to the universe than we can see. Gribbin guides us through the different competing theories (there is more than one multiverse!) revealing what they have in common and what we can come to expect. He gives a brilliant tour of the current state of cosmology. John Gribbin is our best, most accessible guide to the big questions of science. And there is no bigger question than our search for the multiverse.

Encyclopedia of Science and Technology Communication - Susanna Hornig Priest 2010-07-14

For a free 30-day online trial to this title, visit www.sagepub.com/freetrial In the academic world, the term "science communication" refers both to a set of professions (such as science journalism and public information work) and to an interdisciplinary scholarly research specialization. Much of this research is aimed at improving our understanding of the best ways to communicate complex information, especially to people who are not scientists. Science communication specialists are concerned with giving people useful information about health, environment, and technology – as well as science itself. In order to do this, we also need to improve our understanding of how people think, form opinions, and process information. Additionally, professional practitioners in science communication are engaged in strategic and ethical decisions every day, such as: How should reporters cover the issue of climate change? Should the views of scientists who do not believe that climate change has been caused by human activity be included alongside the views of those who do, in order to give a "balanced" story, or does this mislead the public into thinking that both of these positions are equally accepted within the scientific community? The Encyclopedia of Science and Technology Communication provides information on the entire range of interrelated issues in this interdisciplinary field in one place, along with clear suggestions on where to begin the search for more. Geared towards undergraduate and graduate students in journalism, communication, mass communication, and media studies, as well as towards working journalists, public information officers, and public relations specialists, this encyclopedia introduces this vast, fascinating field while challenging the reader to question assumptions inherent in communication across disciplinary boundaries. Key Themes Associations and Organizations Audiences, Opinions, and Effects Challenges, Issues, and Controversies Changing Awareness, Opinion, And Behavior Critical Influences and Events Global and International Aspects Government Agencies (US) History, Philosophy, and Sociology of Science Important Figures Journal

Publications Key Cases and Current Trends Law, Policy, Ethics, and Beliefs Major Infrastructural Initiatives Practices, Strategies, and Tools Professional Roles and Careers Public Engagement Approaches Theory and Research Venues and Channels

Principles Of Space-time-matter: Cosmology, Particles And Waves In Five Dimensions - Paul S Wesson 2018-12-13

'For those interested, the book is a good and well-written overview of the work of Wesson and his collaborators. For those with a general interest in extensions of standard physics, accessibility is strongly dependent on the reader’s technical background, though the good structure of the book and copious references (including many to work by more-mainstream physicists on related topics) make that possible for those willing to invest some time.'The Observatory MagazineThis book is a summing up of the prospects for unification between relativity and particle physics based on the extension of Einstein's theory of General Relativity to five dimensions. This subject was first established by Paul Wesson in his previous best-seller, Space-Time-Matter, and discussed from a different perspective in Five-Dimensional Physics, both published by World Scientific in 1999 and 2006 respectively. This third book brings the field up to date and details many new developments and connections to particle theory and wave mechanics in particular. It was in largely finished form at the time of Paul Wesson's untimely death in 2015, and has been completed and expanded by his former student and longtime collaborator, James Overduin.

Collider - Paul Halpern 2009-08-03

An accessible look at the hottest topic in physics and the experiments that will transform our understanding of the universe The biggest news in science today is the Large Hadron Collider, the world's largest and most powerful particle-smasher, and the anticipation of finally discovering the Higgs boson particle. But what is the Higgs boson and why is it often referred to as the God Particle? Why are the Higgs and the LHC so important? Getting a handle on the science behind the LHC can be difficult for anyone without an advanced degree in particle physics, but you don't need to go back to school to learn about it. In Collider, award-winning physicist Paul Halpern provides you with the tools you need to understand what the LHC is and what it hopes to discover. Comprehensive, accessible guide to the theory, history, and science behind experimental high-energy physics Explains why particle physics could well be on the verge of some of its greatest breakthroughs, changing what we think we know about quarks, string theory, dark matter, dark energy, and the fundamentals of modern physics Tells you why the theoretical Higgs boson is often referred to as the God particle and how its discovery could change our understanding of the universe Clearly explains why fears that the LHC could create a miniature black hole that could swallow up the Earth amount to a tempest in a very tiny teapot "Best of 2009 Sci-Tech Books (Physics)"-Library Journal "Halpern makes the search for mysterious particles pertinent and exciting by explaining clearly what we don't know about the universe, and offering a hopeful outlook for future research."-Publishers Weekly Includes a new author preface, "The Fate of the Large Hadron Collider and the Future of High-Energy Physics" The world will not come to an end any time soon, but we may learn a lot more about it in the blink of an eye. Read Collider and find out what, when, and how.

Weaving the Universe - Paul S. Wesson 2011

A thorough but short review of the history and present status of ideas in cosmology. The book is aimed at a broad audience, but will contain a few equations where needed to make the argument exact.

The Readers' Advisory Guide to Nonfiction - Neal Wyatt 2007-05-14

With a focus on eight catagories including memoir, sports, and true crime, a readers' advisory guide includes coverage of the major authors and works, popularity, and style.

In Search of Unity - Spencer Scoular 2013

Albert Einstein once wrote: “The supreme task of the physicist is to arrive at those universal laws from which the cosmos can be built up by pure deduction.” Remarkably, in this book we arrive at those universal axioms from which universal science can be built up by pure deduction.Within the prevailing paradigm of science – the mathematical philosophy of nature – we show it is not possible to unify science. To

overcome this limitation we introduce a new, more general paradigm. Since the new paradigm is a generalisation of the mathematical philosophy of nature, we are able to retain the mathematical knowledge built up within the prevailing paradigm. Within the new paradigm we introduce four empirical universal axioms, from which we deduce that it is not possible to mathematically unify the two fundamental theories of physics – quantum theory and general relativity. Instead, from the universal axioms we logically deduce the first symmetry of nature, the first invariance of nature, the universal arrow of time, the universal laws of nature, and the three universal dynamic theories of nature – quantum theory, general relativity and universal evolution. The first symmetry of nature and first invariance of nature arise from the constancy of the universal laws of nature not only being a symmetry, but a unifying symmetry. The biological view of universal evolution provides a new theory of biological evolution that replaces what we show is the deficient neo-Darwinian synthesis. In a similar way, theories of evolution in all the sciences are based on their respective views of universal evolution. From the universal axioms, we deduce the universal features of nature thereby unifying physics, chemistry, biology, psychology, sociology, economics and all of science. This book is written for scientifically-inclined general readers, teachers, students, scientists, philosophers, physicists, chemists, biologists, psychologists, sociologists, and economists.

Edge of the Universe - Paul Halpern 2012-10-02

An accessible look at the mysteries that lurk at the edge of the known universe and beyond The observable universe, the part we can see with telescopes, is incredibly vast. Yet recent theories suggest that there is far more to the universe than what our instruments record—in fact, it could be infinite. Colossal flows of galaxies, large empty regions called voids, and other unexplained phenomena offer clues that our own "bubble universe" could be part of a greater realm called the multiverse. How big is the observable universe? What it is made of? What lies beyond it? Was there a time before the Big Bang? Could space have unseen dimensions? In this book, physicist and science writer Paul Halpern explains what we know—and what we hope to soon find out—about our extraordinary cosmos. Explains what we know about the Big Bang, the accelerating universe, dark energy, dark flow, and dark matter to examine some of the theories about the content of the universe and why its edge is getting farther away from us faster Explores the idea that the observable universe could be a hologram and that everything that happens within it might be written on its edge Written by physicist and popular science writer Paul Halpern, whose other books include Collider: The Search for the World's Smallest Particles, and What's Science Ever Done For Us: What the Simpsons Can Teach Us About Physics, Robots, Life, and the Universe

Awakening to the Fifth Dimension - Kimberly Meredith 2021-12-07

Elevate your consciousness and heal your life. In Awakening to the Fifth Dimension, author Kimberly Meredith offers readers something truly revolutionary—a new dimension of healing. Discovering her healing gifts after two near death experiences in 2013, she is now one of the most in-demand medical intuitive healers in the nation, traveling the country to speak at events, appearing at major consciousness and global virtual events, and offering healing to those who so desperately in need. Here in these pages, Kimberly shares her gift for the first time with a wider audience, giving readers the tools to implement this healing in their own lives. Whether you are wrestling with chronic illness, seemingly untreatable symptoms, or other mental, emotional, or physical ailments, Kimberly’s gentle wisdom offers a way forward towards happiness and freedom. Filled with instruction, case studies, testimonials, nutritional advice, and practical methods to raise your consciousness Awakening to the Fifth Dimension will empower readers to confront their own health struggles and find true, lasting healing.

Relativity and the Dimensionality of the World - Vesselin Petkov 2007-10-08

The main focus of this volume is the question: is spacetime nothing more than a mathematical space (which describes the evolution in time of the ordinary three-dimensional world) or is it a mathematical model of a real four-dimensional world with time entirely given as the fourth dimension? The book contains fourteen invited papers which either directly address

the main question of the nature of spacetime or explore issues related to it.

The Hidden Reality - Brian Greene 2011-01-25

The bestselling author of The Elegant Universe and The Fabric of the Cosmos tackles perhaps the most mind-bending question in modern physics and cosmology: Is our universe the only universe? There was a time when "universe" meant all there is. Everything. Yet, a number of theories are converging on the possibility that our universe may be but one among many parallel universes populating a vast multiverse. Here, Briane Greene, one of our foremost physicists and science writers, takes us on a breathtaking journey to a multiverse comprising an endless series of big bangs, a multiverse with duplicates of every one of us, a multiverse populated by vast sheets of spacetime, a multiverse in which all we consider real are holographic illusions, and even a multiverse made purely of math--and reveals the reality hidden within each. Using his trademark wit and precision, Greene presents a thrilling survey of cutting-edge physics and confronts the inevitable question: How can fundamental science progress if great swaths of reality lie beyond our reach? The Hidden Reality is a remarkable adventure through a world more vast and strange than anything we could have imagined.

Einstein's Dice and Schr□dinger's Cat - Paul Halpern 2015-04-14

When the fuzzy indeterminacy of quantum mechanics overthrew the orderly world of Isaac Newton, Albert Einstein and Erwin Schrödinger were at the forefront of the revolution. Neither man was ever satisfied with the standard interpretation of quantum mechanics, however, and both rebelled against what they considered the most preposterous aspect of quantum mechanics: its randomness. Einstein famously quipped that God does not play dice with the universe, and Schrödinger constructed his famous fable of a cat that was neither alive nor dead not to explain quantum mechanics but to highlight the apparent absurdity of a theory gone wrong. But these two giants did more than just criticize: they fought back, seeking a Theory of Everything that would make the universe seem sensible again. In Einstein’s Dice and Schrödinger’s Cat, physicist Paul Halpern tells the little-known story of how Einstein and Schrödinger searched, first as collaborators and then as competitors, for a theory that transcended quantum weirdness. This story of their quest—which ultimately failed—provides readers with new insights into the history of physics and the lives and work of two scientists whose obsessions drove its progress. Today, much of modern physics remains focused on the search for a Theory of Everything. As Halpern explains, the recent discovery of the Higgs Boson makes the Standard Model—the closest thing we have to a unified theory— nearly complete. And while Einstein and Schrödinger failed in their attempt to explain everything in the cosmos through pure geometry, the development of string theory has, in its own quantum way, brought this idea back into vogue. As in so many things, even when they were wrong, Einstein and Schrödinger couldn’t help but get a great deal right.

The Elegant Universe - Brian Greene 2000

Introduces the superstring theory that attempts to unite general relativity and quantum mechanics

Information-including Medicines; Physics and Mechanism of Action (With Emphasis on "Viremedy") A Synopsis ["Version: Feb 2022"] - Kamyar Esmaeili, M.D. 2022-02-10

► OVERVIEW: ♦ An Information-including Medicine is a material that the rendition of its respective physical information via a certain part of the living system termed Parallel Body leads to its corresponding biotic qualities in the living being. Viremedy, homeopathic medicines, and so-called intentional healing medicines are among such medicines. ♦ Viremedy, as a basic remedy, could raise the vitality of the living creature within the framework of its nature. A rise in vitality means "a general increase in the fulfillment degree of biotic capabilities, such as resistance (resilience) to exogenous and endogenous stresses, in the broad sense". ♦ In this text, allowing for the related facts and experiments, "the Physical Essence" and "the Mechanisms of the Actions" of information-including medicines have been generally clarified by putting forward a working theory. Additionally, "Viremedy", "its Origin", and some relevant topics have been presented concisely too. These topics are also included: "Some Controlled Experiments Conducted

About any Effects of Viremedy on Vitality"; "Some Points About the Holistic Healing Process Actuated by Viremedy Use"; "Some Application Manners of Viremedy"; "The Possible Use of Other Treatments Together With Viremedy". (What is named "Improved Homeopathy" has been briefly introduced too.) ♦♦ As a rule, facts, rather than words, are the final judge. /●●●/ ► Information-including medicines are broadly used in practice in some therapeutic modalities like homeopathy, etc. ♦ There are controversial discussions about such medicines and the related topics. For instance, in view of the high dilution of homeopathic medicines, sometimes beyond Avogadro's Limit, some scholars have considered them the inert substances called Placebo, having no specific virtue! Oppositely, some others have counted homeopathy as a credible therapeutic modality. ♦ Here, regarding an interdisciplinary approach, "the Physical Essence" and "the Mechanisms of the Actions" of information-including medicines have been generally clarified by putting forward a comprehensive theory. In light of this theory, the related facts can be explained and the results of some related experiences can be methodically predicted. Allowing for this theory, we can also find suitable ways for "the reproduction and the reinforcement of the special information-including remedy named Viremedy", "keeping this remedy in appropriate conditions", "the various methods of Viremedy application", and "the apposite application of other treatments, like homeopathic treatments, together with this remedy". ♦ Viremedy is not a monopolistic production or finding of any person or group. ♦♦ Most of all, facts, like the results of the appropriate controlled experiences suitably designed and performed to correctly evaluate the degree of vitality, are the final judge. /●●●/ ► SOME RELATED DOMAINS: Health and Medical Sciences, Integrative Medicine, Holistic Medicine, Complementary and Alternative Medicine, Parallel Body Medicine, Information Medicine, So-called Energy Medicine, Homeopathy, Improved Homeopathy, Healing, Natural Medicine (Naturopathic Med.), Vitherapy, Holism, Information-including Medicines, Modern Physics, Evidence-based Medicine /●●●/ NOTIFICATION: ►► This book in paperback and Kindle formats can be bought from "AMAZON". ♦♦ All sales revenue of the book, the author's share, will be spent on the activities involving Viremedy and the related matters like accomplishing the studies, improving Viremedy use, etc. - Citation: Esmaeili, Kamyar: «Information-including Medicines; Physics and Mechanism of Action (With Emphasis on "Viremedy") A Synopsis [Subtitle: Viremedy, Homeopathic Medicines, and the So-called Intentional Healing Medicines]». Independently Published [Kindle Direct Publishing Platform]; Pp. 249; Version: Feb 2022. (English) [ISBN (for the paperback by CreateSpace, Amazon-Kindle): ISBN-13: 978-1720736837, ISBN-10: 1720736839; ASIN (for e-book): 1720736839] ♦ The Book, especially in PDF format, has also been presented on some websites like https://sites.google.com/site/viremedy, archive.org, etc. ►► Viremedy is Not a Monopolistic Production or Finding of any Person or Group. ►►► https://sites.google.com/site/viremedy

Reflections on a Surprising Universe - Richard Conrad Dieter 2019-11-29

Reflections on a Surprising Universe takes the reader beyond the headlines of the latest scientific breakthroughs, translating complicated topics into an understandable narrative. It covers a wide array of scientific developments in clear and concise language sharing a sense of wonder felt by the author about the universe we find ourselves in. The book covers such developments as the size and expansion of the universe, black holes, gravitational waves, the relativity of spacetime, the multiverse, exoplanets and the possibility of extraterrestrial life, DNA, fundamental particles, quantum mechanics and quantum computers, all in an accessible narrative. Do you feel a sense of excitement and awe in learning about both the vastness and intricacies of the world around you? Then let Richard Dieter guide you through the unique synthesis of recent scientific discoveries and what they reveal about us.

The Gyroverse: The Hidden Structure of the Universe - Donald Wortzman 2014-08-09

Richard Feynman, in his book QED, after discussing an unusual aspect of quantum physics stated: "... the more you see how strangely nature behaves, the harder it is to make a model that explains how even the

simplest phenomenon actually works. So theoretical physics has given up on that." This ground breaking “Gyroverse Theory,” persuasively explains the construction of the universe. It combines quantum, relativity, and cosmology into a single unified theory, entertaining while offering an understanding of how the universe works. Matter creation and the common origin of the forces of nature are described. The equivalence of the masses of gravity and inertia, a 300-year mystery, is solved. It shows that matter is not energy, but is mass in motion at the speed of light. Additionally, particle spin, anti-matter, duality, quantum entanglement, non-simultaneity, and many other phenomena are described. Finally, the dominant big bang scenario is overturned, replaced with a more plausible explanation.

Knowledge and Knowledge Systems: Learning from the Wonders of the Mind - Geisler, Eliezer 2007-09-30

Previous research in the knowledge management and information systems fields simply define knowledge by a few categories, and then describe knowledge systems and their usage and the difficulties with them. Knowledge and Knowledge Systems: Learning from the Wonders of the Mind starts from the beginning: where and how knowledge is formed and how it can be measured, describing humans and their knowledge path from conception and birth to maturity.

The Goldilocks Enigma - Paul Davies 2008-04-29

An acclaimed physicist and cosmologist considers the multiverse and more: “Very readable indeed . . . This is Doctor Who, but for real.” —TheGuardian The Goldilocks Enigma is Paul Davies’s eagerly awaited return to cosmology, the successor to his critically acclaimed bestseller The Mind of God. Here he tackles all the “big questions,” including the biggest of them all: Why does the universe seem so well adapted for life? In his characteristically clear and elegant style, Davies shows how recent scientific discoveries point to a perplexing fact: many different aspects of the cosmos, from the properties of the humble carbon atom to the speed of light, seem tailor-made to produce life. A radical new theory says it’s because our universe is just one of an infinite number of universes, each one slightly different. Our universe is bio-friendly by accident—we just happened to win the cosmic jackpot. While this “multiverse” theory is compelling, it has bizarre implications, such as the existence of infinite copies of each of us and Matrix-like simulated universes. And it still leaves a lot unexplained. Davies believes there’s a more satisfying solution to the problem of existence: the observations we make today could help shape the nature of reality in the remote past. If this is true, then life—and, ultimately, consciousness—aren’t just incidental byproducts of nature, but central players in the evolution of the universe. Whether he’s elucidating dark matter or dark energy, M-theory or the multiverse, Davies brings the leading edge of science into sharp focus, provoking us to think about the cosmos and our place within it in new and thrilling ways.

The Grand Design - Stephen Hawking 2010-09-07

#1 NEW YORK TIMES BESTSELLER When and how did the universe begin? Why are we here? What is the nature of reality? Is the apparent “grand design” of our universe evidence of a benevolent creator who set things in motion—or does science offer another explanation? In this startling and lavishly illustrated book, Stephen Hawking and Leonard Mlodinow present the most recent scientific thinking about these and other abiding mysteries of the universe, in nontechnical language marked by brilliance and simplicity. According to quantum theory, the cosmos does not have just a single existence or history. The authors explain that we ourselves are the product of quantum fluctuations in the early universe, and show how quantum theory predicts the “multiverse”—the idea that ours is just one of many universes that appeared spontaneously out of nothing, each with different laws of nature. They conclude with a riveting assessment of M-theory, an explanation of the laws governing our universe that is currently the only viable candidate for a “theory of everything”: the unified theory that Einstein was looking for, which, if confirmed, would represent the ultimate triumph of human reason.

Higher Speculations - Helge Kragh 2011-01-06

A historical account of highly ambitious attempts to understand all of nature in terms of fundamental physics. Presenting old and new 'theories

of everything' in their historical contexts, the book discusses the nature and limits of scientific explanation in connection with concrete case studies.

Flashes of Creation - Paul Halpern 2021-08-17

A respected physics professor and author breaks down the great debate over the Big Bang and the continuing quest to understand the fate of the universe. Today, the Big Bang is so entrenched in our understanding of the cosmos that to doubt it would seem crazy. But as Paul Halpern shows in Flashes of Creation, just decades ago its mere mention caused sparks to fly. At the center of the debate were Russian American physicist George Gamow and British astrophysicist Fred Hoyle. Gamow insisted that a fiery explosion explained how the elements of the universe were created. Attacking the idea as half-baked, Hoyle countered that the universe was engaged in a never-ending process of creation. The battle was fierce. In the end, Gamow turned out to be right -- mostly -- and Hoyle, along with his many achievements, is remembered for giving the theory the silliest possible name: "The Big Bang." Halpern captures the brilliance of both thinkers and reminds us that even those proved wrong have much to teach us about boldness, imagination, and the universe itself.

Springer Handbook of Spacetime - Abhay Ashtekar 2014-09-01

The Springer Handbook of Spacetime is dedicated to the ground-breaking paradigm shifts embodied in the two relativity theories, and describes in detail the profound reshaping of physical sciences they ushered in. It includes in a single volume chapters on foundations, on the underlying mathematics, on physical and astrophysical implications, experimental evidence and cosmological predictions, as well as chapters on efforts to unify general relativity and quantum physics. The Handbook can be used as a desk reference by researchers in a wide variety of fields, not only by specialists in relativity but also by researchers in related areas that either grew out of, or are deeply influenced by, the two relativity theories: cosmology, astronomy and astrophysics, high energy physics, quantum field theory, mathematics, and philosophy of science. It should also serve as a valuable resource for graduate students and young researchers entering these areas, and for instructors who teach courses on these subjects. The Handbook is divided into six parts. Part A: Introduction to Spacetime Structure. Part B: Foundational Issues. Part C: Spacetime Structure and Mathematics. Part D: Confronting Relativity theories with observations. Part E: General relativity and the universe. Part F: Spacetime beyond Einstein.

Symmetry Rules - Joseph Rosen 2008-02-20

When we use science to describe and understand the world around us, we are in essence grasping nature through symmetry. Emphasizing the concepts, this book leads the reader coherently and comprehensively into the fertile field of symmetry and its applications. Among the most important applications considered are the fundamental forces of nature and the Universe. Written by a renowned expert, this book will convince all interested readers of the importance of symmetry in science.

Quantum Physics - Fannie Huang 2006

Presents a collection of essays that examine contemporary research in quantum physics, including a discussion of its origins, principles, and evolving theories.

Einstein's Dice and Schr□dinger's Cat - Paul Halpern 2015-04-14

When the fuzzy indeterminacy of quantum mechanics overthrew the orderly world of Isaac Newton, Albert Einstein and Erwin Schrödinger were at the forefront of the revolution. Neither man was ever satisfied with the standard interpretation of quantum mechanics, however, and both rebelled against what they considered the most preposterous aspect of quantum mechanics: its randomness. Einstein famously quipped that God does not play dice with the universe, and Schrödinger constructed his famous fable of a cat that was neither alive nor dead not to explain quantum mechanics but to highlight the apparent absurdity of a theory gone wrong. But these two giants did more than just criticize: they fought back, seeking a Theory of Everything that would make the universe seem sensible again. In Einstein’s Dice and Schrödinger’s Cat, physicist Paul Halpern tells the little-known story of how Einstein and Schrödinger searched, first as collaborators and then as competitors, for a theory that transcended quantum weirdness. This story of their

quest—which ultimately failed—provides readers with new insights into the history of physics and the lives and work of two scientists whose obsessions drove its progress. Today, much of modern physics remains focused on the search for a Theory of Everything. As Halpern explains, the recent discovery of the Higgs Boson makes the Standard Model—the closest thing we have to a unified theory— nearly complete. And while Einstein and Schrödinger failed in their attempt to explain everything in the cosmos through pure geometry, the development of string theory has, in its own quantum way, brought this idea back into vogue. As in so many things, even when they were wrong, Einstein and Schrödinger couldn't help but get a great deal right.

Elementary Cosmology - James J Kolata 2015-12-01

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.

Beyond Extreme Physics - Scientific American 2008

Presents a collection of essays from "Scientific American" on modern physics, covering such topics as the origin of the universe, the nature of mass, the artificial creation of black holes, and string theory.

A Quantum Love Adventure - Annie Wood

The Great Beyond - Paul Halpern 2004-07-05

Offers an intriguing study of the controversial theory of multiple dimensions, discussing the incompatibility of Einstein's theory of general relativity with quantum mechanics, tracing the history of hyperspace theory, and profiling some of the leading scientists in the field and their ground-breaking contributions to the science of physics.

The Quantum Labyrinth - Paul Halpern 2017-10-17

The story of the unlikely friendship between the two physicists who fundamentally recast the notion of time and history In 1939, Richard Feynman, a brilliant graduate of MIT, arrived in John Wheeler's Princeton office to report for duty as his teaching assistant. A lifelong friendship and enormously productive collaboration was born, despite sharp differences in personality. The soft-spoken Wheeler, though conservative in appearance, was a raging nonconformist full of wild ideas about the universe. The boisterous Feynman was a cautious physicist who believed only what could be tested. Yet they were complementary spirits. Their collaboration led to a complete rethinking of the nature of time and reality. It enabled Feynman to show how quantum reality is a combination of alternative, contradictory possibilities, and inspired Wheeler to develop his landmark concept of wormholes, portals to the future and past. Together, Feynman and Wheeler made sure that quantum physics would never be the same again.

Cosmic Jackpot - Paul Davies 2007-04-11

Cosmic Jackpot is Paul Davies's eagerly awaited return to cosmology, the successor to his critically acclaimed bestseller The Mind of God. Here he tackles all the "big questions," including the biggest of them all: Why does the universe seem so well adapted for life? In his characteristically clear and elegant style, Davies shows how recent scientific discoveries point to a perplexing fact: many different aspects of the cosmos, from the properties of the humble carbon atom to the speed of light, seem tailor-made to produce life. A radical new theory says it's because our universe is just one of an infinite number of universes, each one slightly different. Our universe is bio-friendly by accident -- we just happened to win the cosmic jackpot. While this "multiverse" theory is compelling, it has bizarre implications, such as the existence of infinite copies of each of us and Matrix-like simulated universes. And it still leaves a lot unexplained. Davies believes there's a more satisfying solution to the problem of

existence: the observations we make today could help shape the nature of reality in the remote past. If this is true, then life -- and, ultimately, consciousness -- aren't just incidental byproducts of nature, but central players in the evolution of the universe. Whether he's elucidating dark matter or dark energy, M-theory or the multiverse, Davies brings the leading edge of science into sharp focus, provoking us to think about the cosmos and our place within it in new and thrilling ways.

Parallel Worlds - Michio Kaku 2006-02-14

In this thrilling journey into the mysteries of our cosmos, bestselling author Michio Kaku takes us on a dizzying ride to explore black holes and time machines, multidimensional space and, most tantalizing of all, the possibility that parallel universes may lay alongside our own. Kaku skillfully guides us through the latest innovations in string theory and its latest iteration, M-theory, which posits that our universe may be just one in an endless multiverse, a singular bubble floating in a sea of infinite bubble universes. If M-theory is proven correct, we may perhaps finally find answer to the question, "What happened before the big bang?" This is an exciting and unforgettable introduction into the new cutting-edge theories of physics and cosmology from one of the pre-eminent voices in the field.