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KEY=HIDDEN - BENJAMIN BRONSON

WARPED PASSAGES

UNRAVELING THE MYSTERIES OF THE UNIVERSE'S HIDDEN DIMENSIONS

Harper Collins 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.

WARPED PASSAGES

UNRAVELING THE MYSTERIES OF THE UNIVERSE'S HIDDEN DIMENSIONS

Harper Collins The universe has its secrets. It may even hide extra dimensions, different from anything ever imagined. A whole raft of remarkable concepts now rides atop the scientific firmament, including parallel universes, warped geometry, and threedimensional sink-holes. We understand far more about the world than we did just a few short years ago -- and yet we are more uncertain about the true nature of the universe than ever before. Have we reached a point of scientific discovery so advanced that the laws of physics as we know them are simply not sufficient? Will we all soon have to accept explanations that previously remained in the realm of science fiction? Lisa Randall is herself making these extraordinary breakthroughs, pushing back the boundaries of science in her research to answer some of the most fundamental questions posed by Nature. For example, why is the gravitational field from the entire Earth so defenseless against the small tug of a tiny magnet? Searching for answers to such seemingly irresolvable questions has led physicists to postulate extra dimensions, the presence of which may lead to unimaginable gains in scientific understanding. Randall takes us into the incredible world of warped, hidden dimensions that underpin the universe we live in, describing how we might prove their existence, while examining the questions that they still leave unanswered. Warped Passages provides an exhilarating overview that tracks the arc of discovery from early twentieth-century physics to the razor's edge of today's particle physics and string theory, unweaving the current debates about relativity, quantum mechanics, and gravity. In a highly readable style sure to entertain and elucidate, Lisa Randall demystifies the science and beguilingly unravels the mysteries of the myriad worlds that may exist just beyond the one we are only now beginning to know.

WARPED PASSAGES

UNRAVELING THE MYSTERIES OF THE UNIVERSE'S HIDDEN DIMENSIONS

Harper Perennial 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.

WARPED PASSAGES

UNRAVELLING THE UNIVERSE'S HIDDEN DIMENSIONS

Penguin UK In Warped Passages one of the world's most exciting scientists gives us a glimpse into our future. Incredibly readable - and illustrated throughout - it allows the general reader to understand the questions that scientists are dealing with at the frontiers of research today. Lisa Randall allows the reader to understand the kind of problems that extra dimensions might solve and the kind of speculation that is needed even to imagine them. She also gives an introduction to developments in early twentieth century physics, particle physics and string theory and addresses current debates about relativity, quantum mechanics and gravity - and she describes the questions that are still to be solved.

KNOCKING ON HEAVEN'S DOOR

HOW PHYSICS AND SCIENTIFIC THINKING ILLUMINATE THE UNIVERSE AND THE MODERN WORLD

Harper Collins “Science has a battle for hearts and minds on its hands....How good it feels to have Lisa Randall’s unusual blend of top flight science, clarity, and charm on our side.” —Richard Dawkins “Dazzling ideas....Read this book today to understand the science of tomorrow.” —Steven Pinker The bestselling author of Warped Passages, one of Time magazine’s “100 Most Influential People in the World,” and one of Esquire’s “75 Most Influential People of the 21st Century,” Lisa Randall gives us an exhilarating overview of the latest ideas in physics and offers a rousing defense of the role of science in our lives. Featuring fascinating insights into our scientific future born from the author’s provocative conversations with Nate Silver, David Chang, and Scott Derrickson, Knocking on Heaven’s Door is eminently readable, one of the most important popular science books of this or any year. It is a necessary volume for all who admire the work of Stephen Hawking, Michio Kaku, Brian Greene, Simon Singh, and Carl Sagan; for anyone curious about the workings and aims of the Large Hadron Collider, the biggest and most expensive machine ever built by mankind; for those who firmly believe in the importance of science and rational thought; and for anyone interested in how the Universe began...and how it might ultimately end.

DARK MATTER AND THE DINOSAURS

THE ASTOUNDING INTERCONNECTEDNESS OF THE UNIVERSE

HarperCollins In this brilliant exploration of our cosmic environment, the renowned particle physicist and New York Times bestselling author of Warped Passages and Knocking on Heaven’s Door uses her research into dark matter to illuminate the startling connections between the furthest reaches of space and life here on Earth. Sixty-six million years ago, an object the size of a city descended from space to crash into Earth, creating a devastating cataclysm that killed off the dinosaurs, along with three-quarters of the other species on the planet. What was its origin? In Dark Matter and the Dinosaurs, Lisa Randall proposes it was a comet that was dislodged from its orbit as the Solar System passed through a disk of dark matter embedded in the Milky Way. In a sense, it might have been dark matter that killed the dinosaurs. Working through the background and consequences of this proposal, Randall shares with us the latest findings—established and speculative—regarding the nature and role of dark matter and the origin of the Universe, our galaxy, our Solar System, and life, along with the process by which scientists explore new concepts. In Dark Matter and the Dinosaurs, Randall tells a breathtaking story that weaves together the cosmos’ history and our own, illuminating the deep relationships that are critical to our world and the astonishing beauty inherent in the most familiar things.

HIGGS DISCOVERY: THE POWER OF EMPTY SPACE

Harper Collins On July 4, 2012, physicists at the Large Hadron Collider in Geneva madehistory when they discovered an entirely new type of subatomic particle that many scientists believe is the Higgs boson. For forty years, physicists searched for this capstone to the Standard Model of particle physics—the theory that describes both the most elementary components that are known in matter and the forces through which they interact. This particle points to the Higgs field, which provides the key to understanding why elementary particles have mass. In Higgs Discovery, Lisa Randall explains the science behind this monumental discovery, its exhilarating implications, and the power of empty space.

TIME REBORN

FROM THE CRISIS IN PHYSICS TO THE FUTURE OF THE UNIVERSE

Penguin UK In Time Reborn, Lee Smolin, one of our foremost physicists and thinkers offers a radical new view of the nature of time and the cosmos Nothing seems more real than time passing. We experience life itself as a succession of moments. Yet throughout history, the idea that time is an illusion has been a religious and philosophical commonplace. We identify certain truths as 'eternal' constants, from moral principles to the laws of mathematics and nature: these are laws that exist not inside time, but outside it. From Newton and Einstein to today's string theorists and quantum physicists, the widest consensus is that the universe is governed by absolute, timeless laws. In Time Reborn, Lee Smolin argues that this denial of time is holding back both physics, and our understanding of the universe. We need a major revolution in scientific thought: one that embraces the reality of time and places it at the centre of our thinking. E may equal mc squared now, but that wasn't always the case. Similarly, as our understanding of the universe develops, Newton's fundamental laws might not remain so fundamental. Time, Smolin concludes, is not an illusion: it is the best clue we have to fundamental reality. Time Reborn explains how the true nature of time impacts on us, our world, and our universe. 'The strongest dose of clarity in written form to have come along in decades. The implications go far beyond physics, to economics, politics, and personal philosophy. Time Reborn places reality above theory in stronger and clearer terms than ever before, and the result is a path to better theory and potentially to a better society as well. Will no doubt be remembered as one of the essential books of the 21st century' Jaron Lanier [Praise for Lee Smolin's The Trouble With Physics]: 'The best book about contemporary science written for the layman that I have ever read . . . Read this book. Twice' Sunday Times 'Unusually broad and deep . . . his critical judgments are exceptionally penetrating' Roger Penrose 'Brave, uniquely well-informed . . . does a tremendous job' Mail on Sunday Lee Smolin is a theoretical physicist who has made important contributions to the search for quantum gravity. Born in New York City, he was educated at Hampshire College and Harvard University. Since 2001 he is a founding faculty member at Perimeter Institute for Theoretical Physics. His three earlier books explore philosophical issues raised by contemporary physics and cosmology. They are Life of the Cosmos (1997), Three Roads to Quantum Gravity (2001) and The Trouble with Physics (2006). He lives in Toronto.

CYCLES OF TIME

AN EXTRAORDINARY NEW VIEW OF THE UNIVERSE

Vintage From Nobel prize-winner Roger Penrose, this groundbreaking book is for anyone "who is interested in the world, how it works, and how it got here" (New York Journal of Books). Penrose presents a new perspective on three of cosmology’s essential questions: What came before the Big Bang? What is the source of order in our universe? And what cosmic future awaits us? He shows how the expected fate of our ever-accelerating and expanding universe—heat death or ultimate entropy—can actually be reinterpreted as the conditions that will begin a new “Big Bang.” He details the basic principles beneath our universe, explaining various standard and non-standard cosmological models, the fundamental role of the cosmic microwave background, the paramount significance of black holes, and other basic building blocks of contemporary physics. Intellectually thrilling and widely accessible, Cycles of Time is a welcome new contribution to our understanding of the universe from one of our greatest mathematicians and thinkers.

WRINKLES IN TIME

WITNESS TO THE BIRTH OF THE UNIVERSE

Harper Collins Astrophysicist George Smoot spent decades pursuing the origin of the cosmos, "the holy grail of science," a relentless hunt that led him from the rain forests of Brazil to the frozen wastes of Antarctica. In his search he struggled against time, the elements, and the forces of ignorance and bureaucratic insanity. Finally, after years of research, Smoot and his dedicated team of Berkeley researchers succeeded in proving the unprovable—uncovering, inarguably and for all time, the secrets of the creation of the universe. Wrinkles in Time describes this startling discovery that would usher in a new scientific age—and win Smoot the Nobel Prize in Physics.

DARK MATTER AND THE DINOSAURS

THE ASTOUNDING INTERCONNECTEDNESS OF THE UNIVERSE

Random House 66 million years ago, a ten-mile-wide object from outer space hurtled into the Earth at incredible speed. The impact annihilated the dinosaurs, along with three-quarters of the other

species on the planet. But what if this catastrophe was the sign of something greater- an opening vista onto the interconnectedness of the universe itself? This is the story of the astounding forces that underpin our existence; a horizon-expanding tour of the cosmos that unifies what we know about the universe with new thinking. From the far-flung reaches of space, the makeup of the universe and our solar system's place within it, to the mysterious and elusive stuff of dark matter and how it affects life here on Earth.

THE COMPLETE IDIOT'S GUIDE TO STRING THEORY

TAKE YOUR UNDERSTANDING OF PHYSICS INTO A WHOLE NEW DIMENSION!

Penguin Everything is connected... We''re living in the midst of a scientific revolution that''s captured the general public''s attention and imagination. The aim of this new revolution is to develop a "theory of everything"- -- a set of laws of physics that will explain all that can be explained, ranging from the tiniest subatomic particle to the universe as a whole. Here, readers will learn the ideas behind the theories, and their effects upon our world, our civilization, and ourselves.

SEA OF DARKNESS

UNRAVELING THE MYSTERIES OF THE H.L. HUNLEY

Spry Publishing LLC On a dark night in February of 1864, the H.L. Hunley, the first submarine to sink an enemy ship in combat, torpedoed the Union blockade ship USS Housatonic, a feat that would not be repeated for another 50 years. But fate was not kind to the Hunley that night as it sank with all of its crew on board before it could return to shore. Considered by many to be the Civil War’s greatest mystery, the Hunley’s demise and its resting place have been a topic of discussion for historians and Civil War buffs alike for more than a hundred years. Adding still more to the intrigue, the vessel was discovered in 1995 by a dive team led by famed novelist and shipwreck hunter Clive Cussler, sparking an underwater investigation that resulted in the raising of the Hunley on August 8, 2000. Since that time, the extensive research and restorative efforts underway have unraveled the incredible secrets that were locked within the submarine at the bottom of the Atlantic Ocean. Join Civil War expert Brian Hicks as Sea of Darkness recounts the most historically accurate narrative of the sinking and eventual recovery ever written. Hicks has been given unprecedented access to all the main characters involved in the discovery, raising, and restoration of the Hunley. Complete with a foreword and additional commentary by Clive Cussler, Sea of Darkness offers new, never-before-published evidence on the cause of the Hunley’s sinking, providing readers a tantalizing behind-the-scenes look inside the historic submarine.

RESCUING THE PLANET

PROTECTING HALF THE LAND TO HEAL THE EARTH

Vintage An urgent, resounding call to protect 50 percent of the earth's land by 2050--thereby saving millions of its species--and a candid assessment of the health of our planet and our role in conserving it, from the award-winning author of The Experience of Place and veteran New Yorker staff writer. "An upbeat and engaging account of the remarkable progress being made to preserve vast wild spaces for animals to roam." --The Wall Street Journal Beginning in the vast North American Boreal Forest that stretches through Canada, and roving across the continent, from the Northern Sierra to Alabama's Paint Rock Forest, from the Appalachian Trail to a ranch in Mexico, Tony Hiss sets out on a journey to take stock of the "superorganism" that is the earth: its land, its elements, its plants and animals, its greatest threats--and what we can do to keep it, and ourselves, alive. Hiss not only invites us to understand the scope and gravity of the problems we face, but also makes the case for why protecting half the land is the way to fix those problems. He highlights the important work of the many groups already involved in this fight, such as the Indigenous Leadership Initiative, the Yellowstone to Yukon Conservation Initiative, and the global animal tracking project ICARUS. And he introduces us to the engineers, geologists, biologists, botanists, oceanographers, ecologists, and other "Half Earthers" like Hiss himself who are allied in their dedication to the unifying, essential cause of saving our own planet from ourselves. Tender, impassioned, curious, and above all else inspiring, Rescuing the Planet is a work that promises to make all of us better citizens of the earth.

THIS WAY TO THE UNIVERSE

A THEORETICAL PHYSICIST'S JOURNEY TO THE EDGE OF REALITY

Penguin For readers of Sean Carroll, Brian Greene, Katie Mack, and anyone who wants to know what theoretical physicists actually do. This Way to the Universe is a celebration of the astounding, ongoing scientific investigations that have revealed the nature of reality at its smallest, at its largest, and at the scale of our daily lives. The enigmas that Professor Michael Dine discusses are like landmarks on a

fantastic journey to the edge of the universe. Asked where to find out about the Big Bang, Dark Matter, the Higgs boson particle—the long cutting edge of physics right now—Dine had no single book he could recommend. This is his accessible, authoritative, and up-to-date answer. Comprehensible to anyone with a high-school level education, with almost no equations, there is no better author to take you on this amazing odyssey. Dine is widely recognized as having made profound contributions to our understanding of matter, time, the Big Bang, and even what might have come before it. This Way to the Universe touches on many emotional, critical points in his extraordinary carreer while presenting mind-bending physics like his answer to the Dark Matter and Dark Energy mysteries as well as the ideas that explain why our universe consists of something rather than nothing. People assume String Theory can never be tested, but Dine intrepidly explores exactly how the theory might be tested experimentally, as well as the pitfalls of falling in love with math. This book reflects a lifetime pursuing the deepest mysteries of reality, by one of the most humble and warmly engaging voices you will ever read.

THE BLACK HOLE WAR

MY BATTLE WITH STEPHEN HAWKING TO MAKE THE WORLD SAFE FOR QUANTUM MECHANICS

Little, Brown 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.

ENTANGLED MINDS

EXTRASENSORY EXPERIENCES IN A QUANTUM REALITY

Simon and Schuster Is everything connected? Can we sense what's happening to loved ones thousands of miles away? Why are we sometimes certain of a caller's identity the instant the phone rings? Do intuitive hunches contain information about future events? Is it possible to perceive without the use of the ordinary senses? Many people believe that such "psychic phenomena" are rare talents or divine gifts. Others don't believe they exist at all. But the latest scientific research shows that these phenomena are both real and widespread, and are an unavoidable consequence of the interconnected, entangled physical reality we live in. Albert Einstein called entanglement "spooky action at a distance" -- the way two objects remain connected through time and space, without communicating in any conventional way, long after their initial interaction has taken place. Could a similar entanglement of minds explain our apparent psychic abilities? Dean Radin, senior scientist at the Institute of Noetic Sciences, believes it might. In this illuminating book, Radin shows how we know that psychic phenomena such as telepathy, clairvoyance, and psychokinesis are real, based on scientific evidence from thousands of controlled lab tests. Radin surveys the origins of this research and explores, among many topics, the collective premonitions of 9/11. He reveals the physical reality behind our uncanny telepathic experiences and intuitive hunches, and he debunks the skeptical myths surrounding them. Entangled Minds sets the stage for a rational, scientific understanding of psychic experience.

THE LIVES OF A CELL

NOTES OF A BIOLOGY WATCHER

Penguin Elegant, suggestive, and clarifying, Lewis Thomas's profoundly humane vision explores the world around us and examines the complex interdependence of all things. Extending beyond the usual limitations of biological science and into a vast and wondrous world of hidden relationships, this provocative book explores in personal, poetic essays to topics such as computers, germs, language, music, death, insects, and medicine. Lewis Thomas writes, "Once you have become permanently startled, as I am, by the realization that we are a social species, you tend to keep an eye out for the pieces of evidence that this is, by and large, good for us."

THE FABRIC OF REALITY

Penguin UK An extraordinary and challenging synthesis of ideas uniting Quantum Theory, and the theories of Computation, Knowledge and Evolution, Deutsch's extraordinary book explores the deep connections between these strands which reveal the fabric of realityin which human actions and ideas play essential roles.

THE WHOLE SHEBANG

A STATE OF THE UNIVERSE REPORT

Simon and Schuster A non-technical account of recent astronomical research makes all that is known about the universe accessible to the average reader, in a study that integrates scientific personalities with hard facts, vivid explanations, and authoritative speculation

THE SHAPE OF INNER SPACE

STRING THEORY AND THE GEOMETRY OF THE UNIVERSE'S HIDDEN DIMENSIONS

Il Saggiatore 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.

QUANTUM PHYSICS

WHAT EVERYONE NEEDS TO KNOW

Oxford University Press "In question & answer format, discusses the history, science, applications, and relevant current issues of quantum physics in an accessible way for the non-scientist"--

ELEMENTARY COSMOLOGY

FROM ARISTOTLE'S UNIVERSE TO THE BIG BANG AND BEYOND

Morgan & Claypool Publishers 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.

KNOCKING ON HEAVEN'S DOOR

HOW PHYSICS AND SCIENTIFIC THINKING ILLUMINATE THE UNIVERSE AND THE MODERN WORLD

Random House "From the one of Time magazine's "100 Most Influential People in the World"-- and bestselling author of Warped Passages--an exhilarating and readable overview of the latest ideas in physics and a rousing defense of the role of science in our lives"--

CORRESPONDENCE

Hackett Publishing After Leibniz's death in 1716, Clarke published an edition of their philosophical correspondence--a wide-ranging discussion of the nature of God, human souls, free will and indifference of choice, space and time, the vacuum, miracles, and matter and force. Clarke included his own letters, his translations of Leibniz's letters, and some translated passages from Leibniz's French and Latin works that helped to illuminate their exchanges.

MATHEMATICAL ANALYSIS

New Age International The Book Is Intended To Serve As A Text In Analysis By The Honours And Post-Graduate Students Of The Various Universities. Professional Or Those Preparing For Competitive Examinations Will Also Find This Book Useful.The Book Discusses The Theory From Its Very Beginning. The Foundations Have Been Laid Very Carefully And The Treatment Is Rigorous And On Modem Lines.

It Opens With A Brief Outline Of The Essential Properties Of Rational Numbers And Using Dedekinds Cut, The Properties Of Real Numbers Are Established. This Foundation Supports The Subsequent Chapters: Topological Frame Work Real Sequences And Series, Continuity Differentiation, Functions Of Several Variables, Elementary And Implicit Functions, Riemann And Riemann-Stieltjes Integrals, Lebesgue Integrals, Surface, Double And Triple Integrals Are Discussed In Detail. Uniform Convergence, Power Series, Fourier Series, Improper Integrals Have Been Presented In As Simple And Lucid Manner As Possible And Fairly Large Number Solved Examples To Illustrate Various Types Have Been Introduced.As Per Need, In The Present Set Up, A Chapter On Metric Spaces Discussing Completeness, Compactness And Connectedness Of The Spaces Has Been Added. Finally Two Appendices Discussing Beta-Gamma Functions, And Cantors Theory Of Real Numbers Add Glory To The Contents Of The Book.

A BEGINNER'S GUIDE TO CONSTRUCTING THE UNIVERSE

THE MATHEMATICAL ARCHETYPES OF NATURE, ART, AND SCIENCE

Harper Collins Discover how mathematical sequences abound in our natural world in this definitive exploration of the geography of the cosmos You need not be a philosopher or a botanist, and certainly not a mathematician, to enjoy the bounty of the world around us. But is there some sort of order, a pattern, to the things that we see in the sky, on the ground, at the beach? In A Beginner's Guide to Constructing the Universe, Michael Schneider, an education writer and computer consultant, combines science, philosophy, art, and common sense to reaffirm what the ancients observed: that a consistent language of geometric design underpins every level of the universe, from atoms to galaxies, cucumbers to cathedrals. Schneider also discusses numerical and geometric symbolism through the ages, and concepts such as periodic renewal and resonance. This book is an education in the world and everything we can't see within it. Contains numerous b&w photos and illustrations.

KNOCKING ON HEAVEN'S DOOR

THE PATH TO A BETTER WAY OF DEATH

Simon and Schuster Outlines a less invasive, more humane approach to end-of-life care, sharing the stories of the author's parents and explaining the political and technological factors that are interfering with patient preferences.

ENDLESS UNIVERSE

BEYOND THE BIG BANG

Crown 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).

PARTIAL CHEMOTHERAPY OF THREE CEREAL VIRUSES AND TOBACCO MOSAIC VIRUS WITH CERTAIN ANALOGUES OF PURINE AND PYRIMIDINE AND SEVERAL OTHER ORGANIC COMPOUNDS

Hassell Street Press This work has been selected by scholars as being culturally important and is part of the knowledge base of civilization as we know it. This work is in the public domain in the United States of America, and possibly other nations. Within the United States, you may freely copy and distribute this work, as no entity (individual or corporate) has a copyright on the body of the work. Scholars believe, and we concur, that this work is important enough to be preserved, reproduced, and made generally available to the public. To ensure a quality reading experience, this work has been proofread and republished using a format that seamlessly blends the original graphical elements with text in an easy-to-read typeface. We appreciate your support of the preservation process, and thank you for

being an important part of keeping this knowledge alive and relevant.

TIME TRAVEL AND WARP DRIVES

A SCIENTIFIC GUIDE TO SHORTCUTS THROUGH TIME AND SPACE

University of Chicago Press Discusses what people understand about space and time and how science fiction is becoming less fictional as time goes on.

FEAR OF A BLACK UNIVERSE

AN OUTSIDER'S GUIDE TO THE FUTURE OF PHYSICS

Basic Books "The rabbit hole gets wrestled here. An old school saying applies: the more you know, the more you don’t know. Dance along this read into the unknown and find out that this book may be the best ever answer to ‘What is soul?'" —Chuck D, rapper and co-founder of Public Enemy *Starred Reviews* from Kirkus and Publishers Weekly! Named a Best Book of 2021 by Library Journal, Kirkus, and symmetry Magazine In this important guide to science and society, a cosmologist argues that physics must embrace the excluded, listen to the unheard, and be unafraid of being wrong. Years ago, cosmologist Stephon Alexander received life-changing advice: to discover real physics, he needed to stop memorizing and start taking risks. In Fear of a Black Universe, Alexander shows that great physics requires us to think outside the mainstream -- to improvise and rely on intuition. His approach leads him to three principles that shape all theories of the universe: the principle of invariance, the quantum principle, and the principle of emergence. Alexander uses them to explore some of physics' greatest mysteries, from what happened before the big bang to how the universe makes consciousness possible. Drawing on his experience as a Black physicist, he makes a powerful case for diversifying our scientific communities. Compelling and empowering, Fear of a Black Universe offers remarkable insight into the art of physics.

HOW TO BUILD A TIME MACHINE

Penguin With his unique knack for making cutting-edge theoretical science effortlessly accessible, world-renowned physicist Paul Davies now tackles an issue that has boggled minds for centuries: Is time travel possible? The answer, insists Davies, is definitely yes—once you iron out a few kinks in the space-time continuum. With tongue placed firmly in cheek, Davies explains the theoretical physics that make visiting the future and revisiting the past possible, then proceeds to lay out a four-stage process for assembling a time machine and making it work. Wildly inventive and theoretically sound, How to Build a Time Machine is creative science at its best—illuminating, entertaining, and thought provoking.

STIFF: THE CURIOUS LIVES OF HUMAN CADAVERS

W. W. Norton & Company A look inside the world of forensics examines the use of human cadavers in a wide range of endeavors, including research into new surgical procedures, space exploration, and a Tennessee human decay research facility.

QUITTING AMERICA

THE DEPARTURE OF A BLACK MAN FROM HIS NATIVE LAND

Plume A distinguished African-American activist and author describes his decision to leave America for a life in the Caribbean, sharing his need to escape the racism he has fought all his life for a more peaceful locale and discussing the current state of socioeconomic and political affairs in America. Reprint.

EARTH AND SPACE

PHOTOGRAPHS FROM THE ARCHIVES OF NASA

Chronicle Books “[A] glorious, pictorial tour of the universe . . . beginning with photos depicting Earth from space and progressing through . . . the individual planets.” —School Library Journal Preface by Bill Nye Take a tour of the universe with this breathtaking collection of photographs from the archives of NASA. Astonishing images of Earth from above, the phenomena of our solar system, and the celestial bodies of deep space will captivate readers and photography lovers with an interest in science, astronomy, and the great beyond. Each extraordinary photograph from the legendary space agency

is paired with explanatory text that contextualizes its place in the cosmic ballet of planets, stars, dust, and matter—from Earth’s limb to solar flares, the Jellyfish Nebula to Pandora’s Cluster. Featuring a preface by Bill Nye, this engaging ebook offers up-close views of our remarkable cosmos, and sparks wonder at the marvels of Earth and space. “Delve into the great beyond with these awe-inspiring photos from NASA’s archive.” —Entertainment Weekly “Puts some of our most magnificent space imagery in context, and it’s enough to make anyone feel like just the tiniest little speck of stardust.” —BuzzFeed

THE CORROSION OF CHARACTER: THE PERSONAL CONSEQUENCES OF WORK IN THE NEW CAPITALISM

W. W. Norton & Company A Business Week Best Book of the Year.... "A devastating and wholly necessary book."—Studs Terkel, author of Working In The Corrosion of Character, Richard Sennett, "among the country's most distinguished thinkers . . . has concentrated into 176 pages a profoundly affecting argument" (Business Week) that draws on interviews with dismissed IBM executives, bakers, a bartender turned advertising executive, and many others to call into question the terms of our new economy. In his 1972 classic, The Hidden Injuries of Class (written with Jonathan Cobb), Sennett interviewed a man he called Enrico, a hardworking janitor whose life was structured by a union pay schedule and given meaning by his sacrifices for the future. In this new book-a #1 bestseller in Germany-Sennett explores the contemporary scene characterized by Enrico's son, Rico, whose life is more materially successful, yet whose work lacks long-term commitments or loyalties. Distinguished by Sennett's "combination of broad historical and literary learning and a reporter's willingness to walk into a store or factory [and] strike up a conversation" (New York Times Book Review), this book "challenges the reader to decide whether the flexibility of modern capitalism . . . is merely a fresh form of oppression" (Publishers Weekly, starred review). Praise for The Corrosion of Character: "A benchmark for our time."—Daniel Bell "[A]n incredibly insightful book."—William Julius Wilson "[A] remarkable synthesis of acute empirical observation and serious moral reflection."—Richard Rorty "[Sennett] offers abundant fresh insights . . . illuminated by his concern with people's struggle to give meaning to their lives."—[Memphis] Commercial Appeal

QUANTUM PHYSICS FOR DUMMIES

John Wiley & Sons Quantum Physics For Dummies, Revised Edition helps makequantum physics understandable and accessible. From what quantumphysics can do for the world to understanding hydrogen atoms,readers will get complete coverage of the subject, along withnumerous examples to help them tackle the tough equations.Compatible with classroom text books and courses, QuantumPhysics For Dummies, Revised Edition lets students study attheir own paces and helps them prepare for graduate or professionalexams. Coverage includes: The Schrodinger Equation and its Applications The Foundations of Quantum Physics Vector Notation Spin Scattering Theory, Angular Momentum, and more Your plain-English guide to understanding and working withthe micro world Quantum physics — also called quantum mechanics or quantumfield theory — can be daunting for even the most dedicatedstudent or enthusiast of science, math, or physics. This friendly,concise guide makes this challenging subject understandable andaccessible, from atoms to particles to gases and beyond. Plus, it'spacked with fully explained examples to help you tackle the trickyequations like a pro! Compatible with any classroom course — study at your ownpace and prepare for graduate or professional exams Your journey begins here — understand what quantumphysics is and what kinds of problems it can solve Know the basic math — from state vectors to quantummatrix manipulations, get the foundation you need to proceed Put quantum physics to work — make sense ofSchrödinger's equation and handle particles bound in squarewells and harmonic oscillators Solve problems in three dimensions — use the fulloperators to handle wave functions and eigenvectors to find thenatural wave functions of a system Discover the latest research — learn the cutting-edgequantum physics theories that aim to explain the universeitself

UNTIL THE END OF TIME

MIND, MATTER, AND OUR SEARCH FOR MEANING IN AN EVOLVING UNIVERSE

Vintage NEW YORK TIMES BESTSELLER • A captivating exploration of deep time and humanity's search for purpose, from the world-renowned physicist and best-selling author of The Elegant Universe. "Few humans share Greene’s mastery of both the latest cosmological science and English prose." —The New York Times Until the End of Time is Brian Greene's breathtaking new exploration of the cosmos and our quest to find meaning in the face of this vast expanse. Greene takes us on a journey from the big bang to the end of time, exploring how lasting structures formed, how life and mind emerged, and how we grapple with our existence through narrative, myth, religion, creative expression, science, the quest for truth, and a deep longing for the eternal. From particles to planets, consciousness to creativity, matter to meaning—Brian Greene allows us all to grasp and appreciate our fleeting but utterly exquisite moment in the cosmos.

THE 4 PERCENT UNIVERSE

DARK MATTER, DARK ENERGY, AND THE RACE TO DISCOVER THE REST OF REALITY

HarperCollins The epic, behind-the-scenes story of an astounding gap in our scientific knowledge of the cosmos. In the past few years, a handful of scientists have been in a race to explain a disturbing

aspect of our universe: only 4 percent of it consists of the matter that makes up you, me, our books, and every planet, star, and galaxy. The rest—96 percent of the universe—is completely unknown. Richard Panek tells the dramatic story of how scientists reached this conclusion, and what they're doing to find this "dark" matter and an even more bizarre substance called dark energy. Based on in-depth, on-site reporting and hundreds of interviews—with everyone from Berkeley's feisty Saul Perlmutter and Johns Hopkins's meticulous Adam Riess to the quietly revolutionary Vera Rubin—the book offers an intimate portrait of the bitter rivalries and fruitful collaborations, the eureka moments and blind alleys, that have fueled their search, redefined science, and reinvented the universe.