

# Death By Black Hole Other Cosmic Quandaries

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**Exploring Black Holes** - Edwin F. Taylor 2010

This unique book offers a concise, introductory overview of general relativity and black holes, motivating students to become active participants in carrying out their own investigations. To this end,

the book uses calculus and algebra, rather than tensors, to make general relativity accessible to sophomores and juniors. Five chapters introduce basic concepts, and seven projects require the reader to apply these basic concepts to real astronomical

applications.

**Three Hundred Years of Gravitation** - S. W.

Hawking 1987

A collection of reviews by prominent researchers in cosmology, relativity and particle physics commemorates the 300th anniversary of Newton's *Philosophiae Naturalis Principia Mathematica*.

*A Stubbornly Persistent Illusion* - Albert Einstein

2009-09-29

The celebrated physicist and author of *A Brief History of Time* brings together a single-volume compilation of the most important works by Albert Einstein, presenting his papers on the Theory of Relativity, quantum theory, statistical mechanics, the photoelectric effect, and other ground-breaking studies that transformed modern physics. 75,000 first printing.

**Hamlet** -

**Fear of a Black Universe** - Stephon Alexander

2021-08-31

"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.

*The Handy Astronomy Answer Book* - Charles Liu, PhD 2013-09-01

From planetary movements and the exploration of our solar system to black holes and dark matter, this comprehensive reference simplifies all aspects of astronomy with an approachable question-and-answer format. With chapters broken into various

astronomical studies—including the universe, galaxies, planets, and space exploration—this fully updated resource is an ideal companion for students, teachers, and amateur astronomers, answering more than 1,000 questions, such as Is the universe infinite? What would happen to you if you fell onto a black hole? What are the basic concepts of Einstein's special theory of relativity? and Who was the first person in space?

*Origins: Fourteen Billion Years of Cosmic Evolution* - Neil deGrasse Tyson 2022-09-20

“Who can ask for better cosmic tour guides?”

—Michio Kaku Our true origins are not only human, or even terrestrial, but in fact cosmic.

Drawing on recent scientific breakthroughs and cross-pollination among geology, biology, astrophysics, and cosmology, *Origins* illuminates the soul-stirring leaps in our understanding of the cosmos. This revised and updated edition features

such startling discoveries as the now more than 5,000 detected exoplanets that promise to reveal exciting possibilities for life in the cosmos, and data from a new generation of ground-based and spaceborne observatories that have fundamentally changed what we know about the expanding universe—and maybe even the laws of physics themselves. From the first image of a galaxy’s birth to tantalizing evidence of water not only on Mars but also on the asteroid Ceres, as well as on moons of Jupiter and Saturn, coauthors Neil deGrasse Tyson and Donald Goldsmith conduct an exhilarating tour of the cosmos with clarity and exuberance.

Welcome to the Universe - Neil deGrasse Tyson  
2017-09-12

An essential companion to the New York Times bestseller *Welcome to the Universe* Here is the essential companion to *Welcome to the Universe*, a New York Times bestseller that was inspired by

the enormously popular introductory astronomy course for non science majors that Neil deGrasse Tyson, Michael A. Strauss, and J. Richard Gott taught together at Princeton. This problem book features more than one hundred problems and exercises used in the original course—ideal for anyone who wants to deepen their understanding of the original material and to learn to think like an astrophysicist. Whether you’re a student or teacher, citizen scientist or science enthusiast, your guided tour of the cosmos just got even more hands-on with *Welcome to the Universe: The Problem Book*. The essential companion book to the acclaimed bestseller Features the problems used in the original introductory astronomy course for non science majors at Princeton University Organized according to the structure of *Welcome to the Universe*, empowering readers to explore real astrophysical problems that are conceptually introduced in each

chapter Problems are designed to stimulate physical insight into the frontier of astrophysics Problems develop quantitative skills, yet use math no more advanced than high school algebra Problems are often multipart, building critical thinking and quantitative skills and developing readers' insight into what astrophysicists do Ideal for course use—either in tandem with *Welcome to the Universe* or as a supplement to courses using standard astronomy textbooks—or self-study Tested in the classroom over numerous semesters for more than a decade Prefaced with a review of relevant concepts and equations Full solutions and explanations are provided, allowing students and other readers to check their own understanding

*Letters from an Astrophysicist* - Neil deGrasse Tyson 2019-10-08

New York Times Bestseller A luminous companion to the phenomenal bestseller *Astrophysics for*

*People in a Hurry*. Astrophysicist Neil deGrasse Tyson has attracted one of the world's largest online followings with his fascinating, widely accessible insights into science and our universe. Now, Tyson invites us to go behind the scenes of his public fame by revealing his correspondence with people across the globe who have sought him out in search of answers. In this hand-picked collection of 101 letters, Tyson draws upon cosmic perspectives to address a vast array of questions about science, faith, philosophy, life, and of course, Pluto. His succinct, opinionated, passionate, and often funny responses reflect his popularity and standing as a leading educator. Tyson's 2017 bestseller *Astrophysics for People in a Hurry* offered more than one million readers an insightful and accessible understanding of the universe. Tyson's most candid and heartfelt writing yet, *Letters from an Astrophysicist* introduces us to a newly personal dimension of

Tyson's quest to explore our place in the cosmos. [The Pluto Files: The Rise and Fall of America's Favorite Planet](#) - Neil deGrasse Tyson 2010-07-12  
The New York Times bestseller: "You gotta read this. It is the most exciting book about Pluto you will ever read in your life." —Jon Stewart  
When the Rose Center for Earth and Space at the American Museum of Natural History reclassified Pluto as an icy comet, the New York Times proclaimed on page one, "Pluto Not a Planet? Only in New York." Immediately, the public, professionals, and press were choosing sides over Pluto's planethood. Pluto is entrenched in our cultural and emotional view of the cosmos, and Neil deGrasse Tyson, award-winning author and director of the Rose Center, is on a quest to discover why. He stood at the heart of the controversy over Pluto's demotion, and consequently Plutophiles have freely shared their opinions with him, including endless

hate mail from third-graders. With his inimitable wit, Tyson delivers a minihistory of planets, describes the oversized characters of the people who study them, and recounts how America's favorite planet was ousted from the cosmic hub.

*Universe Down to Earth* - Neil deGrasse Tyson  
1994

Bringing demonstrations of the principles of nature into the living room, Tyson writes in a lucid, easygoing style that finally makes scientific literacy possible for enthusiasts and those with math and science phobias alike.

**Gravity's Fatal Attraction** - Mitchell Begelman  
2009-12-21

Richly illustrated with the images from observatories on the ground and in space, and computer simulations, this book shows how black holes were discovered, and discusses our current understanding of their role in cosmic evolution.

This second edition covers new discoveries made in the past decade, including definitive proof of a black hole at the center of the Milky Way, evidence that the expansion of the Universe is accelerating, and the new appreciation of the connection between black holes and galaxy formation. There are entirely new chapters on gamma-ray bursts and cosmic feedback. Begelman and Rees blend theoretical arguments with observational results to demonstrate how both approaches contributed to this subject. Clear illustrations and photographs reveal the strange and amazing workings of our universe. The engaging style makes this book suitable for introductory undergraduate courses, amateur astronomers, and all readers interested in astronomy and physics.

**King Death** - Colin Platt 2014-07-10

This illustrated survey examines what it was actually like to live with plague and the threat of

plague in late-medieval and early modern England.; Colin Platt's books include "The English Medieval Town", "Medieval England: A Social History and Archaeology from the Conquest to 1600" and "The Architecture of Medieval Britain: A Social History" which won the Wolfson Prize for 1990. This book is intended for undergraduate/6th form courses on medieval England, option courses on demography, medicine, family and social focus. The "black death" and population decline is central to A-level syllabuses on this period.

**Difference Equations** - Ronald E. Mickens 1987

**StarTalk** - Neil deGrasse Tyson 2019-02-19

This illustrated companion to the popular podcast and National Geographic Channel show is an eye-opening journey for anyone curious about our universe, space, astronomy and the complexities of the cosmos. For decades, beloved astrophysicist Neil

deGrasse Tyson has interpreted science with a combination of brainpower and charm that resonates with fans everywhere. This pioneering, provocative book brings together the best of StarTalk, his beloved podcast and television show devoted to solving the most confounding mysteries of Earth, space, and what it means to be human. Filled with brilliant sidebars, vivid photography, and unforgettable quotes from Tyson and his brilliant cohort of science and entertainment luminaries, StarTalk will help answer all of your most pressing questions about our world—from how the brain works to the physics of comic book superheroes. Fun, smart, and laugh-out-loud funny, this book is the perfect guide to everything you ever wanted to know about the universe—and beyond.

**Mouseheart** - Lisa Fiedler 2014-05-20

A first entry in an epic animal adventure series set

in the subway tunnels of Brooklyn follows the experiences of an escaped pet shop mouse who descends into a utopian rat civilization before confronting threatening rebels, ravenous cats and a generations-long battle involving deadly secrets.

*Welcome to the Universe* - Neil deGrasse Tyson  
2016-09-29

The New York Times bestselling tour of the cosmos from three of today's leading astrophysicists  
*Welcome to the Universe* is a personal guided tour of the cosmos by three of today's leading astrophysicists. Inspired by the enormously popular introductory astronomy course that Neil deGrasse Tyson, Michael A. Strauss, and J. Richard Gott taught together at Princeton, this book covers it all—from planets, stars, and galaxies to black holes, wormholes, and time travel. Describing the latest discoveries in astrophysics, the informative and entertaining narrative propels you from our home

solar system to the outermost frontiers of space. How do stars live and die? Why did Pluto lose its planetary status? What are the prospects of intelligent life elsewhere in the universe? How did the universe begin? Why is it expanding and why is its expansion accelerating? Is our universe alone or part of an infinite multiverse? Answering these and many other questions, the authors open your eyes to the wonders of the cosmos, sharing their knowledge of how the universe works.

Breathtaking in scope and stunningly illustrated throughout, *Welcome to the Universe* is for those who hunger for insights into our evolving universe that only world-class astrophysicists can provide.

*Death by Black Hole* - Neil deGrasse Tyson 2007

A collection of essays on the cosmos, written by an American Museum of Natural History astrophysicist, includes "Holy Wars," "Ends of the World," and "Hollywood Nights."

*Black Hole Survival Guide* - Janna Levin

2020-11-10

From the acclaimed author of *Black Hole Blues* and *Other Songs from Outer Space*—an authoritative and accessible guide to the most alluring and challenging phenomena of contemporary science.

"[Levin will] take you on a safe black hole trip, an exciting travel story enjoyed from your chair's event horizon." —*Boston Globe* Through her writing, astrophysicist Janna Levin has focused on making the science she studies not just comprehensible but also, and perhaps more important, intriguing to the nonscientist. In this book, she helps us to understand and find delight in the black hole—perhaps the most opaque theoretical construct ever imagined by physicists—illustrated with original artwork by American painter and photographer Lia Halloran. Levin takes us on an evocative exploration of black holes, provoking us to

imagine the visceral experience of a black hole encounter. She reveals the influence of black holes as they populate the universe, sculpt galaxies, and even infuse the whole expanse of reality that we inhabit. Lively, engaging, and utterly unique, *Black Hole Survival Guide* is not just informative—it is, as well, a wonderful read from first to last.

**Cosmic Queries** - Neil deGrasse Tyson 2021-03-02

In this thought-provoking follow-up to his acclaimed *StarTalk* book, uber astrophysicist Neil deGrasse Tyson tackles the world's most important philosophical questions about the universe with wit, wisdom, and cutting-edge science. For science geeks, space and physics nerds, and all who want to understand their place in the universe, this enlightening new book from Neil deGrasse Tyson offers a unique take on the mysteries and curiosities of the cosmos, building on rich material from his beloved *StarTalk* podcast. In these illuminating

pages, illustrated with dazzling photos and revealing graphics, Tyson and co-author James Trefil, a renowned physicist and science popularizer, take on the big questions that humanity has been posing for millennia--How did life begin? What is our place in the universe? Are we alone?--and provide answers based on the most current data, observations, and theories. Populated with paradigm-shifting discoveries that help explain the building blocks of astrophysics, this relatable and entertaining book will engage and inspire readers of all ages, bring sophisticated concepts within reach, and offer a window into the complexities of the cosmos. or all who loved *National Geographic's StarTalk* with Neil deGrasse Tyson, *Cosmos: Possible Worlds*, and *Space Atlas*, this new book will take them on more journeys into the wonders of the universe and beyond.

*Einstein's Monsters* - Chris Impey 2018-11-12

An astronomer answers questions on the cutting edge of astrophysics to explore the science of black holes and their role in theoretical physics, from Einstein's equations of general relativity to testing string theory.

*A Brief Welcome to the Universe* - Neil deGrasse Tyson 2021-09-07

A pocket-style edition based on the New York Times bestseller *A Brief Welcome to the Universe* offers a breathtaking tour of the cosmos, from planets, stars, and galaxies to black holes and time loops. Bestselling authors and acclaimed astrophysicists Neil deGrasse Tyson, Michael A. Strauss, and J. Richard Gott take readers on an unforgettable journey of exploration to reveal how our universe actually works. Propelling you from our home solar system to the outermost frontiers of space, this book builds your cosmic insight and perspective through a marvelously entertaining

narrative. How do stars live and die? What are the prospects of intelligent life elsewhere in the universe? How did the universe begin? Why is it expanding and accelerating? Is our universe alone or part of an infinite multiverse? Exploring these and many other questions, this pocket-friendly book is your passport into the wonders of our evolving cosmos.

**Dark Matter and Dark Energy** - Brian Clegg  
2019-08-08

All the matter and light we can see in the universe makes up a trivial 5 per cent of everything. The rest is hidden. This could be the biggest puzzle that science has ever faced. Since the 1970s, astronomers have been aware that galaxies have far too little matter in them to account for the way they spin around: they should fly apart, but something concealed holds them together. That 'something' is dark matter – invisible material in five times the

quantity of the familiar stuff of stars and planets. By the 1990s we also knew that the expansion of the universe was accelerating. Something, named dark energy, is pushing it to expand faster and faster. Across the universe, this requires enough energy that the equivalent mass would be nearly fourteen times greater than all the visible material in existence. Brian Clegg explains this major conundrum in modern science and looks at how scientists are beginning to find solutions to it.

*The Case For Mars* - Robert Zubrin 2012-12-11

Since the beginning of human history Mars has been an alluring dream; the stuff of legends, gods, and mystery. The planet most like ours, it has still been thought impossible to reach, let alone explore and inhabit. Now with the advent of a revolutionary new plan, all this has changed.

Leading space exploration authority Robert Zubrin has crafted a daring new blueprint, Mars Direct,

presented here with illustrations, photographs, and engaging anecdotes. *The Case for Mars* is not a vision for the far future or one that will cost us impossible billions. It explains step-by-step how we can use present-day technology to send humans to Mars within ten years; actually produce fuel and oxygen on the planet's surface with Martian natural resources; how we can build bases and settlements; and how we can one day "terraform" Mars; a process that can alter the atmosphere of planets and pave the way for sustainable life.

*Welcome to the Universe in 3D* - Neil deGrasse Tyson 2022-04-19

Presenting a rich array of stereoscopic color images, which can be viewed in 3D using a special stereo viewer that folds easily out of the cover of the book, this book reveals your cosmic environment as you have never seen it before. Journey into the vast depths of the observable universe by visualising the

most spectacular images in astronomy in stereoscopic 3D. **Welcome to the Universe in 3D** takes you on a grand tour of the observable universe, guiding you through the most spectacular sights in the cosmos a in breathtaking 3D. Astronomy is the story of how humankind's perception of the two-dimensional dome of the sky evolved into a far deeper comprehension of an expanding three-dimensional cosmos. This book invites you to take part in this story by exploring the universe in depth, as revealed by cutting-edge astronomical research and observations. You will journey from the Moon through the solar system, out to exoplanets, distant nebulas, and galaxy clusters, until you finally reach the cosmic microwave background radiation (or CMB), the most distant light we can observe. The distances to these celestial wonders range from 1.3 light-seconds to 13.8 billion light-years. Along the way, the

authors explain the fascinating features of what you are seeing, including how the 3D images were made using the same technique that early astronomers devised to measure distances to objects in space. The dramatic 3D images in this one-of-a-kind book will astonish you, extending your vision out to the farthest reaches of the universe. You will never look up into the night sky the same way again.

**The Sky Is Not the Limit** - Neil deGrasse Tyson  
2010-03-19

From the author of *Astrophysics for People in a Hurry* and the host of *Cosmos: A Spacetime Odyssey*, a memoir about growing up and a young man's budding scientific curiosity. This is the absorbing story of Neil deGrasse Tyson's lifelong fascination with the night sky, a restless wonder that began some thirty years ago on the roof of his Bronx apartment building and eventually led him

to become the director of the Hayden Planetarium. A unique chronicle of a young man who at one time was both nerd and jock, Tyson's memoir could well inspire other similarly curious youngsters to pursue their dreams. Like many athletic kids he played baseball, won medals in track and swimming, and was captain of his high school wrestling team. But at the same time he was setting up a telescope on winter nights, taking an advanced astronomy course at the Hayden Planetarium, and spending a summer vacation at an astronomy camp in the Mojave Desert. Eventually, his scientific curiosity prevailed, and he went on to graduate in physics from Harvard and to earn a Ph.D. in astrophysics from Columbia. There followed postdoctoral research at Princeton. In 1996, he became the director of the Hayden Planetarium, where some twenty-five years earlier he had been awed by the spectacular vista in the sky theater.

Tyson pays tribute to the key teachers and mentors who recognized his precocious interests and abilities, and helped him succeed. He intersperses personal reminiscences with thoughts on scientific literacy, careful science vs. media hype, the possibility that a meteor could someday hit the Earth, dealing with society's racial stereotypes, what science can and cannot say about the existence of God, and many other interesting insights about science, society, and the nature of the universe. Now available in paperback with a new preface and other additions, this engaging memoir will enlighten and inspire an appreciation of astronomy and the wonders of our universe.

*Death By Black Hole* - Neil deGrasse Tyson  
2014-09-02

"[Tyson] tackles a great range of subjects...with great humor, humility, and—most important—humanity."  
—Entertainment Weekly Loyal readers of the

monthly "Universe" essays in Natural History magazine have long recognized Neil deGrasse Tyson's talent for guiding them through the mysteries of the cosmos with clarity and enthusiasm. Bringing together more than forty of Tyson's favorite essays, *Death by Black Hole* explores a myriad of cosmic topics, from what it would be like to be inside a black hole to the movie industry's feeble efforts to get its night skies right. One of America's best-known astrophysicists, Tyson is a natural teacher who simplifies the complexities of astrophysics while sharing his infectious fascination for our universe.

### **Hawking on the Big Bang and Black Holes -**

Stephen W. Hawking 1993

Stephen Hawking, the Lucasian Professor of Mathematics at Cambridge University, has made important theoretical contributions to gravitational theory and has played a major role in the

development of cosmology and black hole physics. Hawking's early work, partly in collaboration with Roger Penrose, showed the significance of spacetime singularities for the big bang and black holes. His later work has been concerned with a deeper understanding of these two issues. The work required extensive use of the two great intellectual achievements of the first half of the Twentieth Century: general relativity and quantum mechanics; and these are reflected in the reprinted articles. Hawking's key contributions on black hole radiation and the no-boundary condition on the origin of the universe are included. The present compilation of Stephen Hawking's most important work also includes an introduction by him, which guides the reader through the major highlights of the volume. This volume is thus an essential item in any library and will be an important reference source for those interested in

theoretical physics and applied mathematics. It is an excellent thing to have so many of Professor Hawking's most important contributions to the theory of black holes and space-time singularities all collected together in one handy volume. I am very glad to have them". Roger Penrose (Oxford) "This was an excellent idea to put the best papers by Stephen Hawking together. Even his papers written many years ago remain extremely useful for those who study classical and quantum gravity. By watching the evolution of his ideas one can get a very clear picture of the development of quantum cosmology during the last quarter of this century". Andrei Linde (Stanford) "This review could have been quite short: 'The book contains a selection of 21 of Stephen Hawking's most significant papers with an overview written by the author'. This w

**Death by Black Hole: And Other Cosmic Quandaries**  
- Neil deGrasse Tyson 2007-11-17

"[Tyson] tackles a great range of subjects...with great humor, humility, and—most important—humanity." —Entertainment Weekly Loyal readers of the monthly "Universe" essays in Natural History magazine have long recognized Neil deGrasse Tyson's talent for guiding them through the mysteries of the cosmos with clarity and enthusiasm. Bringing together more than forty of Tyson's favorite essays, *Death by Black Hole* explores a myriad of cosmic topics, from what it would be like to be inside a black hole to the movie industry's feeble efforts to get its night skies right. One of America's best-known astrophysicists, Tyson is a natural teacher who simplifies the complexities of astrophysics while sharing his infectious fascination for our universe.

[Merlin's Tour of the Universe](#) - Neil deGrasse Tyson 1997

Answers popular astronomy questions such as "How

big are the craters on the Moon?," "Why are solar eclipses considered so dangerous to look at?," and "How does a black hole affect time and mass?"

**Space Chronicles: Facing the Ultimate Frontier -**

Neil deGrasse Tyson 2012-02-27

"A compelling appeal, at just the right time, for continuing to look up."—Air & Space America's space program is at a turning point. After decades of global primacy, NASA has ended the space-shuttle program, cutting off its access to space. No astronauts will be launched in an American craft, from American soil, until the 2020s, and NASA may soon find itself eclipsed by other countries' space programs. With his signature wit and thought-provoking insights, Neil deGrasse Tyson—one of our foremost thinkers on all things space—illuminates the past, present, and future of space exploration and brilliantly reminds us why NASA matters now as much as ever. As Tyson

reveals, exploring the space frontier can profoundly enrich many aspects of our daily lives, from education systems and the economy to national security and morale. For America to maintain its status as a global leader and a technological innovator, he explains, we must regain our enthusiasm and curiosity about what lies beyond our world. Provocative, humorous, and wonderfully readable, Space Chronicles represents the best of Tyson's recent commentary, including a must-read prologue on NASA and partisan politics. Reflecting on topics that range from scientific literacy to space-travel missteps, Tyson gives us an urgent, clear-eyed, and ultimately inspiring vision for the future.

**The Book of Not Knowing -** Peter Ralston

2010-01-26

For fans of Eckhart Tolle—a guide to mastering self-awareness through direct experience rather than

old presumptions or harmful thought patterns. Through decades of martial arts and meditation practice, Peter Ralston discovered a curious and paradoxical fact: that true awareness arises from a state of not-knowing. Even the most sincere investigation of self and spirit, he says, is often sabotaged by our tendency to grab too quickly for answers and ideas as we retreat to the safety of the known. This "Hitchhiker's Guide to Awareness" provides helpful guideposts along an experiential journey for those Western minds predisposed to wandering off to old habits, cherished presumptions, and a stubbornly solid sense of self. With ease and clarity, Ralston teaches readers how to become aware of the background patterns that they are usually too busy, stressed, or distracted to notice. *The Book of Not Knowing* points out the ways people get stuck in their lives and offers readers a way to make fresh choices about every aspect of

their lives—from a place of awareness instead of autopilot.

**A User's Guide to the Universe** - Dave Goldberg  
2010-02-22

Answers to science's most enduring questions from "Can I break the light-speed barrier like on Star Trek?" and "Is there life on other planets?" to "What is empty space made of?" This is an indispensable guide to physics that offers readers an overview of the most popular physics topics written in an accessible, irreverent, and engaging manner while still maintaining a tone of wry skepticism. Even the novice will be able to follow along, as the topics are addressed using plain English and (almost) no equations. Veterans of popular physics will also find their nagging questions addressed, like whether the universe can expand faster than light, and for that matter, what the universe is expanding into anyway. Gives a one-stop tour of all the big

questions that capture the public imagination including string theory, quantum mechanics, parallel universes, and the beginning of time Explains serious science in an entertaining, conversational, and easy-to-understand way Includes dozens of delightfully groan-worthy cartoons that explain everything from special relativity to Dark Matter Filled with fascinating information and insights, this book will both deepen and transform your understanding of the universe.

**Astrophysics for Young People in a Hurry** - Neil deGrasse Tyson 2019-02-05

Neil deGrasse Tyson's #1 New York Times best-selling guide to the cosmos, adapted for young readers. From the basics of physics to big questions about the nature of space and time, celebrated astrophysicist and science communicator Neil deGrasse Tyson breaks down the mysteries of the cosmos into bite-sized pieces. Astrophysics for

Young People in a Hurry describes the fundamental rules and unknowns of our universe clearly—and with Tyson's characteristic wit, there's a lot of fun thrown in, too. This adaptation by Gregory Mone includes full-color photos, infographics, and extra explanations to make even the trickiest concepts accessible. Building on the wonder inspired by outer space, Astrophysics for Young People in a Hurry introduces an exciting field and the principles of scientific inquiry to young readers.

**Accessory to War: The Unspoken Alliance Between Astrophysics and the Military** - Neil deGrasse Tyson 2018-09-11

“Extraordinary.... A feast of history, an expert tour through thousands of years of war and conquest.”  
—Jennifer Carson, New York Times Book Review  
In this far-reaching foray into the millennia-long relationship between science and military power,

acclaimed astrophysicist Neil deGrasse Tyson and co-author Avis Lang examine how the methods and tools of astrophysics have been enlisted in the service of war. Spanning early celestial navigation to satellite-enabled warfare, *Accessory to War* is a richly researched and provocative examination of the intersection of science, technology, industry, and power that will introduce Tyson's millions of fans to yet another dimension of how the universe has shaped our lives and our world.

**Before the Dawn** - Nicholas Wade 2007-03-27

"Meaty, well-written." —Kirkus Reviews "Timely and informative." —The New York Times Book Review "By far the best book I have ever read on humanity's deep history." —E. O. Wilson, biologist and author of *The Ants* and *On Human Nature* Nicholas Wade's articles are a major reason why the science section has become the most popular, nationwide, in the New York Times. In his

groundbreaking *Before the Dawn*, Wade reveals humanity's origins as never before—a journey made possible only recently by genetic science, whose incredible findings have answered such questions as: What was the first human language like? How large were the first societies, and how warlike were they? When did our ancestors first leave Africa, and by what route did they leave? By eloquently solving these and numerous other mysteries, Wade offers nothing less than a uniquely complete retelling of a story that began 500 centuries ago.

*The Little Book of Black Holes* - Steven S. Gubser 2017-09-25

Dive into a mind-bending exploration of the physics of black holes Black holes, predicted by Albert Einstein's general theory of relativity more than a century ago, have long intrigued scientists and the public with their bizarre and fantastical properties.

Although Einstein understood that black holes were mathematical solutions to his equations, he never accepted their physical reality—a viewpoint many shared. This all changed in the 1960s and 1970s, when a deeper conceptual understanding of black holes developed just as new observations revealed the existence of quasars and X-ray binary star systems, whose mysterious properties could be explained by the presence of black holes. Black holes have since been the subject of intense research—and the physics governing how they behave and affect their surroundings is stranger and more mind-bending than any fiction. After introducing the basics of the special and general theories of relativity, this book describes black holes both as astrophysical objects and theoretical “laboratories” in which physicists can test their understanding of gravitational, quantum, and thermal physics. From Schwarzschild black holes to

rotating and colliding black holes, and from gravitational radiation to Hawking radiation and information loss, Steven Gubser and Frans Pretorius use creative thought experiments and analogies to explain their subject accessibly. They also describe the decades-long quest to observe the universe in gravitational waves, which recently resulted in the LIGO observatories’ detection of the distinctive gravitational wave “chirp” of two colliding black holes—the first direct observation of black holes’ existence. The *Little Book of Black Holes* takes readers deep into the mysterious heart of the subject, offering rare clarity of insight into the physics that makes black holes simple yet destructive manifestations of geometric destiny.

**One Universe:** - Charles Tsun-Chu Liu 1999-12-20

A new window opens onto the cosmos... Almost every day we are challenged by new information from the outermost reaches of space. Using

straightforward language, *One Universe* explores the physical principles that govern the workings of our own world so that we can appreciate how they operate in the cosmos around us. Bands of color in a sunlit crystal and the spectrum of starlight in giant telescopes, the arc of a hard-hit baseball and the orbit of the moon, traffic patterns on a freeway and the spiral arms in a galaxy full of stars--they're all tied together in grand and simple ways. We can understand the vast cosmos in which we live by exploring three basic concepts: motion, matter, and energy. With these as a starting point, *One Universe* shows how the physical principles that operate in our kitchens and backyards are actually down-to-Earth versions of cosmic processes. The book then takes us to the limits of our knowledge, asking the ultimate questions about the origins and existence of life as we know it and where the universe came from--and where it is going.

Glorious photographs--many seen for the first time in these pages--and original illustrations expand and enrich our understanding. Evocative and clearly written, *One Universe* explains complex ideas in ways that every reader can grasp and enjoy. This book captures the grandeur of the heavens while making us feel at home in the cosmos. Above all, it helps us realize that galaxies, stars, planets, and we ourselves all belong to *One Universe*.

*Frontiers of Astrobiology* - Chris Impey 2012-11-15  
Astrobiology is an exciting interdisciplinary field that seeks to answer one of the most important and profound questions: are we alone? In this volume, leading international experts explore the frontiers of astrobiology, investigating the latest research questions that will fascinate a wide interdisciplinary audience at all levels. What is the earliest evidence for life on Earth? Where are the most likely sites for life in the Solar System? Could life have evolved

elsewhere in the Galaxy? What are the best strategies for detecting intelligent extraterrestrial life? How many habitable or Earth-like exoplanets are there? Progress in astrobiology over the past decade has been rapid and, with evidence accumulating that Mars once hosted standing bodies of liquid water, the discovery of over 500 exoplanets and new insights into how life began on

Earth, the scientific search for our origins and place in the cosmos continues.

[The Future of Spacetime](#) - Stephen Hawking 2003  
Presents essays that explore the deepest mysteries of the universe, including black holes, gravity holes, and time travel, by physicists Stephen Hawking, Kip S. Thorne, Igor Novikov, Timothy Ferris, and Alan Lightman.