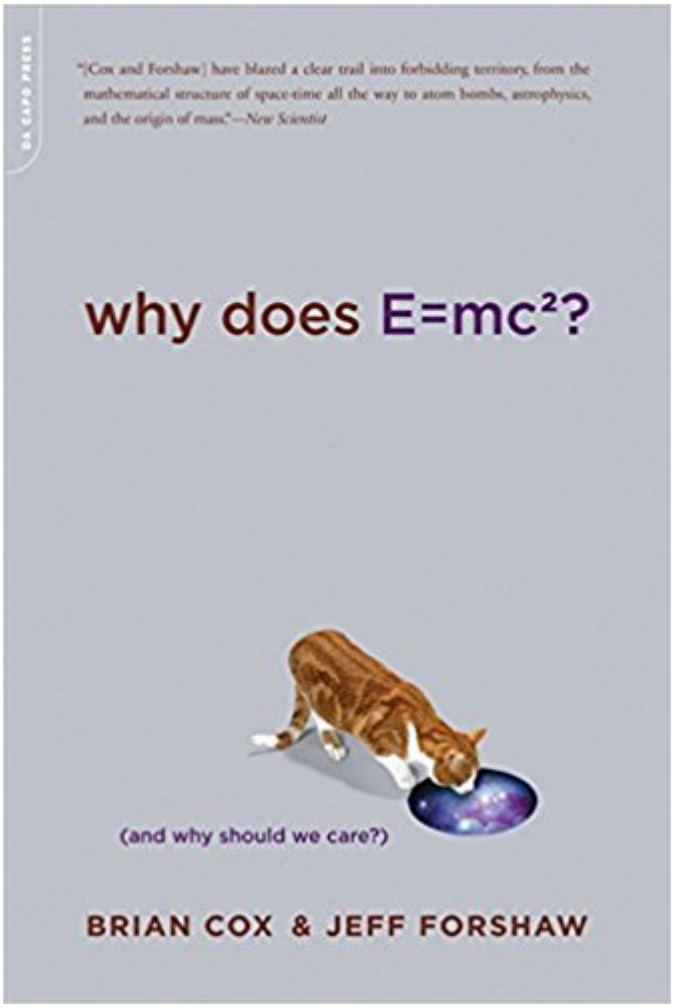
Ebook Directory
the best source of ebook

The book was found

Why Does E=mc2? (And Why Should We Care?)



PDF
Adobe
DOWNLOAD EBOOK

Synopsis

What does E=mc2 actually mean? Dr. Brian Cox and Professor Jeff Forshaw go on a journey to the frontier of twenty-first century science to unpack Einstein's famous equation. Explaining and simplifying notions of energy, mass, and light—while exploding commonly held misconceptions—they demonstrate how the structure of nature itself is contained within this equation. Along the way, we visit the site of one of the largest scientific experiments ever conducted: the now-famous Large Hadron Collider, a gigantic particle accelerator capable of re-creating conditions that existed fractions of a second after the Big Bang.A collaboration between one of the youngest professors in the United Kingdom and a distinguished popular physicist, Why Does E=mc2? is one of the most exciting and accessible explanations of the theory of relativity.

Book Information

Paperback: 272 pages

Publisher: Da Capo Press (July 13, 2010)

Language: English

ISBN-10: 0306818760

ISBN-13: 978-0306818769

Product Dimensions: 5.5 x 0.8 x 8.2 inches

Shipping Weight: 14.4 ounces (View shipping rates and policies)

Average Customer Review: 4.1 out of 5 stars 194 customer reviews

Best Sellers Rank: #80,911 in Books (See Top 100 in Books) #16 inÃ Â Books > Science & Math > Physics > Molecular Physics #42 inÃ Â Books > Science & Math > Physics > Relativity #72 inÃ Â Books > Science & Math > Physics > Quantum Theory

Customer Reviews

British theoretical physicists Cox and Forshaw offer lay readers a fascinating account of modern scientists' view of the world, and how it got that way. Without using complicated mathematics, Cox and Forshaw show how the search for "mathematical consistency" can guide scientists in finding the "laws that describe physical reality." The authors provide the historical context that set the stage for Einstein's discovery, providing an easy-to-grasp explanation of counterintuitive experimental evidence, demonstrating how the speed of light acts as a "cosmic speed limit," the exception that proves the rule of relativity. The authors also clearly explain the tide shift that Einstein caused, transforming scientists' understanding of the world-"common-sense notions regarding space and time are dashed and replaced by something entirely new, unexpected, and elegant." Though the

basics are covered in detail, there’s plenty here for science buffs to ponder. Copyright Ã Â© Reed Business Information, a division of Reed Elsevier Inc. All rights reserved. --This text refers to an out of print or unavailable edition of this title.

Blogcritics.org, 8/22/10Ã¢â ¬Å“Cox and Forshaw make a good point in stating that space, time, and even nature are contained within the equationÃ¢â ¬Â|Although the theory might be tricky, the authors show they understand readers are not on their level. By going one step at a time, the buildup ensures each chuck is absorbed slowly rather than all at once.Ã¢â ¬Â•Booktrade.info, 8/24/10Ã¢â ¬Å“This book takes the worldÃ¢â ¬â„¢s most famous equation apart and puts it back together again in a way that is lively and understandable. Ã Â We were delighted to find our knowledge of equationsÃ¢â ¬â •long forgotten since leaving school for some of usÃ¢â ¬â •reinvigorated and felt ourselves rediscovering our enjoyment of mathematics.Ã¢â ¬Â•Ã Â Choice, September 2010Ã¢â ¬Å“Thorough, engaging.Ã¢â ¬Â•Ã Â New Scientist, 8/28/10Ã¢â ¬Å“Brian Cox and Jeff Forshaw tackle the most famous equation of all time in a remarkable comprehensible wayÃ¢â ¬Â|The pair make some surprising points that I havenÃ¢â ¬â„¢t seen expressed in quite the same wayÃ¢â ¬Â|Well worth a read.Ã¢â ¬Â•Ã Â January, 8/16/10Ã¢â ¬Å“Particle physics professor Brian Cox and professor of theoretical physics, Jeff Forshaw are clearly trained to have the answers. But here’s something that training as a physicist simply can not teach: they deliver their message not only clearly, but with a deep and resonant humor.Ã¢â ¬Â•Ã Â BiblioBuffet.comÃ¢â ¬Å“[Cox and Forshaw are] good communicators overall (they find understandable ways of explaining most concepts) and they have important things to sayÃ¢â ¬Â|WhatÃ¢â ¬â„¢s important about this book is not that it says something new about science. ItÃ¢â ¬â„¢s that it gives a primer for understanding how a certain type of scientist sees the universe.Ã¢â ¬Â•Ã Â New York Journal of BooksÃ¢â ¬Å“[An] easy-to-read little bookÃ¢â ¬Â|[Cox and Forshaw] very cleverly introduce all the ideas we will need to get to the worldÃ¢â ¬â„¢s most famous equation, E=mc2. What is more, they focus on the most puzzling part: the question of what c, the speed of light, is doing in thereÃ¢â ¬Â|Their arguments are so presented so clearlyÃ¢â ¬Â|It is to their credit that they do not always hide the complexity nor the long history of ideas behind relativityÃ¢â ¬Â|It is also to their credit that they make the case, as Feynman and others have done before them, that, at some level, the weirdness of the universe just has to be acceptedÃ¢â ¬Â|Will help school science teachers as much as it will their students.Ã¢â ¬Â•Ã Â The Guardian, 10/18/10Ã¢â ¬Å“The reader is in supremely capable hands with Brian Cox and Jeff ForshawÃ¢â ¬Â|For anyone afraid of technicalities, Cox and Forshaw lead

the reader by the hand through the complexity, adding in rest stops of wit and real-world examples. Even the hardest bits feel like being taken on an army assault course by the two friendliest drill sergeants in the world. You may have to read some bits twice but, boy, will you feel better for it once the insights become clear. In the process of exposing the science, the authors do a good job of showing how the hard end of research works: abandon all assumptions and re-build everything from scratch.Ã¢â ¬Â• London Daily Telegraph, 10/19/10Ã¢â ¬Å“[A] brilliant exposition of EinsteinÃ¢â ¬â„¢s famous equationÃ¢â ¬Â¦ [Gives] a fresh understanding of EinsteinÃ¢â ¬â„¢s genius. A truly impressive achievement.Ã¢â ¬Â• The Independent, 10/20/10Ã¢â ¬Å“Brian Cox and Jeff Forshaw take Einstein's description of the relationship between energy and matter, pull it apart and put it together again, with some detours into space and time along the way. Not an easy read, but not an easy subject.Ã¢â ¬Â•Ã Â Nature, 10/28/10Ã¢â ¬Å“Provide[s] an accessible explanation of EinsteinÃ¢â ¬â„¢s iconic equation.Ã¢â ¬Â•Ã Â Cape Times (South Africa),11/5/10Ã¢â ¬Å“Fans of the physical sciences will undoubtedly enjoy this readÃ¢â ¬Â¦The true success of Why Does E=mc2? lies in Cox and Forshaw having made the most esoteric of ideasÃ¢â ¬Â¦accessible to the laymanÃ¢â ¬Â¦The pair manage to hold their readers' hands as they skip through the figures and factsÃ¢â ¬â •without patronizing themÃ¢â ¬â •to create a logical map between theory and consequence.Ã¢â ¬Â•Ã Â Midwest Book Review, December 2010Ã¢â ¬Å“An easy survey of science for non-scientists.Ã¢â ¬Â•

Pretty good book for those interested in relativity.I think on the whole the attempted simplifications work well and I was a great way to approach the subjects from a more personable point of view. It does jump a little and feels like it ties itself in knots at times... but welcome to the world of physics where even concepts of simplicity can be complex to understand. It's purely a field of interest for me, and just one facet of understanding the world around us. The math is minimal, so don't panic.It can't explain how Nicholas Cage actually made a Ghost Rider sequel - some things in the universe are even beyond the greatest minds understanding.

I find the one and two star reviews from the "intellectuals" among us mere peasants rather amusing.First, I'm not sure what they expected to read or learn beyond what their boundless minds already know.Lastly, I'll let the words of Einstein himself resonate~"If you cannot explain it simply, you don't understand it well enough"Well played Mr. Einstein, well played indeed.Cox and Forshaw did a nice job.

Why Does E=mcÃƒâ Ã Â ? (And Why Should We Care?)by Brian Cox is easily the best book I've ever read about special and general relativity targeted at the general reader. Cox takes the reader deeply into the theory. He painlessly introduces the reader to the basics of the mathematics needed to understand some of the more beautiful aspects of both theories and he does so more skillfully than any other writer on the subject - including Einstein himself. This is a must read for anyone who wants to be more scientifically literate.

Best layman's introduction to special and general relativity I've ever read. Science writing is very hard to pull off well when you're trying to address a general audience, but this succeeds in every aspect.If you could handle geometry in school, none of the topics will be over your head.

It's a great feeling to come back tired from work and pick up such a book. After all, like most people I rarely have time to ponder seriously about the universe and the meaning of time and space.I am a high school French teacher so my training in science is rather limited. But after a few hours spent thinking about time,space, distance, energy and matter with Cox and Forshaw,I felt enlightened and rejuvenated! It really read like a thriller, whenever I put the book down I could not stop thinking about it and at dinner I could not shut up about it. The more my friends asked me questions about what I read the more I felt like going back and re-reading until I could explain it in my own words. Now that I am done with it, it's haunting me, driving home or playing with my cat; it keeps me thinking...

This book is wonderful because by way of working through the famous mass/energy equivalence it explains the profound wonder of Einstein's "spacetime" universe in layperson's terms. I have been casually acquainted with the theories of relativity for decades, having read books on general and special relativity (and being a bit of a scifi buff), and knew the basics such that mass and energy are interchangeable and that time slows down for objects approaching light speed. But here are some things no one had ever explained before:1. Einstein and his colleagues deduced the nature of the universe by using simple mathematic formulas. For example, the elemental Pythagorean Theorem of geometry is used to calculate the slowing down of time as objects approach light speed. The authors point out that the most complex phenomena in the universe, from subatomic particle interactions to cosmic forces of time and space, follow the elegant rules of mathematics. Nobody knows why the seemingly infinite universe should follow these wonderfully simply rules, but it does!2. That space and time are components of an integrated whole called spacetime. I had heard

the clichÃƒÂ© that "time is the fourth dimension" but did not understand it intellectually. This book explains how space and time are integral parts of each other. All matter moves at exactly the same speed through spacetime. If the velocity of an object through space increases, its velocity through time decreases such that the combined movement through space and time is always constant.3. The nature of "C" has been somewhat obscured by calling it the "speed of light." "C" is the maximum attainable speed of EVERYTHING through the SPATIAL DIMENSION OF SPACETIME. A photon travelling at "C" is going at maximum velocity through space and at zero velocity through time. An object at rest travels at zero velocity through space and maximum velocity through TIME. That is why times passes fastest for objects at rest and slowest for those at light speed.4. "C" is THE constant of the universe. Everything else is malleable. Time and space and matter and energy must shrink or expand in changing circumstances, but "C" never does. If one were to approach the speed of light the distance between the stars would shrink such that one could travel to the end of the universe in one lifetime. Fifteen billion years would have passed to people standing relatively still on earth, but for the astronaut travelling near light-speed perhaps only 20 years have passed (the 20 years is allowing time to accelerate and decelerate from rest to lightspeed and back). In a relativistic universe space shrinks into nothingness when "C" is reached. This explains why nothing can exceed the speed the light. A photon travels a dimensionless universe in a timeless instant. This also explains why travel BACKWARD through time is not possible.5. Toward the end of the book the authors give the equation that explains every subatomic particle and every force in the known universe. It’s a difficult equation comprehensible only to physicists, but still, knowing that you can express the entire nature of the universe in a few lines of mathematics is mind-bending!If a layperson wants to comprehend the nature of the universe by reading one book, this is it!

I feel this book has given me the best understanding of Einstein’s theory I have managed to assimilate to date. This is a difficult topic but the book does reveal that at least some of it is no different than understanding the ratios in everyday math associations. The genius of the equation is that Einstein found ratios in elements of the universe that, until he came up with the equation, no one else had considered to be related. But, since time, mass and energy do appear to be connected by an ever mounting body of experimental evidence that supports the equation, it also means that the ratios captured in the equation indicate how the amounts of the constituents of the equation flow into balance as the different elements change in relationship to each other. The book still remains top heavy on the math part for me but it did give me enough clarity to be able to get it into a prose format for myself that did seriously improve my sense of understanding of this amazing formula.

Download to continue reading...

Why Does E=mc2? (And Why Should We Care?) CAT CARE: BEGINNERS GUIDE TO KITTEN CARE AND TRAINING TIPS (Cat care, cat care books, cat care manual, cat care products, cat care kit, cat care supplies) Spiritual Activation: Why Each of Us Does Make the Difference (Why Each of Us Does Makes the Difference) Everything the Bible Says About Prayer: How do I know God hears my prayers? What should I ask for when I pray? What does God say about worshiping in prayer? How should I pray for my family? E=mc2: A Biography of the World's Most Famous Equation Project Mc2: The Pretty Brilliant Experiment Book Why Should I Eat Well? (Why Should I? Books) Why Should I Recycle? (Why Should I? Books) Diary of a Farting Creeper: Book 1: Why Does the Creeper Fart When He Should Explode? Diary of a Farting Creeper: Book 1: Why Does the Creeper Fart When He Should Explode? (Volume 1) Orchids Care Bundle 3 in 1, THE NEW EDITION: Orchids + Orchids Care For Hobbyists + Phalaenopsis Orchids Care (Orchids Care, House Plants Care, Gardening Techniques Book 4) A Quick Read on What You Should Know about Colon Cancer and how to Prevent it: Detailed, but in laymans's terms (What you should know about your health ... care of yourself; in layman's terms Book 1) Essential Oil Beauty Secrets: Make Beauty Products at Home for Skin Care, Hair Care, Lip Care, Nail Care and Body Massage for Glowing, Radiant Skin and Shiny Hairs How Congress Works and Why You Should Care Why Hospitals Should Fly: The Ultimate Flight Plan to Patient Safety and Quality Care The Elements of Journalism, Revised and Updated 3rd Edition: What Newspeople Should Know and the Public Should Expect The Elements of Journalism: What Newspeople Should Know and the Public Should Expect, Completely Updated and Revised Why I Am a Pretribulational Premillennialist: And Why You Should Be, Too 30 Things Every Woman Should Have and Should Know by the Time She's 30 Twenty-Five Buildings Every Architect Should Understand: a revised and expanded edition of Twenty Buildings Every Architect Should Understand (Volume 2)

Contact Us

DMCA

Privacy

FAQ & Help