Time Reborn: From The Crisis In Physics To The Future Of The Universe

Synopsis

What is time? This deceptively simple question is the single most important problem facing science as we probe more deeply into the fundamentals of the universe. All of the mysteries physicists and cosmologists face - from the Big Bang to the future of the universe, from the puzzles of quantum physics to the unification of forces and particles - come down to the nature of time. The fact that time is real may seem obvious. You experience it passing every day when you watch clocks tick, bread toast, and children grow. But most physicists, from Newton to Einstein to today's quantum theorists, have seen things differently. The scientific case for time being an illusion is formidable. That is why the consequences of adopting the view that time is real are revolutionary. Lee Smolin, author of the controversial best seller The Trouble with Physics, argues that a limited notion of time is holding physics back. It's time for a major revolution in scientific thought. The reality of time could be the key to the next big breakthrough in theoretical physics. What if the laws of physics themselves were not timeless? What if they could evolve? Time Reborn offers a radical new approach to cosmology that embraces the reality of time and opens up a whole new universe of possibilities. There are few ideas that, like our notion of time, shape our thinking about literally everything, with huge implications for physics and beyond - from climate change to the economic crisis. Smolin explains in lively and lucid prose how the true nature of time impacts our world.

Book Information

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Customer Reviews

I am a big fan on Lee Smolin. HeÃ¢Â Â™s a courageous theoretical physicist who is not afraid to be

a pioneer of new ideas and new approaches to physics. I have enjoyed all his books with my favorite being his first Ã¢Â ÂœLife of the CosmosÃ¢Â Â•. In this book, Dr. Smolin argues that time is real and not an illusion as some believe the case may be due to relativity. One of Dr. SmolinÃ¢Â Â™s strongest arguments for the reality of time is that the universe and the world clearly show evidence that evolution has taken place which can only occur if time is real. He believes the universe shows signs of evolution and that black holes are ultimately the seeds to new universes and universes have evolved, through cosmic natural selection, to produce many black holes. He makes some profound statements: Ã¢Â ÂœThere are aspects of the real universe that will never be representable in mathematicsÃ¢Â Â| One of them is that in the real world it is always some particular momentÃ¢Â Â•. He makes some statements that seem to go beyond what we can really be sure about: Ã¢Â ÂœThe universe has no relation to anything outside itÃ¢Â Â•. Overall, I think this book is a worthwhile read. The only problem I had was that some of the discussions were difficult to tie into the main topic. Keep an open mind when reading this. You will learn a lot about the history of the concept of time from the point of view of theoretical physics.

I don’t quite know what to make of this book. I am not a professional scientist; but I have a life-long interest in the sciences (I was a medical writer and/or reporter for 15 years) and learning in the fields of astronomy and cosmology (among others) and how the study of these fields might relate to our understanding of life. What drew me to this book were its high ranking on in its best seller rank, its high praise from the and editorial review section, and finally the fact that the author was touching on environmental and economic issues (I was intrigued as to how he would/could tie together a new understanding of time with these seemingly disconnected topics).Written by theoretical physicist Lee Smolin, Time Reborn takes the reader on a journey from what is currently and generally accepted in the field (Time Is Not Real) to what Smolin proposes (Time Is Real). If you’re like me, you’ll need to re-wrap your head around the whole Time Is Not Real business before even trying to move on to Smolin’s Time Is (Really) Real argument.Smolin builds the current case that Time Is Not Real by explaining that it has to do with timeless natural laws, theories of relativity, mathematical equations and what they do and do not represent, and thinking from the tiniest level of known matter (quantum mechanics) to the largest level of known matter (the block universe, which is a fancy way of saying that "every moment in time is equally real and so the whole of space and time must be laid out in one unchanging spacetime block" [Pearce, 2012]). (If you’re not used to it, thinking like this can stretch your mind to its limits; kind of like thinking about how matter is truly nearly all empty space, at the atomic level.) Smolin then proposes that Time Is Real, explaining that only real time can

provide explanations for what he explains as evolving laws of physics.This is an interesting ride, but along the way I realized that Smolin was cherry-picking his theories. For example, on page 236 he gives short shrift to variable speed of light theories, obviously, because they don't fit what he believes. Smolin believes the speed of light is a constant because he *must have it* be a constant to fit his thinking; not the other way around. If he were open-minded to the data, he would know that, in fact, the speed of light is variable. (It can go at what is nowadays measured at 186,000 m/s. It can be slowed; it can be stopped; and it can be re-started. Scientists have done this multiple times. (Just google "speed of light is stopped.") And, if the speed of light can be slowed....then logically it could also be....sped up. Which is the crux of the variable speed of light theory. Some scientists have done an enormous amount of work to determine if the speed of light was faster in the past, and what this might mean for how we think about the universe, time, and ourselves. If you're interested, google "speed of light was faster in the past" and you'll find some fascinating material. I've looked at the data. It is compelling.) So, Smolin's cherry-picking made me wonder what else he was limiting himself to believing based on his prejudices and pre-conceived notions (his constructed worldview) and then what he did to sieve his information through that to us, his readers.Still, I liked the book. If you're a serious layman like me, don't be intimidated by the subject matter, the dizzying amount of theories discussed and explained, or the often-used professional language of the professional theoretical physicist author. Read on; plow through. Understand that it simply has to be this way. Smolin tries carefully to explain in detail why Time Is Not Real and then why Time Is Real. I admire him and his book for that and for the added understanding it's given me of the mysterious universe we inhabit.I liked it:3/5 Goodreads4/5

Dr. Smolin lays out a fascinating case for what he labels "temporal naturalism," a fundamental philosophy that appears to be at odds with what most students are taught as a basic tenet of special relativity: the relativity of sumultaneity, which underpins the concept of spacetime and leads to a no-present "block universe" view. The author does a masterful job of presenting complex theoretical arguments in simple, clear terms that make for a highly readable and instructive journey through the mysteries and controversies of contemporary physics. His long personal quest to make sense of apparently paradoxical concepts comes through in the writing, which veers between scientific skepticism and assertions that at times seem passionately strident. As a layperson, I often experienced frustration with arguments that seemed to conflate our intuitive sense of the passage of time with objective universal theoretical constructs, especially in discussions of local versus global phenomena, which often seemed to beg more questions than they resolved. He saves some crucial

issues of subjectivity and qualia for the epilogue, and I was left questioning whether the blank-and-white question of time as presented was truly fundamental or tangled in semantic ambiguities and questions beyond the current reach of empirical science. Yet, I would call this a must-read for anyone interested in the philosophy of science and I have tremendous admiration for the brilliance of its author, and appreciation for his devotion to interpreting theoretical physics for an audience of inquisitive amateur philosophers like me.

Many people don't realize that modern science offers a confused view of the nature of time. Many prominent contemporary physicists view time as being a persistent illusion; others, like Smolin, think that time is the essence of reality: we live within time. I'll go with Smolin, since his view is consistent with my own research dealing with organized complexity and emergent behavior in microbial systems.

Assuming a general knowledge of physics and a basic familiarity of cosmology from the part of the reader, it is a very good read.

Grade | Children’s Physics Books Six Ideas that Shaped Physics: Unit N - Laws of Physics are Universal (WCB Physics) Quantum Electrodynamics: Gribov Lectures on Theoretical Physics (Cambridge Monographs on Particle Physics, Nuclear Physics and Cosmology) Six Ideas That Shaped Physics: Unit R - Laws of Physics are Frame-Independent (WCB Physics) Problem-Solving Exercises in Physics: The High School Physics Program (Prentice Hall Conceptual Physics Workbook) Going Public: My Adventures Inside the SEC and How to Prevent the Next Devastating Crisis: My Adventures Inside the SEC and How to Prevent the Next Devastating Crisis