



Time Reborn: From the Crisis in Physics to the Future of the Universe

By Lee Smolin

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Time Reborn: From the Crisis in Physics to the Future of the Universe By Lee Smolin

"If you are looking for a bracing alternative vision of physics built from the ground up, Smolin's *Time Reborn* will take you to the mountaintop." — NPR

What is time?

It's the sort of question we rarely ask because it seems so obvious. And yet, to a physicist, time is simply a human construct and an illusion. If you could somehow get outside the universe and observe it from there, you would see that every moment has always existed and always will. Lee Smolin disagrees, and in *Time Reborn* he lays out the case why.

Recent developments in physics and cosmology point toward the reality of time and the openness of the future. Smolin's groundbreaking theory postulates that physical laws can evolve over time and the future is not yet determined. Newton's fundamental laws may not remain so fundamental. *Time Reborn* serves as a popular primer and investigation of time, both what it is and how the true nature of it impacts our world.

"He challenges not only Einstein's relativity, but also the very notion of natural laws as immutable truths." — *Economist*

"One of the essential books of the twenty-first century . . . Smolin provides a much-needed dose of clarity about time, with implications that go far beyond physics to economics, politics, and personal philosophy." — Jaron Lanier, author of *You Are Not a Gadget*

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Editorial Review

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Starred Review Was Einstein wrong? At least in his understanding of time, Smolin argues, the great theorist of relativity was dead wrong. What is worse, by firmly enshrining his error in scientific orthodoxy, Einstein trapped his successors in insoluble dilemmas as they try to devise timeless laws explaining the origins and structure of the cosmos. How, Smolin asks, can such laws account for the highly improbable set of conditions that triggered the big bang jump-starting the universe? How, Smolin further wants to know, can scientists ever empirically test their timeless cosmic hypotheses? With rare conceptual daring, Smolin beckons toward a new perspective for doing cosmological theory, a perspective allowing Leibniz's principle of sufficient reason to open surprising possibilities. This horizon not only readmits time as a reality; it enshrines time as the reality, the indispensable point of flux allowing everything else, including the laws of matter and energy, to evolve and change. Embracing time as real, Smolin asserts, will allow cosmologists to convert laws once regarded as timeless into the contingent data they need to develop testable new theories of galactic evolution. More immediately, Smolin anticipates that this paradigm shift will help climatologists understand global warming and economists to ameliorate financial turbulence. A thrilling intellectual ride! -- Bryce Christensen

Review

"[Smolin's] book, a mix of science, philosophy and science fiction, is at once entertaining, thought-provoking, fabulously ambitious and fabulously speculative." —*The New York Times*

"Provocative, original, and unsettling." —*The New York Review of Books*

"Brilliant...Smolin gives what is, for me, the best analysis of the nature of time from a physics viewpoint in a popular science book I have ever seen." —*Popular Science*

"Smolin provides a much-needed dose of clarity about time, with implications that go far beyond physics to economics, politics, and personal philosophy. **An essential book for physicists and non-physicists alike, *Time Reborn* offers a path to better theory and potentially to a better society.**" —Jaron Lanier, author of *You Are Not a Gadget* and *The Fate of Power and the Future of Dignity*

"**Applying his deep mastery of cosmology, quantum mechanics, general relativity and all the diverse attempts at quantum gravity, in *Time Reborn* Lee Smolin weaves a convincing and entirely new view of reality.** He shows us how contemporary physics eliminates time and argues persuasively that any adequate cosmology rests on making time and 'now' fundamental." —Stuart Kauffman, University of Vermont, author of *At Home in the Universe*

"**Smolin is an excellent writer, a creative thinker and is ecumenical in the way he covers so many different branches of thought.** Even as I mentally argued with this book, I kept on ploughing through to see how Smolin dealt with the objections. I would love to sit down with him over a drink and debate the ins and outs of his theory. And that is how this book should be read: as an account that makes you ask questions." —*Nature*

"An entertaining, head-spinning and, yes, timely blend of philosophy, science, and speculation to put the Now back into physics." —*The Telegraph*

"An energetic case for a paradigm shift that could produce mind-boggling changes in the way we experience our world." —*Publishers Weekly*

"A thoughtful, complex re-evaluation of the role of time in the universe...A flood of ideas from an imaginative thinker." —*Kirkus*

"With rare conceptual daring, Smolin beckons toward a new perspective for doing cosmological theory...A thrilling intellectual ride!"—*Booklist* (starred review)

From the Inside Flap

From one of our foremost thinkers and public intellectuals, a radical new view of the nature of time and the cosmos

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 bestseller *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.

Users Review

From reader reviews:

Angela Jones:

What do you about book? It is not important along? Or just adding material when you need something to explain what your own problem? How about your extra time? Or are you busy particular person? If you don't have spare time to do others business, it is make one feel bored faster. And you have free time? What did you do? All people has many questions above. The doctor has to answer that question simply because just their can do that will. It said that about e-book. Book is familiar in each person. Yes, it is appropriate. Because start from on guardería until university need this specific Time Reborn: From the Crisis in Physics to the Future of the Universe to read.

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Jerry Melgar:

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