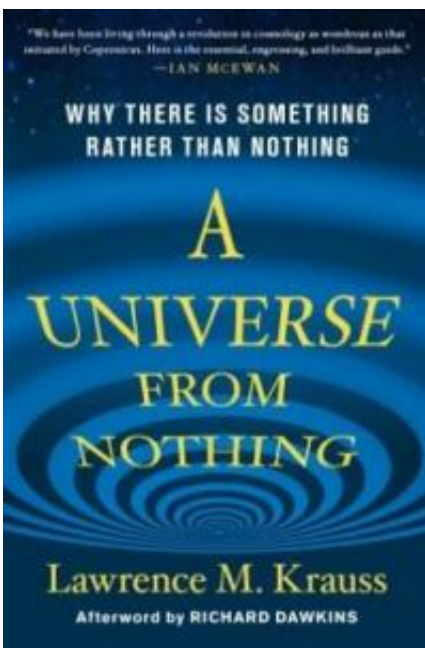


Book explores discoveries in cosmology and how our universe could have come from nothing

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In his new book, “A Universe from Nothing: Why There is Something Rather than Nothing (Free Press; January 10, 2012; Hardcover; \$24.99),” Arizona State University professor Lawrence M. Krauss explains how recent revolutions in our understanding of physics and cosmology allow modern science to address the question of why there is something rather than nothing, and more importantly, why this is a scientific question rather than a philosophical or theological one. Credit: -

The earliest philosophers argued that out of nothing, nothing comes (ex

nihilo, nihil fit). This ignited intense philosophical and theological debates and invoked challenging questions over the coming centuries. How could our universe in all its complexity come into existence from absolute nothingness, if nothing comes from nothing? In his new book, "A Universe from Nothing: Why There is Something Rather than Nothing (Free Press; January 10, 2012; Hardcover; \$24.99)," Arizona State University professor Lawrence M. Krauss explains how recent revolutions in our understanding of physics and cosmology allow modern science to address the question of why there is something rather than nothing, and more importantly, why this is a scientific question rather than a philosophical or theological one.

In a 2009 lecture, Krauss discussed the current picture of the universe, how it will end, and how it could have come from nothing. The lecture's video quickly became a YouTube sensation, netting nearly 1 million views, and out of that success emerged the idea for the book, which is due out January 10, 2012.

"For 2,000 years people have been asking where our universe came from and why there is something rather than nothing. The book is designed to teach about the revolutions in cosmology; but at the same time it is designed to answer that question that a lot of fundamentalists ask: 'why is there something rather than nothing?' as a proof that there must be God. Everything that we know about the universe allows for it to come from nothing, and moreover all the data is consistent with this possibility," says Krauss, who teaches in the School of Earth and [Space Exploration](#) and the Department of Physics in ASU's College of Liberal Arts and Sciences.

Many people hold fast to the philosophical expression that something cannot come from nothing. They claim that since we live in a universe that has something this confirms or at least supports the theological doctrine that a divine creator, or some external force, created the

universe. However, many physicists disagree, Krauss included. Against the claim, they cite recent scientific advancements.

As Krauss argues, the question of creating something from nothing is first and foremost a scientific one—as the very notions of 'something' and 'nothing' have been completely altered as a result of our current scientific understanding. As a pioneering theoretical physicist at the forefront of exploratory cosmology and particle physics, Krauss tackles the timeless enigma by showing how science has literally changed the playing field for this big question.

The latest physics research into the origins of the universe shows that, not only can our universe arise from nothing, but more generally, the laws of quantum mechanics and relativity imply that something will generally always arise from nothing. Even space, and the very laws of physics, may so arise. In "A Universe from Nothing" Krauss explains the groundbreaking advances in [cosmology](#) and in our understanding of physics that provide insight into how the universe formed, and what its future will be. As he demonstrates, it is possible, and in fact suggested by observation that our universe arose through entirely natural processes, just as Darwin demonstrated that the diversity of life on Earth could arise by natural processes. Indeed, Richard Dawkins, in the afterword of the new book compares Krauss' book in significance to Darwin's "Origin of the Species."

"Recent discoveries about the nature of the universe involve remarkable developments that make it plausible to consider God as unnecessary," says Krauss, who also is the founding director of the ASU Origins Project.

Krauss clearly, and with great wit and interesting historical color, discusses our current understanding of the geometry of our universe (it's flat), the quirks of quantum theory (nothingness is unstable), the

revolutionary discovery, which he played a role in, that the dominant energy in the universe resides in empty space (which was awarded this year's Nobel Prize), and the nature of nothingness (nothing doesn't mean "nothing" anymore), which can provide a natural explanation for how even the initial matter and energy to ignite the birth of the universe can arise from empty space, or even in the absence of space itself.

"Science has changed the way we think about ourselves and our place in the cosmos, and the astounding progress of the last forty years has led us to the threshold of addressing key foundational questions about our existence and our future that were previously thought to be beyond our reach," says Krauss. "Because these questions are the very ones that humans have asked since they started asking questions, the public deserves to share in the excitement of our scientific quest to understand the biggest mysteries of our existence. As Steven Weinberg has stressed, science doesn't make it impossible to believe in God. It however makes it possible to consider a [universe](#) without one."

More information: Krauss is the author of eight other books, including "Quantum Man: Richard Feynman's Life in Science," "Hiding in the Mirror: The Mysterious Allure of Extra Dimensions, from Plato to String Theory and Beyond," "The Physics of Star Trek," and "Quintessence: The Mystery of the Missing Mass."

Publication Information:

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