



## Fun With the Multiverse

*A Renowned Theoretical Physicist Throws Down the Gauntlet on Quantum Mechanics*

September 16, 2019 Michael Giltz

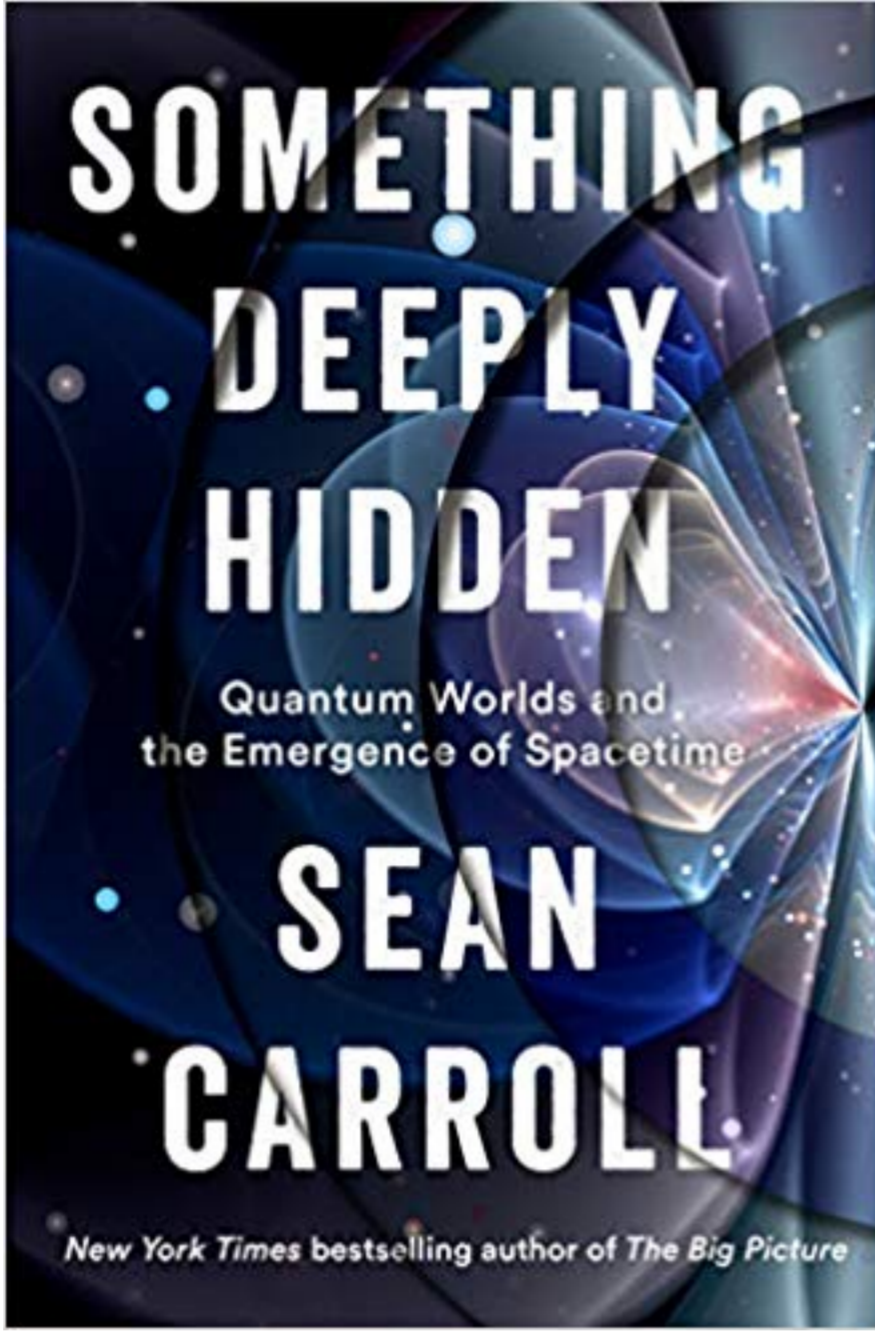
If you're a sci-fi fan like me, you read the term "multiverse" and think, "Sure, ok, got it. This universe isn't the only universe. It's one of an endless string of alternate universes, each one branching off again and again into new universes and in some of them I'm a hugely popular rock star and in others I'm a politician and in most of them I'm only a teensy bit different than the me that I think I am right now."

As far as I can tell, that's not so far off. But I only read *Something Deeply Hidden* by the theoretical physicist Sean Carroll a few weeks ago. Every few pages, I wanted to stop and say, hey listen to this! But in this particular universe, I'm single, so that didn't work. Carroll explains complex ideas succinctly, holds your hand the entire way, and you get them. But two weeks later, ask me to explain them and I stammer and stutter and say, "The book is really interesting! Really fun!"

If you worry that your head is gonna hurt if you read a book about quantum mechanics, you can relax. It *will* hurt, a little, but you'll be fine. In terms of difficulty, I rank *Something Deeply Hidden* about halfway between the easy pleasures of Carl Sagan's *Cosmos* and Stephen Hawking's rather impenetrable *A Brief History Of Time*. Read Carroll's essay in the New York Times on the state of the the world of smart people who ponder quantum mechanics. If you enjoy it, you'll enjoy his book.

You can do it. You want to do it. And if you don't do it, don't worry. An alternate you in an alternate universe *will* do it. And whichever version of you reads it, they'll discover the bizarre reluctance of science to truly grapple with how quantum mechanics works and Carroll's bold embrace of a multiverse as the most compelling current explanation.

### Another You



Quantum mechanics and the idea of the multiverse are nuanced and interesting and fun ideas but they're *not* quite as simple as an episode of *Black Mirror*. I almost never re-read books, but this one? I want to and I need to and I'm going to read it again.

As Carroll details in his NYT essay, *no one* really understands quantum mechanics. But the dirty secret is that for many years, no one even *tried* to understand it. Scientists use quantum mechanics all the time to create testable experiments and predict results. And it works! Again and again. They just don't know how.

And the industry treats scientists who want to know how it works like pariahs. Their peers tell them not to bother and if they must bother, to keep it on the down low. It's as if trying to figure out the key to the universe is embarrassing. Apparently, quantum mechanics is the Voldemort-like He Who Must Not Be Understood of the science community.

This isn't a cute exaggeration. In *Something Deeply Hidden*, Carroll describes people urging him to downplay his interest in theory if he wants to get a job. Sure, he enjoys acclaim now, including a Guggenheim Fellowship for his work. But back in 2006 the University of Chicago denied him tenure. So scientists don't understand the fundamental key to understanding the universe *and* they're afraid to try.

### OK, Einstein

You can blame Albert Einstein. In a famous gathering, Einstein was deeply troubled by the essential weirdness of quantum mechanics. God doesn't play dice with the universe, he said. He shook his fists at these new ideas, too old to grasp them. At least, that's how I've read about Einstein and quantum mechanics my whole life.

Carroll says, not really. Einstein was fine with the weirdness of quantum mechanics. He objected to the fact that people still didn't understand them. Real world experiments proving quantum mechanics worked are all well and good, but where's the theory explaining all of this? Einstein wanted more. And a new generation of physicists finally want more too and are challenging the complacency of traditional science.

Which brings us to Carroll's line in the sand. Quantum mechanics is key to how the universe works. And Carroll says the simplest and best explanation of quantum mechanics is the multiverse. He goes in-depth explaining how and why and what this means. And you'll understand it, at least for a while. He also details some other competing theories, but the multiverse is the most elegant, the simplest, the least...messy of them.

This is mind-blowing. Our universe is duplicated again and again to the nth degree, each one ever so slightly different from the others? And this isn't a thought experiment, a what-if, so much as the most grounded, reasonable answer to the question of life, the universe, and everything? I'd prefer to stick to "42," thank you. But that's not an option, apparently.

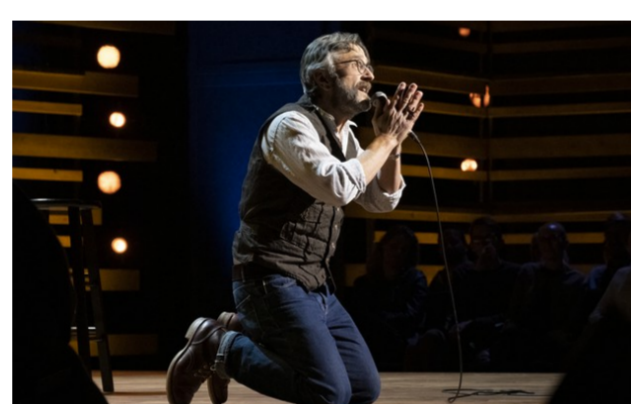
Fans of *Sherlock Holmes* know the simplest explanation of a mystery is usually the best. They also know that if you've eliminated all other explanations then the one that remains—however outlandish—must be right. The multiverse somehow manages to be both the simplest and the most outlandish at the same time.

Carroll walks you through it in *Something Deeply Hidden*. I trust him a lot more than I trust me to do that right. If I try, I might talk about Pavlov's Cat and Schrödinger's Dog. In some alternate universe I might be right. Just not this one.

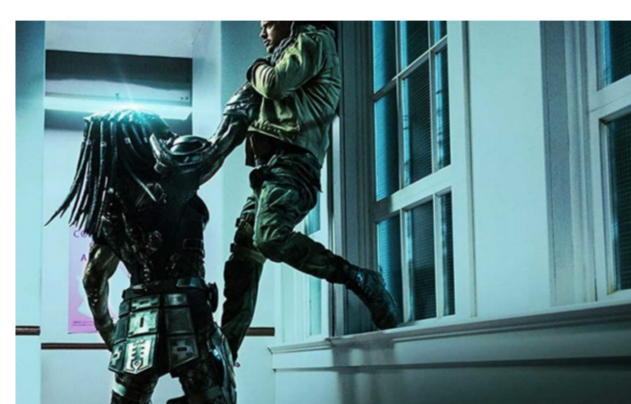
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Tags: Sean Carroll, Something Deeply Hidden

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### Michael Giltz

Michael Giltz is a freelance writer based in New York City covering all areas of entertainment, politics, sports and more. He has written extensively for the New York Post, New York Daily News, New York Magazine, The Advocate, Out, Huffington Post, Premiere Magazine, Entertainment Weekly, BookFilter, USA Today and the Los Angeles Times. He co-hosts the long-running podcast *Showbiz Sandbox*.

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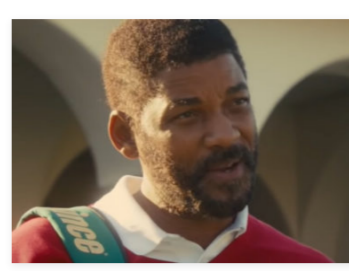
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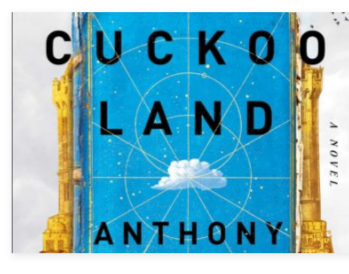
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