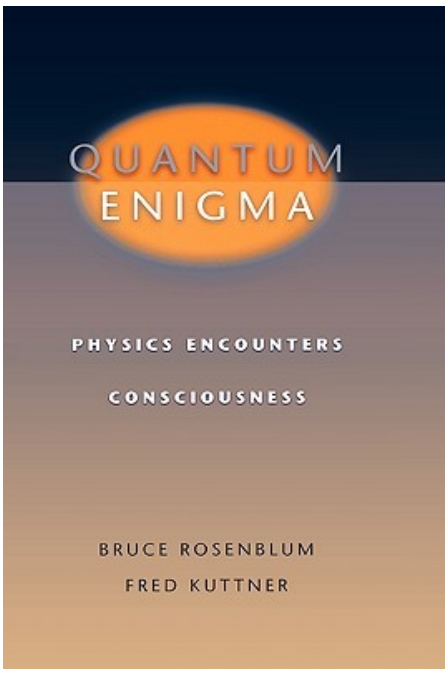

Quantum Enigma: Physics Encounters Consciousness

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The most successful theory in all of science - and the basis of one third of our economy - says the strangest things about the world and about us. Can you believe that physical reality is created by our observation of it? Physicists were forced to this conclusion, the quantum enigma, by what they observed in their laboratories. Trying to understand the atom, physicists built quantum mechanics and found, to their embarrassment, that their theory intimately connects consciousness with the physical world. Quantum Enigma explores what that implies and why some founders of the theory became the foremost objectors to it. Schrodinger showed that it absurdly allowed a cat to be in a superposition simultaneously dead and alive. Einstein derided the theory's spooky interactions. With Bell's Theorem, we now know Schrodinger's superpositions and Einstein's spooky interactions indeed exist. Authors Bruce Rosenblum and Fred Kuttner explain all of this in non-technical terms with help from some fanciful stories and bits about the theory's developers. They present the quantum mystery honestly, with an emphasis on what is and what is not speculation. the authors open the closet and examine the skeleton, theirs is a controversial book. Quantum Enigma's description of the experimental quantum facts, and the quantum theory explaining them, is undisputed. Interpreting what it all means, however, is controversial. Every interpretation of quantum physics encounters consciousness. Rosenblum and Kuttner therefore turn to exploring consciousness itself - and encounter quantum physics. Free will and anthropic principles become crucial issues, and the connection of consciousness with the cosmos suggested by some leading quantum cosmologists is mind-blowing. Readers are brought to a boundary where the particular expertise of physicists is no longer a sure guide. They will find, instead, the facts and hints provided by quantum mechanics and the ability to speculate for themselves.

Quantum Enigma: Physics Encounters Consciousness Details

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From Reader Review Quantum Enigma: Physics Encounters Consciousness for online ebook

Tim says

I wasn't expecting to enjoy this book nearly as much as I did when I started reading it. The clearest history and exposition of quantum physics I have ever read. Additionally, it doesn't shy away from examining the various speculations about what it might mean. An interesting, level headed, and thought-provoking read.

Roberta Grimes says

Bruce Rosenblum and Fred Kuttner are adventurous academic physicists, and they here give us a handy summary of their understanding of the consciousness issue in quantum physics. This book is plainly written and highly accessible for non-physicists, and it is flat-out fun to read.

Jon-Erik says

If you liked this book, did you like it because the subject matter was fascinating, or because the book was well written? I doubt it was the latter.

Ever see a cartoon where after a few scenes, you realize that the animation is just the same frames spliced over and over? This book is about 5 minutes worth of footage to make an hour cartoon. You can read the last two or three chapters and get the whole thing, and I can sum it up nicely here: physicists have trouble with the observer problem and get upset that they have to address something they don't (yet) have experiments for.

The authors display the same arrogance typical of physicists who ignore most of 2,500 years of philosophical history and act like the questions raised by quantum theory are Something New Under The Sun. They are not. Nor are they newly intellectually serious questions. Indeed, the angst of physicists who use derisive terms like "speculative" poses the question: are you an engineer or a calculator, or are you a scientist? A scientist seeks to answer questions about the universe. Sometimes those questions go beyond where you thought they might. Ask Newton. Ask Einstein.

The topic is fascinating, of course. But until enough philosophers get good at math and enough physicists learn how to read libraries of prose this field will be the preserve of the few people who have done both, like Stuart Kauffman. Physicists presenting a book that might be appropriate for general ed students sitting in a class they heard will, like, blow their mind, on drugs at places like UC Santa Cruz without adding anything from psychologists, biologists, philosophers, or mathematicians leaves this book way, way too thin. I can't even believe they include, as a legitimate idea, scientific reductionism. Chemistry can be explained by physics, but biology can't be. They should know that. They use the term "emergent" once or twice, but don't explain it, and don't explain why this is important for the quantum brain.

Let me add this: if you like this book, don't you think it might have been a lot better if they had collaborated with someone in another field on this?

Jeffery says

I got this book with the hopes of obtaining tools to help me understand -- and to help me help others to understand -- some of the concepts and popular [mis-]conceptions of quantum mechanics. It's become almost de rigueur among New Age spiritualists to pilfer bits of quantum theory for use in fortressing and promoting their ideas and books and DVDs and seminars ad nauseum. (see "What the Bleep do We Know?" and "The Secret" and huge sections of book stores). Ideas such as "our consciousness creates reality", matter can exist in multiple locations at the same time, and matter and energy are the same thing, are enticing concepts to the woo-woo crowd, but it must be remembered: quantum effects take place at sub-atomic levels, where time and space and dimensions are only vaguely related to our level of reality. The same can be said of the theory of Relativity. Yes, space bends in the presence of mass, and yes, the speed of light cannot be exceeded, and yes, time slows down as one accelerates. But these are all phenomenon that can only be experienced on astronomical scales. Likewise, quantum effects occur on the nuclear scale.

I actually didn't find what I was looking for in Quantum Enigma. In fact, it's just another book that takes a stab at explaining a topic that is -- while undeniably the most tested and proven theory of science -- very complicated and very difficult to understand. Very. And its concepts are often bizarre, counter-intuitive and down-right out of reach for the great majority of us. Including all those spewers of non-science non-sense.

Lori says

The best nonfiction book I’ve read in awhile. This book is a fascinating and an easy-to-visualize introduction to concepts that fuel current scientific debate around the implications of quantum theory and its reliance on a conscious observer.

Written by two UC Santa Cruz physics professors, short chapters include humorous analogies and non-technical descriptions of Newtonian physics, general relativity, and quantum mechanics. The quantum enigma emerges from experimental evidence that shows what scientists observe at the quantum level depends on what they “decide” to evaluate. Contrary to the tenets of the scientific method, when it comes to the world of subatomic matter, there is no such thing as an “objective” observer. In fact, consciousness might actually create a particular reality by collapsing the wave function of potential outcomes into one physical reality...that is, if reality even exists at all.

The authors never officially take sides with competing interpretations of the quantum enigma, but their work will undoubtedly fuel much discussion about the role of consciousness in scientific observation.

Joe says

I can't recommend this book enough. It describes quantum mechanics in a mostly understandable way and it very cautiously examines some of the proposed ramifications of its weirdness. Awesome, awesome book.

Burk says

I've read a lot of physics books, always trying to get a better handle on these bizarre concepts. Each new book I read seems to take me closer to that "Okay, now I get it!" moment that I wish would come. According to the best scientists working in that field, though, there's really no way for our primate brains to accept some of the genuinely strange ideas. How can particles be in multiple places at once? How can they apparently move through time in different ways than we do? How can the laws of nature be different for these particles, and yet we, who are made of these particles, apparently function "normally" every day? What role does our consciousness play in all of this?
"The Quantum Enigma" is one of the best books I've read about these topics. It's great at leading the reader through some of those difficult ideas, and eventually allowing you to at least get a few steps closer to understanding. It addresses the deeply weird ideas inherent in the study of the nature of reality, but not in the way that some popular media has in the past like the film/book "What the Bleep Do We Know" which cops out by saying it's all magical and supernatural, and that the universe loves you and cares about you. I certainly don't get that impression about nature, and answering these big, intriguing questions with a simple, "It was made by a magical being who loves us!" doesn't work if you really care about knowing what's going on. "The Quantum Enigma" acknowledges that it's likely beyond our current ability to understand the true origins of everything in a way that works nicely with how we understand things in our daily lives, but it gave me a few good ways of looking at these things without leaving me feeling completely lost in them.

Shani says

Generally a good and easy read but some concepts are over-explained and some (I guess the more complicated ones) are not explained well or left unexplained. Only in the end do they get to concsiousness and their points are not as good as I expected.

Dan says

I found this book to be real food for thought. Rosenblum points out that Quantum probability tells us not the probability of the state of a system but rather where an observer will measure it to be. The system wasn't in that state until it was observed to be there. Quantum cosmologist John Wheeler puts it concisely: "No microscopic property is a property until it is an observe property." Quantum mechanics thus *requires* a conscious observer to produce physical properties.

He next deals with the very strange concept of separability. Physicists have now demonstrated conclusively that once quantum states interact with each other they remain forever linked in such a way that the state of one such state is *immediately* influenced by a change in state of the other system even when separated from it by long distances, thus apparently violating our belief that information cannot be transmitted faster than the speed of light. As a consequence any quantum states that have ever interacted are no longer separable and the universe is highly linked with many other parts of the universe. Physicists do not really understand this instantaneous action-at-a-distance, but it is predicted by Quantum Mechanics and has been verified experimentally.

He then turns to modern thinking about consciousness. Is consciousness more than the product of chemical

reactions in the body? He states that *the* two great mysteries are the mystery of the existence of the world "out there" and the mystery of consciousness "in here". He claims that quantum mechanics appears to connect the two.

He then takes this mystery to the beginning of time, at the Big Bang. If a microscopic property requires a conscious observer to produce physical properties, what created the first matter? One explanation could be a consciousness outside of the universe--God. Another is that spacetime is closed back on itself and the "future" consciousness of people yet to be created were the consciousnesses that caused the original first matter to exist through the mechanism of separability.

I find it fascinating that from a scientific viewpoint Rosenblum reaches the conclusion that some consciousness was necessary to create the universe.

Shane says

I ordered this book after finishing the previous one I posted (From Science to God) because I wanted a more thorough explanation of the Quantum "Mystery." It seems that movies like "What the Bleep do We Know" have taken some of the more bizarre observations about quantum physics and allowed their imaginations to run wild with their claims, giving the less discerning public a less-than-accurate idea about what's really going on here.
This book, written by two widely-respected Physicists, presents the facts of quantum physics in a "Truth, Whole Truth, and Nothing But the Truth" manner. They attempt to separate the facts from the myths, while addressing the "Skeleton in the Closet" of science...Human Consciousness.
It's a heady read, and I'll have to go over it several more times to completely wrap my head around the material. If this topic interests you at all (and you are already familiar with the subject), this book is a MUST read. If it's all new to you, I recommend starting with something MUCH simpler (like the books I mentioned at the top)

Raven says

This book, perhaps more than any of the others that I have read, brings the concepts of Quantum Mechanics out of the strict academic in into a more reader friendly world. I would go so far as to label it a 'primer' on the subject.

Perhaps its most significant contribution is how well it illustrates that place where Consciousness and Quantum Physics meet. A place that established Psychiatrists and Physicists all over the world fear to go.

I highly recommend this book.

Marcha Fox says

Since I have a bachelor's degree in physics, I'm reasonably familiar with quantum theory and the mystery it presents with regard to the influence of an observer. I've even written a few blogs on the subject you can find here: https://marcha2014.wordpress.com/cate.... I keep reading about quantum theory hoping for a deeper

understanding but all I seem to discover is that no one really knows what's going on, even several decades after its first discovery. However, this well-written book did explain numerous other things that helped my understanding of the various interpretations and the differences between them.

This book does an excellent job of explaining the different interpretations, e.g. the Copenhagen interpretation, Schrodinger's cat, Einstein's view, Niels Bohr's opinion and various others, in a way that anyone interested in the subject can understand. What stands out the most is that even today the experts don't agree. In other words, they simply do not know. I continue to marvel that physicists can propose the existence of parallel universes, multiverses, and thirteen or more dimensions while dismissing and even disparaging anything that relates to consciousness.

Give me a break. Without consciousness they couldn't even consider the meaning of the physical world.

Thanks to reading this book I understand more thoroughly that physicists fear to tread outside their domain of the material world and to touch on anything that borders on parapsychology because it can result in professional suicide. How sad that science has become so specialized and compartmentalized that professional tunnel vision precludes solving some of life's greatest mysteries while those who think outside the box are ostracized by their peers and even looked upon as ignorant fools. Which side best fits that description only time will tell.

Ergun Coruh says

This book deals with quantum enigma and consciousness, the fact that at microscopic (quantum) scales weird things happen that our conscious mind cannot comprehend.

The authors take their time to explain the quantum enigma (and I must admit they do this well), the fact that observation creates reality, and the reality (or experimental outcome) depends on the observation, contrary to our intuition originated from classical Physics that observation alone cannot affect reality.

It is the final chapters when I started to feel uneasy about this book. I found subtle but nevertheless annoying sense of supernatural or weirdness being over emphasised to the extent of being mystical, and Physics being sidetracked.

To set the record straight, I don't find consciousness mystical, philosophical or weird, to me it is as biological as my bones or blood. The fact that we cannot comprehend quantum enigma today does not necessarily mean that we are supposed to comprehend it despite our biological limitations, unless we find new ways of mapping physical reality into our limited view.

Thelbert Dewain Belgard says

I've read this book several times -- first edition and second. It's not really hard to understand at all. The authors have a clear and to-the-point writing style--unusually entertaining for a non-fiction idea-oriented book of this sort. It is hard to accept. What it says is so disturbing to the prevailing world-view that I'm sure many people just shut it out by saying, "Oh this is too hard to understand." That means they've probably

understood it. Other readers may say, "This is all old-hat. Nothing new here -- it's boring." That's probably someone who doesn't understand what the book is saying.

The quantum experiments are about as simple in principle as it's possible to be -- although some of them may require some awfully hi-tech equipment to conduct. So you don't need much if any math to understand this book. It's more about the implications of the experiments. What kind of world is this? Is it real? What does "real" mean? Do things have any separate existence? How can things that have no known physical connection still be connected -- even at vast distances -- in some weird mysterious way? How can things exist in different -- and even opposing -- states depending on how they are observed? How can the fact of being observed affect the values of the properties being measured?

I won't promise that you will find the answers to all these questions in this book. But I think you may learn more about what the questions are and how to ask them -- perhaps better than I have. Knowing how to ask a question is, I believe, a large part of finding the answer.

Dr. Barrett Dylan Brown, Phd says

I was taught by these two authors of this book at UCSC and got to have several conversations with them regarding how Quantum Mechanics effects our current theories of Parapsychology. Dr. Fred Kittener is an absolutely stubborn old clod and fool, but Dr. Bruce Rosenblum is a gem of a human with an open mind and good nature about him. Dr. Rosenblum is also cited briefly in "Unbelievable: The Duke Parapsychology Lab"
