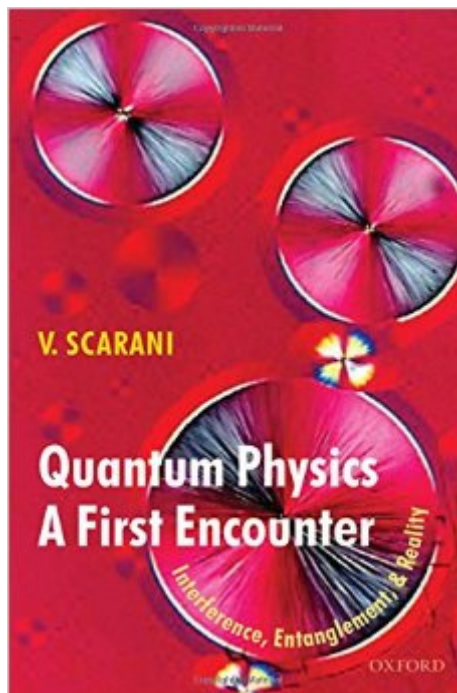


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Quantum Physics: A First Encounter: Interference, Entanglement, And Reality



Synopsis

Quantum physics is often perceived as a weird and abstract theory, which physicists must use in order to make correct predictions. But many recent experiments have shown that the weirdness of the theory simply mirrors the weirdness of phenomena: it is Nature itself, and not only our description of it, that behaves in an astonishing way. This book selects those, among these typical quantum phenomena, whose rigorous description requires neither the formalism, nor an important background in physics. The first part of the book deals with the phenomenon of single-particle interference, covering the historical questions of wave-particle duality, objective randomness and the boundary between the quantum and the classical world, but also the recent idea of quantum cryptography. The second part introduces the modern theme of entanglement, by presenting two-particle interference phenomena and discussing Bell's inequalities. A concise review of the main interpretations of quantum physics is provided.

Book Information

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Customer Reviews

Quantum Physics: A First Encounter: Interference, Entanglement, and Reality by Valerio Scarani is a very readable and informative introduction to quantum physics. The book has several notable strengths. Firstly the reflective didactic method that engages the reader and conveys clearly the fundamentals of the subject. Secondly, as opposed to several other popular expositions on the subject, Scarani conveys the extraordinary novelty and significance of non-locality. Additionally, there is a refreshingly detached attitude to the subject's intrinsic significance. Rather than the common unscientific triumphalistic assertions of the completeness and unassailability of quantum

physics, Scarani emphasises the intrinsic limitations of what can only be descriptions of reality, and the need to maintain a sense of wonder and openness to phenomena. Finally, the book is short, and hence practically readable. CR French

I've looked at a lot of basic books on quantum theory. This is the best one I've seen so far. It does a remarkably good job of giving newcomers an insight into the phenomena of interference and entanglement, all the more so given that there's almost no math in the book. Scarani is a serious researcher in his own right, but this book makes clear that he is also a gifted teacher. BTW: ignore the one-star review. It's not Scarani's fault that the customer didn't get his copy of the book.

This is probably the first 100 page book that I ever bought at this price. Valerio Scarani has presented a good approach to several of the mysteries of quantum mechanics (QM) based on actual experiments. I didn't really know the basis of quantum cryptography (not that I was searching for one) but he explained it well. The ideas presented in this book are verbal explanations that one can keep in mind when studying QM in more depth.

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