

HARDCOVER JACKET COPY—FLAPS

Absolutely Small

How Quantum Theory Explains Our Everyday World

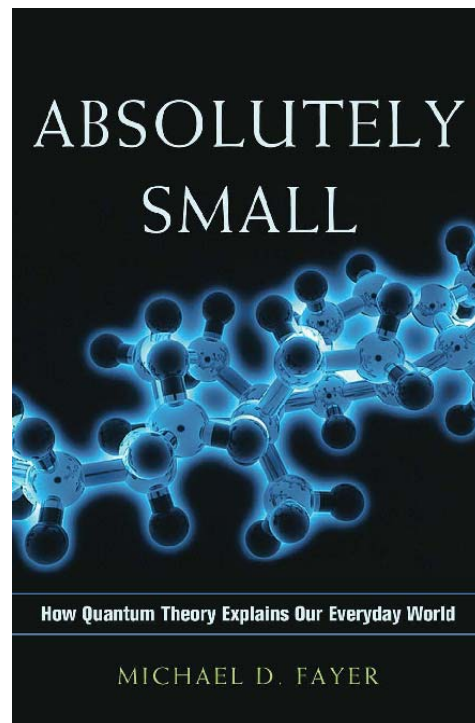
Michael D. Fayer, Ph.D.

Our intuition about how things should behave is usually right in the everyday world. We see the baseball soar in the air, arc, drop, and lie stationary on the ground. Through data gathered through our senses and basic knowledge of the laws of classical mechanics, the motion of a ball makes perfect sense.

But enter the world of the tiniest particles on earth—the motion of electrons, the shapes of molecules—and everything we *think* we know about the world radically changes. To understand what's really happening in the world around us, to comprehend the mysterious, counterintuitive science of the small, we must take a quantum theory view of nature.

Like no other book before it, *Absolutely Small* makes the inherently challenging field of quantum theory understandable to nonscientists, without oversimplifying and without bogging down in complicated math. Written by an award-winning professor at Stanford University, the book uses clear explanations, real-world examples, and diagrams instead of dense equations to help you understand:

- Why strawberries are red and blueberries are blue
- How particles can change from “mixed states” to “pure states” based solely on observation
- Why a piece of metal will glow red when it is hot, and turn blue when it's even hotter
- How a single photon can be in two places at the same time
- Why quantum matter sometimes acts like particles and other times like waves
- What makes salt dissolve in water, while oil does not, and much more



“There are a few books that I always keep near at hand, and constantly come back to. *The Feynman Lectures in Physics* and Dirac's classic textbook on *Quantum Mechanics* are among them. Michael Fayer's wonderful new book, *Absolutely Small*, is about to join them. Whether you are a scientist or just curious about how the world works, this is the book for you.”

Leonard Susskind, Professor of Physics, Stanford University, Author of *The Black Hole War: My Battle With Stephen Hawking to Make the World Safe for Quantum Mechanics*. Professor Susskind is widely regarded as one of the fathers of string theory.

In the tradition of Stephen Hawking and Lewis Thomas, but without the rigorous mathematical requirements, *Absolutely Small* demystifies the fascinating realm of quantum physics and chemistry, complete with compelling accounts of the scientists and experiments that helped form our current understanding of quantum matter.

Challenging without being intimidating, accessible but not condescending, *Absolutely Small* develops your intuition for the nature of things at their smallest and most intriguing level.

Michael D. Fayer, Ph.D., is the David Mulvane Ehram and Edward Curtis Franklin Professor of Chemistry at Stanford University and a member of the National Academy of Sciences. He has won major prizes and honors in the fields of physics, chemistry, and molecular spectroscopy and is the author of *Elements of Quantum Mechanics*. He lives in Stanford, California.