http://sackett.net/PetersonReviewOfZeeSimpleQFT.pdf

From Dave's 10/30/2023 email:

Hi All,

I just finished reading Zee's **Quantum Field Theory as "Simply as Possible"** book and was surprised to see that his discussions have very little overlap with my previous attempts at simplifying QM, relativity and QFT [e.g., 3 web URLs below]. However, much of his book does resemble our previous high-energy readings such as "Deep Down Things" or "Facts and Mysteries in Elementary Particle Physics" – *after subtracting out the illustrations. As usual, the given topics become a stimulus for further individual thought or study.*

Zee's main focus throughout the book is the QFT "Lagrangian density" **L and Path Integrals** to yield "**Action**," $S=\int \mathbf{L}\, d^4x$ (--as opposed to the traditional "**Canonical** formalism" formulation in which quantum fields are operators). His prose starts to have some challenging depth around page 150 where he discusses the ingredients of **L**. Kaku agrees that "Perhaps the most powerful quantization method is the path integral approach which was developed by Feynman." And Weinberg says, "For most theorists, the turning point came in 1971, when 't Hooft used path-integral methods to derive the Feynman rules for spontaneously broken gauge theories." The "Feynman path integral has made earlier formalisms largely obsolete [Wikipedia]."

Zee doesn't talk much here about philosophy or ontology, nor quantum interpretations or why; and there is little on "waves" or the "meaning" of **L**, or heuristics or derivations. Except for digressions, he stays with his focus for his intended readers. It is a unique book.

[3 old Refs:] http://sackett.net/QuantumMechanicsWithoutMath.pdf. 2/26/22 15 pages.
LEARNING QUANTUM MECHANICS AND RELATIVITY 7/22/15 http://www.sackett.net/DP_Stroll2.pdf pages 29-54,
http://www.sackett.net/AboutQuantumFieldTheory.pdf November, 2022. 16 pages.
Note: in trying to understand Zee's "virtual particles," I stumbled on a really nice learning reference by Matt Strassler {transient disturbances vs field quanta excitations}:
https://profmattstrassler.com/articles-and-posts/particle-physics-basics/virtual-particles-what-are-they/ {his web site is very rich in knowledge}.

Have good readings. Dave