

Something happened: The real, the virtual, and the actual in quantum field theory

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This article addresses a thorny subject of the nature and the very existence of virtual particles, or of elementary particles in the first place, a subject concerning which is difficult and even impossible to be definitive, and the present article does not aim to be. Instead, in contrast to most attempts addressing this subject, which are realist in nature, this article aims to offer a nonrealist viewpoint on this subject—a particular nonrealist viewpoint, as there is no single form of nonrealism any more than a single form of realism. This viewpoint is defined by the concept of “reality without realism” (RWR), introduced by the present author previously, and is, I shall argue, at least practically justified in considering all quantum objects. On the other hand, as I shall also argue, no other justification than practical may be possible in considering the ultimate constitution of reality in quantum theory.