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# Quantum field theory

64 languages

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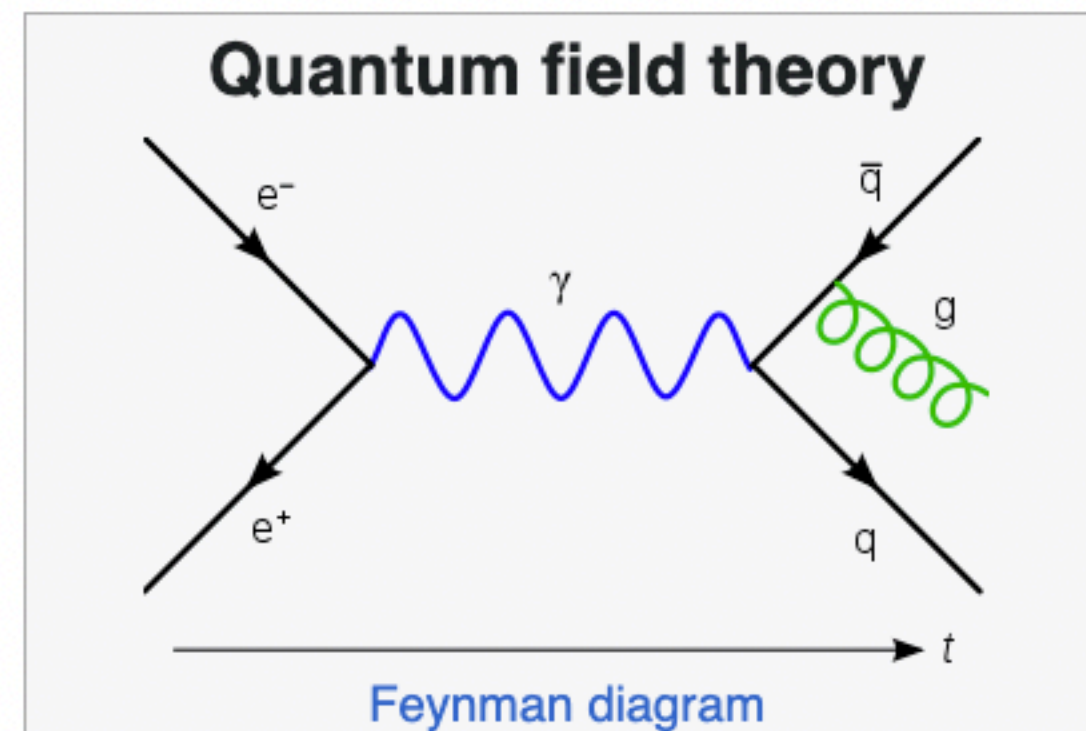
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In [theoretical physics](#), **quantum field theory (QFT)** is a theoretical framework that combines [classical field theory](#), [special relativity](#), and [quantum mechanics](#).<sup>[1]:xi</sup> QFT is used in [particle physics](#) to construct [physical models](#) of [subatomic particles](#) and in [condensed matter physics](#) to construct models of [quasiparticles](#).

QFT treats particles as [excited states](#) (also called [quantum levels](#)) of their underlying quantum [fields](#), which are more fundamental than the particles. The [equation of motion](#) of the particle is determined by minimization of the [action](#) computed for the [Lagrangian](#), a functional of fields associated with the particle. Interactions between particles are described by interaction terms in the Lagrangian involving their corresponding quantum fields. Each interaction can be visually represented by [Feynman diagrams](#) according to [perturbation theory in quantum mechanics](#).



Feynman diagram

## History

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