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The Standard Model of Fundamental Interactions, Achievements

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The standard model of fundamental interactions is based on
the quantum theory of fields in particle physics and on general relativity in cosmology. It consists on a set of effective theories (the Electroweak theory, Quantum Chromodynamics and the Big Bang cosmological model) that
give, with the help of a finite and fixed number of adjustable parameters, an acceptable agreement with all
experimental and observational data on the microscopic structure of matter and on the evolution of the universe. These introduction lectures are devoted to a historical and
epistemological overview of the main achievements and prospects of this standard model. The dynamical tension between its robustness and its upgradeability appears to be
a characteristic of the methodology of modern scientific research.

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