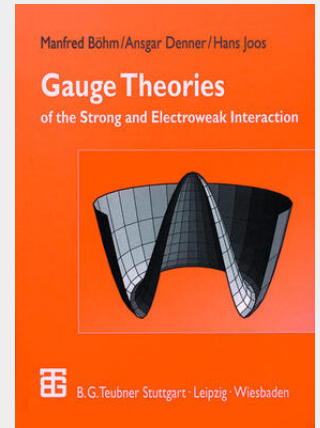


## Gauge Theories of the Strong and Electroweak Interaction

The gauge theories for the strong and electroweak interaction have become the Standard Model of particle physics. They realize in a consistent way the requirements of quantum theory, special relativity, and symmetry principles. For the first time, we have a consistent theory of the fundamental interactions that allows for precision calculations for many experiments. The Standard Model has, up to now, successfully passed all experimental tests. This success establishes the importance of gauge theories, despite the fact that gravity is not included and that the Standard Model is most likely an effective theory resulting from the low-energy limit of a more fundamental theory. The aim of this book is to present the basic ideas and concepts, the technical tools, and the predictions of the gauge theories for the fundamental constituents of matter and their interactions: Quantum Chromodynamics for the strong interaction and the Electroweak Standard Model for the unified electromagnetic and weak interaction.

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