

<<量子色动力学讲义/LECTURE>>

图书基本信息

书名：<<量子色动力学讲义/LECTURES ON QUANTUM CHROMODYNAMICS>>

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作者：Smilga, Andrei

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内容概要

Quantum chromodynamics is the fundamental theory of strong interactions. It is a physical theory describing Nature. Lectures on Quantum Chromodynamics concentrates, however, not on the phenomenological aspect of QCD; books with comprehensive coverage of phenomenological issues have been written. What the reader will find in this book is a profound discussion on the theoretical foundations of QCD with emphasis on the nonperturbative formulation of the theory: What is gauge symmetry on the classical and on the quantum level. What is the path integral in field theory? How to define the path integral on the lattice, keeping intact as many symmetries of the continuum theory as possible? What is the QCD vacuum state?

What is the effective low energy dynamics of QCD? How do the ITEP sum rules work?

What happens if we heat and/or squeeze hadronic matter?

Perturbative issues are also discussed: How to calculate Feynman graphs? What is the BRST symmetry? What is the meaning of the renormalization procedure? How to resum infrared and collinear singularities? And so on. The book is an outgrowth of the course of lectures given by the author for graduate students at ITEP in Moscow. Much extra material has been added.

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