Heavy Quark Physics

Understanding the physics of heavy quarks gives physicists the unique opportunity to test the predictions of Quantum Chromodynamics and the Standard Model. This is the first introductory text to this exciting new area of high-energy physics.

The book begins with a review of the standard model, followed by the basics of heavy quark spin-flavor symmetry and how it can be applied to the classification of states, decays, and fragmentation. Heavy quark effective theory is then developed, including the radiative and $1/m_Q$ corrections, and applied to the study of hadron masses, form factors, and inclusive decay rates. The authors also discuss the application of chiral perturbation theory to heavy hadrons.

Written by two world leaders, the presentation is clear, original, and thoroughly modern. To aid the reader, many of the key calculations are performed step by step, and problems and a concise review of the literature are provided at the end of each chapter. This lucid volume provides graduate students with an ideal introduction to the physics of heavy quarks, and more experienced researchers with an authoritative reference to the subject. This title, first published in 2000, has been reissued as an Open Access publication on Cambridge Core.

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