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Twenty-First Century Lattice Gauge Theory: Consequences of the QCD Lagrangian

Friday, 21 October 2011 10:00 (1:00)

Abstract content

Quantum chromodynamics (QCD) is the modern theory of the strong nuclear force. For many years, many of its amazing properties were believed to be true, but had not yet been demonstrated. In this review, I survey several results from lattice gauge theory, which start with the basic equations of QCD and then, via large-scale computing, establish these features. We now know, for example, how QCD generates almost all the mass of everyday objects. This, and the other topics covered, are quantitatively impressive and qualitatively important to particle physics, nuclear physics, and astrophysics.

Summary

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