

Lattice QCD at the Turning Point

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Lattice QCD is now turning a crucial corner. Progress over the last four decades in physics, algorithms, and supercomputers is finally bringing it to the point where it is possible to carry out calculations in a large enough box and a small enough lattice spacing at the physical masses for light quarks. Soon we shall no longer be simulating but calculating strong interactions as they take place in Nature. We discuss how this progress came about, and what advances it is bringing in for the understanding of the dynamics of strong interactions. We also discuss aspects of lattice QCD research which are somewhat different from those of pure theory. This includes development of high performance computing infrastructure such as R&D of supercomputers and International Lattice Data Grid for global data sharing. Recent status of the National “Kei”(10 Pflops in Japanese counting system) Supercomputer Project in Japan is touched upon in this context.

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