Visualization for Lattice QCD

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In this paper we present a prototype visualization toolkit for Lattice Quantum Chromodynamics. The toolkit consists of a set of parallel algorithms for the computation of the topological charge, energy density, density of heat-bath hits, two and three point correlation functions, that are interfaced with a Graphical User Interface for an interactive visualization of the fields. The toolkit runs on Windows/Linux/OSX, allows both real-time and off-line visualization, scripting for automation, and the ability to combine individual frames into animations (to produce, for example, an animation of the topological charge as function of time). Output formats include BMP, PNG, GIF, VRML (virtual reality modeling language) and MPEG4.