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A perturbative study of the Schrödinger Functional in Lattice QCD.

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Strong interactions are (so far) correctly described by Quantum Chromodinamics (QCD). This theory explains accurately phenomena from the scale of hadronic physics at low energies to the production of jets in high energy collisions and quark-gluon plasmas. Due to the property of asymptotic freedom, the theory can be studied at high energies by means of perturbation theory. At low energies, a non-perturbative formulation of QCD is required. A widely used possibility is to formulate the theory on a discrete space-time lattice, which yields numerically tractable the study of strong interactions. Here we will describe some results in the context of lattice perturbation theory, which in many occasions is the only way of having analytic control on the theory before embarking on large scale numerical calculations.

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