

High Precision Statistical Landau Gauge Lattice Gluon Propagator Computation

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We report on results for the Landau gauge gluon propagator computed from large statistical ensembles and look at the compatibility of the results with the Gribov-Zwanziger tree level prediction for its refined and very refined versions. Our results show that the data is well described by the tree level estimate only up to momenta $p \lesssim 1$ GeV, while clearly favoring the so-called Refined Gribov-Zwanziger scenario. We also provide a global fit of the lattice data which interpolates between the above scenario at low momenta and the usual continuum one-loop renormalization improved perturbation theory after introducing an infrared log-regularizing term.

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