

Sub-gauge Conditions for the Gluon Propagator Singularities in the Light-Cone Gauge and Temporal Gauge

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Perturbative QCD calculations in the light-cone gauge have long suffered from the ambiguity associated with the regularization of the poles in the gluon propagator. Using the functional integral method, we re-derive the known sub-gauge conditions for the θ -function gauges and identify the sub-gauge condition for the principal value regularization of the gluon propagator's light-cone poles. Within the same method we obtain the sub-gauge condition for the gluon propagator in the temporal gauge as well.

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