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Intrinsic Regularization Method in QCD Work supported in part by the National Natural Science Foundation of China.

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Abstract

There exist certain intrinsic relations between the ultraviolet divergent graphs and the convergent ones at the same loop order in renormalizable quantum field theories. Whereupon we may establish a new method, the intrinsic regularization method, to regularize those divergent graphs. In this paper, we apply this method to QCD at the one loop order. It turns out to be satisfactory: The gauge invariance is preserved manifestly and the results are the same as those derived by means of other regularization methods.