SEMINÁŘ OTF ÚJF, ŘEŽ

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Pinch technique gluon propagator and a restriction on a dynamically generated gluon mass

Abstrakt

Within a simple Ansatz for renormalized gluon propagator and using gauge invariant pinch-technique for Schwinger-Dyson equation, the limits on the effective gluon mass is derived. We calculated scheme invariant running coupling, which in order to be well defined, gives the lower limit on the gluon mass. We conclude mass should be larger as $m > 0.4\Lambda$ in order to avoid Landau ghost. The upper limit is very roughly estimated from assumed quark mass generation which requires gauge coupling is large enough to trigger chiral symmetry breaking correctly. However, we observe that sometimes asumed or postulated Khallen-Lehmann representation for running coupling is not achieved for any value of m which is true in ultraviolet and in the infrared as well.

Seminář se koná v pátek 15. 1. 2010 v 10:30 hod. v zasedací místnosti ÚJF Řež

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