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Consistent Perturbative Fixed Point Calculations in QCD and supersymmetric QCD

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In order to obtain a better understanding of QCD as well as possible strongly coupled extensions of the Standard Model it is important that we reliably can calculate anomalous dimensions of certain composite operators at fixed points. We show how to consistently calculate the mass anomalous dimension order by order in perturbation theory in a scheme independent manner. We compare our calculation to exact known results in supersymmetric QCD and find that they can astonishingly well be approximated by a few loops computation. We then calculate the mass anomalous dimension in QCD and discuss its implications for building realistic models of beyond the Standard Model.

Summary

We study the physics of QCD and supersymmetric QCD at an infrared fixed point.

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