

# The Structure of UV Divergences in Maximally Supersymmetric Gauge Theories

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We consider the UV divergences up to sub-sub leading order for the four-point on-shell scattering amplitudes in D=8 supersymmetric Yang-Mills theory in the planar limit. We trace how the leading, subleading, etc divergences appear in all orders of perturbation theory. The structure of these divergences is typical for any local quantum field theory independently on renormalizability. We show how the generalized RG equations allow one to evaluate the leading, subleading, etc. contributions in all orders of PT starting from one-, two-, etc. loop diagrams respectively. We focus then on subtraction scheme dependence of the results and show that in full analogy with renormalizable theories the scheme dependence can be absorbed into the redefinition of the couplings. The only difference is that the role of the couplings play dimensionless combinations like  $g^2 s^2$  or  $g^2 t^2$ , where  $s$  and  $t$  are the Mandelstam variables.

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