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Dilaton effective theory and soft theorems

Tuesday, 30 July 2024 12:15 (20 minutes)

I will first discuss model-independent properties of dilaton effective theory. Using soft theorems a constraint on the operator generating a potential dilaton mass will be derived. As the operator is relevant this indicates that the dilaton can only acquire a mass through explicit symmetry breaking. The results will be derived alternatively from the Lagrangian and linked to the improvement term necessary to reproduce the defining Goldstone current matrix element. I will further show how an infrared fixed point interpretation of gauge theories is compatible with the end of the conformal window. I will show how this interpretation is related and supported by $N=1$ supersymmetric gauge theories.

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