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Renormalization of Effective Field Theories from Geometry

Tuesday 24 September 2024 09:40 (40 minutes)

The renormalization group equations (RGE) are a necessary component to comparing physics at different scales. For renormalized quantum field theories (QFT), there exists algebraic formulae, derived by 't Hooft, which encode the one-loop counterterms of a wide class of theories. After reviewing how they were derived, we will extend to two-loop counterterms for scalar QFT. Moreover, we will see how these formulae can be applied to effective field theories (EFT) —theories with non-renormalizable higher-order operators —thanks to the geometric picture of EFT.

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