

Access to UV information from effective field theories

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We establish a new connection between low-energy and high-energy theories utilizing the analyticity of physical observables and the inverse Laplace transform. We demonstrate that, starting from the low-energy expansion of a physical observable, equivalent to an effective field theoretical description, one can investigate the sign of the beta function and the dynamical scale of the UV theory, as long as a few assumptions are satisfied. We can also extrapolate physical observables to high energies far beyond the cutoff of the low-energy expansion.

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