Phenomenology 2019 Symposium



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Effective Field Theory from On-shell Amplitude

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We propose to construct effective field theory in terms of on-shell scattering amplitudes, rather than operators consisting of quantum fields. Using the methods like recursion relation and unitarity cut, most of the physical observables can be computed based on a set of on-shell amplitudes that we call the amplitude basis. We establish the correspondence between the amplitude basis and the operator basis in the old style effective field theory. We also reproduce the operator counting at dimension 5 and 6 for the Standard Model Effective Field Theory.

Summary

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