

Recursion relations from soft theorems

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We establish a set of new on-shell recursion relations for amplitudes satisfying soft theorems. The recursion relations can apply to those amplitudes whose additional physical inputs from soft theorems are enough to overcome the bad large- z behaviour. This work is a generalization of the recursion relations for amplitudes in scalar effective field theories with enhanced vanishing soft behaviours, which can be regarded as a special case of those with non-vanishing soft limits. We apply the recursion relations to tree-level amplitudes in various theories, including amplitudes in the Akulov-Volkov theory and amplitudes containing dilatons of spontaneously-broken conformal symmetry.

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