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Gauge-invariant Amplitudes Decomposition for Massive Gauge Theories

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We provide a gauge-invariant decomposition of Feynman amplitudes in spontaneously broken gauge theories. Amplitudes are graded according to the number l_h of internal lines of the propagating gauge-invariant field that represents the physical Higgs scalar and the number l_v of internal lines of the propagating gauge-invariant field describing the massive vector meson.

Slavnov-Taylor identities hold separately for each (l_h, l_v)-sector.

The amplitudes subspace $l_h > 0, l_v > 0$ contains inside loops only physical propagating degrees of freedom. We discuss the application of the formalism to the restoration of Slavnov-Taylor identities broken by intermediate regularization in the example of a chiral massive Abelian gauge model.

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