

Phenomenology 2019 Symposium



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Off-shell single-top-quark production in the Standard Model Effective Field Theory

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We present a fully differential and spin-dependent t-channel single-top-quark calculation at next-to-leading order (NLO) in QCD including off-shell effects by using the complex mass scheme in the Standard Model (SM) and in the Standard Model Effective Field Theory (SMEFT). We include all relevant SMEFT operators at $1/\Lambda^2$ that contribute at NLO in QCD for a fully consistent comparison to the SM at NLO. In addition, we include chirality flipping operators that do not interfere with the SM amplitude and contribute only at $1/\Lambda^4$ with a massless b-quark. Such higher order effects are usually captured by considering anomalous right-handed Wtb and left-handed Wtb tensor couplings. Despite their formal suppression in the SMEFT, they describe an important class of models for new physics.

Summary

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