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A first look at two-loop master integrals for ttH

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I will present our recent computation of the first set of two-loop master integrals for the top-quark pair production in association with a Higgs boson. Exploiting numerical evaluations in modular arithmetic, we construct a basis of master integrals satisfying a system of differential equations in ϵ -factorized form. We discuss the analytical structure of the differential equations and their solutions. Finally, we also discuss the numerical solutions via generalized series expansions of the differential equations. As the first computation of a set of two-loop seven-scale master integrals, our results provide valuable input for the computation of two-loop leading-color ttH scattering amplitudes with a closed light-fermion loop.

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