

Source	Type	Remarks
Luminosity	rate	Signal and all backgrounds
Lepton ID/Iso	shape	Signal and all backgrounds
Trigger efficiency	shape	Signal and all backgrounds
Pileup	shape	Signal and all backgrounds
Jet energy scale	shape	Signal and all backgrounds
Jet energy resolution	shape	Signal and all backgrounds
b-tag HF fraction	shape	Signal and all backgrounds
b-tag HF stats (linear)	shape	Signal and all backgrounds
b-tag HF stats (quadratic)	shape	Signal and all backgrounds
b-tag LF fraction	shape	Signal and all backgrounds
b-tag LF stats (linear)	shape	Signal and all backgrounds
b-tag LF stats (quadratic)	shape	Signal and all backgrounds
b-tag charm (linear)	shape	Signal and all backgrounds
b-tag charm (quadratic)	shape	Signal and all backgrounds
QCD scale ($t\bar{t}H$)	rate	Scale uncertainty of NLO $t\bar{t}H$ prediction
QCD scale ($t\bar{t}$)	rate	Scale uncertainty of NLO $t\bar{t}$ prediction
QCD scale ($t\bar{t}+hf$)	rate	Additional 50% rate uncertainty of $t\bar{t}+hf$ predictions
QCD scale (t)	rate	Scale uncertainty of NLO single t prediction
QCD scale (V)	rate	Scale uncertainty of NNLO W and Z prediction
QCD scale (VV)	rate	Scale uncertainty of NLO diboson prediction
PDF (gg)	rate	PDF uncertainty for gg initiated processes except $t\bar{t}H$
PDF ($gg\ t\bar{t}H$)	rate	PDF uncertainty for $t\bar{t}H$
PDF ($q\bar{q}$)	rate	PDF uncertainty of $q\bar{q}$ initiated processes ($t\bar{t}\ W, W, Z$)
PDF (qg)	rate	PDF uncertainty of qg initiated processes (single t)
μ_R scale ($t\bar{t}$)	shape	Renormalization scale uncertainty of the $t\bar{t}$ ME generator, independent for additional jet flavors
μ_F scale ($t\bar{t}$)	shape	Factorization scale uncertainty of the $t\bar{t}$ ME generator, independent for additional jet flavors
PS Scale: ISR ($t\bar{t}$)	rate	Initial state radiation uncertainty of the parton shower (for $t\bar{t}$ events), jet multiplicity dependent rate uncertainty, independent for additional jet flavors
PS Scale: FSR ($t\bar{t}$)	rate	Final state radiation uncertainty (for $t\bar{t}$ events), jet multiplicity dependent rate uncertainty, independent for additional jet flavors
ME-PS matching ($t\bar{t}$)	rate	NLO parton-shower matching, $hdamp$ (for $t\bar{t}$ events), jet multiplicity dependent rate uncertainty, independent for additional jet flavors
Underlying Event ($t\bar{t}$)	rate	Underlying event (for $t\bar{t}$ events), jet multiplicity dependent rate uncertainty, independent for additional jet flavors
NNPDF3.0NLO ($t\bar{t}H, t\bar{t}$)	shape	Variation of the NNPDF sub-PDF, same for $t\bar{t}H$ and additional jet flavors
Bin-by-bin statistics	shape	statistical uncertainty of the signal and background prediction due to the limited sample size