

Source	Type	Remarks
Integrated luminosity	rate	Signal and all backgrounds
Lepton ID/Iso	shape	Signal and all backgrounds
Trigger efficiency	shape	Signal and all backgrounds
L1 prefiring correction	shape	Signal and all backgrounds
Pileup	shape	Signal and all backgrounds
Jet energy scale (JES)	shape	Signal and all backgrounds
Jet energy resolution (JER)	shape	Signal and all backgrounds
b tag HF/LF fraction	shape	Signal and all backgrounds
b tag HF/LF stats (linear)	shape	Signal and all backgrounds
b tag HF/LF 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
Renorm./fact. scales	rate	Scale uncertainty of (N)NLO prediction for $t\bar{t}HH$, $t\bar{t}$, $t\bar{t}Z$, $t\bar{t}ZH$, $t\bar{t}ZZ$, $t\bar{t}H$
PDF+ α_S (gg)	rate	PDF uncertainty for gg initiated processes
PDF+ α_S (q $\bar{q}$)	rate	PDF uncertainty for q $\bar{q}$ initiated processes
PDF+ α_S (qg)	rate	PDF uncertainty for qg initiated processes
PDF shape	shape	Based on NNPDF variations
Bin-by-bin event count	shape	Statistical uncertainty of the signal and background prediction due to the limited sample size