

Name	Type	Processes	Correlations	$t\bar{t}\bar{t}$ Signal Uncertainty (in percent)	Background Uncertainty (in percent)
Statistics of data-driven backgrounds	shape	QCD+ $t\bar{t}$	-	-	5-30
Statistics of transformed samples	shape	QCD+ $t\bar{t}$	-	-	10
Statistics of simulated samples	shape	$t\bar{t}\bar{t}$ , $t\bar{t}X$ , other	-	0-20	0-20
Data-prediction normalization	lnN	QCD+ $t\bar{t}$	-	-	5-37
Data-prediction shape uncertainty	shape	QCD+ $t\bar{t}$	-	-	n/a
DeepJet b-tag SF (HF, LF, cferr)	shape	$t\bar{t}\bar{t}$ , $t\bar{t}X$ , other	processes+years	0-10	0-10
DeepJet b-tag SF (stats)	shape	$t\bar{t}\bar{t}$ , $t\bar{t}X$ , other	processes	0-10	0-10
Resolved top efficiency SF	shape	$t\bar{t}\bar{t}$ , $t\bar{t}X$ , other	processes	0-5	0-5
Resolved top mistag SF	shape	$t\bar{t}\bar{t}$ , $t\bar{t}X$ , other	processes	0-10	0-10
DeepAK8 boosted top SF	shape	$t\bar{t}\bar{t}$ , $t\bar{t}X$ , other	processes	0-5	0-5
DeepAK8 boosted W SF	shape	$t\bar{t}\bar{t}$ , $t\bar{t}X$ , other	processes	0-10	0-5
JER	shape	$t\bar{t}\bar{t}$ , $t\bar{t}X$ , other	processes	0-20	0-20
JES	shape	$t\bar{t}\bar{t}$ , $t\bar{t}X$ , other	processes	5-20	5-20
Pileup	shape	$t\bar{t}\bar{t}$ , $t\bar{t}X$ , other	processes	0-5	0-5
Trigger efficiency	shape	$t\bar{t}\bar{t}$ , $t\bar{t}X$ , other	processes	0-5	0-5
Lepton veto	lnN	$t\bar{t}\bar{t}$ , $t\bar{t}X$	processes	0-5	0-5
Luminosity	lnN	$t\bar{t}\bar{t}$ , $t\bar{t}X$ , other	processes	2.3-2.5	2.3-2.5
PDF	shape	$t\bar{t}\bar{t}$ , $t\bar{t}X$	processes+years	0-10	0-10
ISR	shape	$t\bar{t}\bar{t}$ , $t\bar{t}X$	years	0-5	0-5
FSR	shape	$t\bar{t}\bar{t}$ , $t\bar{t}X$	years	0-20	0-20
$\mu_R, \mu_F$	shape	$t\bar{t}\bar{t}$ , $t\bar{t}X$	years	0-20	0-20
Cross section	lnN	$t\bar{t}X$	processes+years	-	26
Prefire	lnN	$t\bar{t}\bar{t}$ , $t\bar{t}X$ (2016, 2017)	processes	< 1	< 1