

Source	Uncertainty	Signal	Background	2016	2017	2018	Corr'd?
Normalization only							
Luminosity	1-2%	Yes	All	✓	✓	✓	Partial
Electron Id/Isolation/Trigger	3%	Yes	All	✓	✓	✓	No
Muon Id/Isolation/Trigger	3%	Yes	All	✓	✓	✓	No
$t\bar{t}$ + HF	4%	No	$t\bar{t} + b\bar{b}$	✓	✓	✓	Yes
Cross section $t\bar{t}$	+4.8%/-5.5%	No	$t\bar{t}$	✓	✓	✓	Yes
Cross section $t\bar{t} + H$	20%	No	$t\bar{t} + H$	✓	✓	✓	Yes
Cross section TOP	4%	No	TOP	✓	✓	✓	Yes
Cross section EWK	3.8%	No	EWK	✓	✓	✓	Yes
h_{damp}	+10%/-7%	No	$t\bar{t}$	✓	✓	✓	Yes
Shape and Normalization							
Prefire	$\pm\sigma$	Yes	All	✓	✓	N/A	No
Pileup	$\sigma_{\text{minbias}} \pm 4.6\%$	Yes	All	✓	✓	✓	Yes
Jet energy scale	$\pm\sigma(p_T, \eta)$	Yes	All	✓	✓	✓	Partial
Jet energy resolution	$\pm\sigma(\eta)$	Yes	All	✓	✓	✓	No
b/c tagging correlated	$\pm\sigma(p_T)$	Yes	All	✓	✓	✓	Yes
b/c tagging uncorrelated	$\pm\sigma(p_T)$	Yes	All	✓	✓	✓	No
udsg mistagging	$\pm\sigma$	Yes	All	✓	✓	✓	No
resolved t tagging: statistical	$\pm\sigma$	Yes	All	✓	✓	✓	No
resolved t tagging: CS purity	$\pm\sigma(p_T)$	Yes	All	✓	✓	✓	No
resolved t tagging: closure	$\pm\sigma(N_{jet})$	Yes	All	✓	✓	✓	No
PDF	$\pm\sigma$	Yes	All	✓	✓	✓	Yes
ISR	$\pm\sigma$	Yes	All	✓	✓	✓	Yes
FSR	$\pm\sigma$	Yes	All	✓	✓	✓	Yes
Renorm./Fact. energy scale	envelope($\times 2, \times 0.5$)	Yes	All	✓	✓	✓	Yes
Shape only							
BDT shape correction	$\pm\sigma$	No	All	✓	✓	✓	No