

Source of uncertainty	Process	Magnitude
τ_h id. & isolation	All simulated processes	5%
τ_h energy scale [†] (1.2% energy shift)	All simulated processes	<2%
e id. & isolation	All simulated processes	2%
e trigger	All simulated processes	2%
μ id. & isolation	All simulated processes	2%
μ trigger	All simulated processes	2%
b jet veto	All simulated processes	4.5% heavy flavor, 0.15% light flavor or gluon
qq \rightarrow ZZ theoretical uncertainty	qq \rightarrow ZZ	4.8%
PDF set uncertainty	Zh, Wh, gg \rightarrow h \rightarrow ZZ, and $t\bar{t}h$	Varies from 1.6 to 3.6% (see text)
RF scale uncertainty	Zh, Wh, gg \rightarrow h \rightarrow ZZ, and $t\bar{t}h$	Varies from 0.7 to 7.5% (see text)
gg \rightarrow ZZ theoretical uncertainty	gg \rightarrow ZZ	10%
gg \rightarrow ZZ NNLO cross section estimation assumptions	gg \rightarrow ZZ	10%
$t\bar{t}Z$ theoretical uncertainty	$t\bar{t}Z$	25%
$t\bar{t}W$ theoretical uncertainty	$t\bar{t}W$	25%
Triboson theoretical uncertainty	Triboson	25%
Theoretical uncertainty on $\mathcal{B}(h \rightarrow \tau\tau)$	Signal, Zh, and Wh	<2%
Reducible background uncertainties:	Reducible background	
e prompt lepton subtraction		<12% in $ll + e\mu$, <1% in $ll + e\tau_h$
μ prompt lepton subtraction		<16% in $ll + e\mu$, <1.5% in $ll + \mu\tau_h$
τ prompt lepton subtraction		<3.5% in $ll + e\tau_h$ and $ll + \mu\tau_h$, <1% in $ll + \tau_h\tau_h$
Normalization		40% in $ll + e\tau_h$, $ll + \mu\tau_h$, $ll + \tau_h\tau_h$, and $ll + e\mu$
\vec{p}_T^{miss} energy scale [†]	All simulated processes	<2%
Limited number of events	All background processes	Statistical uncertainty in individual bins
Integrated luminosity	All simulated processes	2.5%