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|------------------------------|------------------|----------------------------|-------------------|-------------------|-----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------------|-----------------------|-----------------------|------------------------------|------------------------|--------------|------------|--------------------|--------|-------------|--------------|----------------|-----------|-------|---------|
| Electron ID eff. | 100.0 | -0.1 | -0.0 | -0.0 | 0.0 | 0.6 | -1.1 | 0.3 | -0.4 | 0.1 | -0.6 | 0.0 | 0.1 | -0.3 | -0.1 | 0.3 | -0.1 | -0.1 | 0.7 | -0.8 | 0.8 | -0.0 | -7.2 | -28.0 | -0.9 |
| Electron isol. eff. (syst) | -0.1 | 100.0 | -0.0 | 0.0 | 0.0 | 0.2 | -0.2 | 0.0 | -0.3 | 0.2 | -0.0 | 0.1 | 0.3 | -0.1 | -0.1 | 0.1 | -0.0 | -0.1 | 0.4 | -0.3 | 0.4 | -0.1 | -6.9 | -23.9 | -0.1 |
| b-tag Eigenvar. 0 | -0.0 | -0.0 | 100.0 | -0.0 | -0.0 | -0.2 | 0.1 | -0.1 | -0.5 | 0.9 | -0.4 | -0.1 | -0.1 | 0.0 | -0.0 | -0.1 | -0.0 | 0.1 | 0.0 | 0.1 | 0.2 | 0.1 | 17.1 | 31.2 | -0.5 |
| c-tag Eigenvar. 0 | -0.0 | 0.0 | -0.0 | 100.0 | -0.1 | 0.2 | -1.5 | 0.8 | 0.1 | 0.5 | -0.6 | -0.2 | -0.5 | 0.0 | -0.0 | -0.1 | 0.0 | 0.3 | 0.0 | 0.1 | 0.2 | 0.3 | 26.6 | -0.3 | -0.2 |
| light-tag Eigenvar. 0 | 0.0 | 0.0 | -0.0 | -0.1 | 100.0 | 0.2 | -1.1 | 0.6 | 0.4 | 0.1 | -0.6 | -0.3 | -0.7 | 0.0 | 0.0 | -0.1 | 0.0 | 0.3 | -0.3 | 0.2 | -0.2 | 0.3 | 29.5 | 26.6 | 0.1 |
| JER DataVsMC MC16 | 0.6 | 0.2 | -0.2 | 0.2 | 0.2 | 100.0 | 15.1 | -6.1 | -4.4 | 6.6 | 3.4 | 0.1 | 2.2 | 1.7 | 0.4 | -2.4 | 0.1 | -0.5 | -1.4 | 5.8 | -2.8 | -1.0 | -1.7 | 3.2 | -1.9 |
| JER EffectiveNP 1 | -1.1 | -0.2 | 0.1 | -1.5 | -1.1 | 15.1 | 100.0 | 23.4 | 9.4 | -4.5 | -9.6 | -0.6 | -7.6 | -2.0 | -0.6 | 2.4 | 0.2 | 3.0 | 5.6 | -7.8 | 1.0 | 4.4 | -12.3 | -1.7 | -18.2 |
| JER EffectiveNP 3 | 0.3 | 0.0 | -0.1 | 0.8 | 0.6 | -6.1 | 23.4 | 100.0 | -5.5 | 2.0 | -0.5 | -1.3 | 0.6 | 0.3 | 0.2 | 0.2 | -0.1 | -1.6 | -2.4 | 3.1 | -2.0 | -2.3 | 6.4 | 5.9 | -1.5 |
| JER EffectiveNP 4 | -0.4 | -0.3 | -0.5 | 0.1 | 0.4 | -4.4 | 9.4 | -5.5 | 100.0 | 17.5 | -5.2 | -0.6 | 1.0 | 0.7 | -0.3 | -1.3 | -0.3 | -0.4 | 4.6 | 3.8 | -3.5 | -1.8 | 6.3 | 11.0 | -10.0 |
| JER EffectiveNP 5 | 0.1 | 0.2 | 0.9 | 0.5 | 0.1 | 6.6 | -4.5 | 2.0 | 17.5 | 100.0 | 6.3 | 0.4 | -0.8 | -2.1 | 0.2 | 4.0 | 0.1 | -0.9 | -6.5 | -7.9 | 5.9 | 0.7 | 7.2 | -0.2 | 1.8 |
| JES flavour composition | -0.6 | -0.0 | -0.4 | -0.6 | -0.6 | 3.4 | -9.6 | -0.5 | -5.2 | 6.3 | 100.0 | -6.6 | -12.9 | -2.1 | -0.3 | 2.9 | 0.2 | 0.8 | 0.6 | -2.0 | 0.7 | 2.5 | -29.0 | -1.3 | -6.9 |
| JES pileup offset NPV | 0.0 | 0.1 | -0.1 | -0.2 | -0.3 | 0.1 | -0.6 | -1.3 | -0.6 | 0.4 | -6.6 | 100.0 | -5.3 | -0.8 | 0.1 | 0.8 | 0.2 | 0.5 | -2.2 | -1.1 | 4.6 | 2.1 | -16.9 | 0.7 | -3.1 |
| JES pileup ρ topology | 0.1 | 0.3 | -0.1 | -0.5 | -0.7 | 2.2 | -7.6 | 0.6 | 1.0 | -0.8 | -12.9 | -5.3 | 100.0 | -1.0 | 0.2 | 1.8 | 0.4 | 0.9 | -2.8 | -0.2 | -0.5 | 2.9 | -37.8 | -22.5 | -5.2 |
| JES effective NP modelling 1 | -0.3 | -0.1 | 0.0 | 0.0 | 0.0 | 1.7 | -2.0 | 0.3 | 0.7 | -2.1 | -2.1 | -0.8 | -1.0 | 100.0 | -0.2 | 1.0 | -0.1 | -0.1 | -0.0 | -3.0 | 6.0 | 1.1 | -15.5 | 0.3 | -2.3 |
| Muon isol. eff. (syst) | -0.1 | -0.1 | -0.0 | -0.0 | 0.0 | 0.4 | -0.6 | 0.2 | -0.3 | 0.2 | -0.3 | 0.1 | 0.2 | -0.2 | 100.0 | 0.2 | -0.0 | -0.1 | 0.5 | -0.6 | 0.5 | -0.1 | -10.1 | -27.0 | -0.5 |
| Pile-up rew. | 0.3 | 0.1 | -0.1 | -0.1 | -0.1 | -2.4 | 2.4 | 0.2 | -1.3 | 4.0 | 2.9 | 0.8 | 1.8 | 1.0 | 0.2 | 100.0 | 0.1 | 0.3 | -0.0 | 2.5 | -0.5 | 0.2 | -19.6 | -31.3 | -1.4 |
| Luminosity | -0.1 | -0.0 | -0.0 | 0.0 | 0.0 | 0.1 | 0.2 | -0.1 | -0.3 | 0.1 | 0.2 | 0.2 | 0.4 | -0.1 | -0.0 | 0.1 | 100.0 | -0.1 | 0.4 | -0.3 | 0.3 | -0.1 | -8.7 | -24.2 | 0.1 |
| Diboson NNPDF30 37 | -0.1 | -0.1 | 0.1 | 0.3 | 0.3 | -0.5 | 3.0 | -1.6 | -0.4 | -0.9 | 0.8 | 0.5 | 0.9 | -0.1 | -0.1 | 0.3 | -0.1 | 100.0 | 0.2 | -0.2 | -0.4 | -0.8 | -29.6 | 0.5 | -0.3 |
| tt FSR | 0.7 | 0.4 | 0.0 | 0.0 | -0.3 | -1.4 | 5.6 | -2.4 | 4.6 | -6.5 | 0.6 | -2.2 | -2.8 | -0.0 | 0.5 | -0.0 | 0.4 | 0.2 | 100.0 | -1.1 | 6.8 | 2.1 | 7.7 | 1.8 | -52.8 |
| tt NLO gen. | -0.8 | -0.3 | 0.1 | 0.1 | 0.2 | 5.8 | -7.8 | 3.1 | 3.8 | -7.9 | -2.0 | -1.1 | -0.2 | -3.0 | -0.6 | 2.5 | -0.3 | -0.2 | -1.1 | 100.0 | 19.3 | 2.8 | 0.7 | 32.2 | -44.9 |
| tt PS + had. | 0.8 | 0.4 | 0.2 | 0.2 | -0.2 | -2.8 | 1.0 | -2.0 | -3.5 | 5.9 | 0.7 | 4.6 | -0.5 | 6.0 | 0.5 | -0.5 | 0.3 | -0.4 | 6.8 | 19.3 | 100.0 | -12.8 | -9.0 | 4.5 | -3.1 |
| tt hdamp=3mtop | -0.0 | -0.1 | 0.1 | 0.3 | 0.3 | -1.0 | 4.4 | -2.3 | -1.8 | 0.7 | 2.5 | 2.1 | 2.9 | 1.1 | -0.1 | 0.2 | -0.1 | -0.8 | 2.1 | 2.8 | -12.8 | 100.0 | -6.2 | 3.3 | -23.7 |
| k(Z+jets) | -7.2 | -6.9 | 17.1 | 26.6 | 29.5 | -1.7 | -12.3 | 6.4 | 6.3 | 7.2 | -29.0 | -16.9 | -37.8 | -15.5 | -10.1 | -19.6 | -8.7 | -29.6 | 7.7 | 0.7 | -9.0 | -6.2 | 100.0 | 35.4 | 13.9 |
| k(tt) | -28.0 | -23.9 | 31.2 | -0.3 | 26.6 | 3.2 | -1.7 | 5.9 | 11.0 | -0.2 | -1.3 | 0.7 | -22.5 | 0.3 | -27.0 | -31.3 | -24.2 | 0.5 | 1.8 | 32.2 | 4.5 | 3.3 | 35.4 | 100.0 | -21.1 |
| μ(ttHq) | -0.9 | -0.1 | -0.5 | -0.2 | 0.1 | -1.9 | -18.2 | -1.5 | -10.0 | 1.8 | -6.9 | -3.1 | -5.2 | -2.3 | -0.5 | -1.4 | 0.1 | -0.3 | -52.8 | -44.9 | -3.1 | -23.7 | 13.9 | -21.1 | 100.0 |
| Electron ID eff. | Electron ID eff. | Electron isol. eff. (syst) | b-tag Eigenvar. 0 | c-tag Eigenvar. 0 | light-tag Eigenvar. 0 | JER DataVsMC MC16 | JER EffectiveNP 1 | JER EffectiveNP 3 | JER EffectiveNP 4 | JER EffectiveNP 5 | JES flavour composition | JES pileup offset NPV | JES pileup ρ topology | JES effective NP modelling 1 | Muon isol. eff. (syst) | Pile-up rew. | Luminosity | Diboson NNPDF30 37 | tt FSR | tt NLO gen. | tt PS + had. | tt hdamp=3mtop | k(Z+jets) | k(tt) | μ(ttHq) |