| syst. source / bin | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Jet energy scale | $\begin{aligned} & +3.6 \\ & -0.1 \end{aligned}$ | $\begin{aligned} & +2.4 \\ & -2.4 \end{aligned}$ | $\begin{aligned} & -0.1 \\ & -1.5 \end{aligned}$ | $\begin{aligned} & -2.9 \\ & +0.6 \end{aligned}$ | $\begin{aligned} & -1.6 \\ & +1.0 \end{aligned}$ | $\begin{aligned} & -1.3 \\ & +2.0 \end{aligned}$ | $\begin{aligned} & +3.0 \\ & +0.3 \end{aligned}$ | $\begin{aligned} & +3.2 \\ & -0.2 \end{aligned}$ | $\begin{aligned} & -1.1 \\ & +0.1 \end{aligned}$ | $\begin{aligned} & +1.8 \\ & -2.1 \end{aligned}$ | $\begin{aligned} & +2.5 \\ & -4.9 \end{aligned}$ | -0.0 -0.6 |
| Jet energy resolution | $\begin{aligned} & -1.3 \\ & +0.8 \end{aligned}$ | $\begin{aligned} & +0.2 \\ & { }_{-0.7} \end{aligned}$ | $\begin{aligned} & +1.1 \\ & { }_{-0.0} \end{aligned}$ | $\begin{aligned} & -1.4 \\ & -1.2 \end{aligned}$ | $\begin{aligned} & +1.6 \\ & +0.2 \end{aligned}$ | $\begin{aligned} & -0.4 \\ & -0.0 \end{aligned}$ | $\begin{aligned} & +1.2 \\ & +2.2 \end{aligned}$ | $\begin{aligned} & +0.5 \\ & { }_{-1.0} \end{aligned}$ | $\begin{aligned} & -0.4 \\ & -0.6 \end{aligned}$ | $\begin{aligned} & -1.1 \\ & -1.4 \end{aligned}$ | $\begin{aligned} & -2.4 \\ & +1.3 \end{aligned}$ | $\begin{aligned} & +0.4 \\ & +1.7 \end{aligned}$ |
| Kin. reconstruction | $\begin{aligned} & +0.0 \\ & { }_{-0.0} \end{aligned}$ | $\begin{aligned} & -0.0 \\ & +0.0 \end{aligned}$ | $\begin{aligned} & -0.0 \\ & +0.0 \end{aligned}$ | $\begin{aligned} & +0.0 \\ & { }_{-0.0} \end{aligned}$ | $\begin{aligned} & -0.0 \\ & +0.0 \end{aligned}$ | $\begin{aligned} & +0.0 \\ & { }_{-0.0} \end{aligned}$ | $\begin{aligned} & +0.0 \\ & { }_{-0.0} \end{aligned}$ | $\begin{aligned} & -0.1 \\ & +0.1 \end{aligned}$ | +0.0 -0.0 | $\begin{aligned} & -0.0 \\ & +0.0 \end{aligned}$ | +0.0 -0.0 | +0.0 +0.0 |
| Pileup | $\begin{aligned} & +0.4 \\ & -0.3 \end{aligned}$ | $\begin{aligned} & -0.0 \\ & -0.1 \end{aligned}$ | $\begin{aligned} & +0.1 \\ & -0.2 \end{aligned}$ | $\begin{aligned} & +0.1 \\ & -0.2 \end{aligned}$ | $\begin{aligned} & -0.2 \\ & +0.4 \end{aligned}$ | ${ }_{-0.2}^{+0.2}$ | $\begin{aligned} & -0.3 \\ & +0.1 \end{aligned}$ | $\begin{aligned} & -0.5 \\ & +0.8 \end{aligned}$ | $\begin{aligned} & +0.2 \\ & -0.3 \end{aligned}$ | $\begin{aligned} & -0.2 \\ & +0.1 \end{aligned}$ | ${ }_{-0.2}^{+0.2}$ | -0.6 +0.6 |
| Trigger | $\begin{aligned} & -0.0 \\ & +0.0 \end{aligned}$ | $\begin{aligned} & -0.1 \\ & +0.1 \end{aligned}$ | $\begin{aligned} & +0.1 \\ & { }_{-0.1} \end{aligned}$ | $\begin{aligned} & +0.2 \\ & -0.2 \end{aligned}$ | $\begin{aligned} & -0.1 \\ & +0.1 \end{aligned}$ | $\begin{aligned} & +0.1 \\ & { }_{-0.1}^{+} \end{aligned}$ | $\begin{aligned} & +0.3 \\ & { }_{-0.3} \end{aligned}$ | $\begin{aligned} & -0.2 \\ & +0.2 \end{aligned}$ | $\begin{aligned} & -0.0 \\ & +0.0 \end{aligned}$ | $\begin{aligned} & +0.0 \\ & { }_{-0.0} \end{aligned}$ | $\begin{aligned} & +0.3 \\ & { }_{-0.3} \end{aligned}$ | $\begin{aligned} & -0.1 \\ & +0.1 \end{aligned}$ |
| Background Z/ $\gamma^{*}$ | $\begin{aligned} & -0.5 \\ & +0.5 \end{aligned}$ | $\begin{aligned} & -0.6 \\ & +0.6 \end{aligned}$ | $\begin{aligned} & -0.5 \\ & +0.6 \end{aligned}$ | $\begin{aligned} & +0.6 \\ & { }_{-0.6} \end{aligned}$ | $\begin{aligned} & +0.3 \\ & { }_{-0.3} \end{aligned}$ | $\begin{aligned} & +0.1 \\ & { }_{-0.1} \end{aligned}$ | $\begin{aligned} & +0.3 \\ & { }_{-0.4} \end{aligned}$ | $\begin{aligned} & +0.3 \\ & { }_{-0.2} \end{aligned}$ | $\begin{aligned} & +0.0 \\ & -0.0 \end{aligned}$ | $\begin{aligned} & +0.5 \\ & { }_{-0.5}^{+} \end{aligned}$ | $\begin{aligned} & +0.5 \\ & { }_{-0.5} \end{aligned}$ | $\begin{aligned} & +0.2 \\ & -0.3 \end{aligned}$ |
| Background other | $\begin{aligned} & +0.9 \\ & { }_{-0.9} \end{aligned}$ | $\begin{aligned} & +0.4 \\ & { }_{-0.4} \end{aligned}$ | $\begin{aligned} & -0.4 \\ & +0.4 \end{aligned}$ | $\begin{aligned} & -0.0 \\ & +0.1 \end{aligned}$ | $\begin{aligned} & -0.2 \\ & +0.1 \end{aligned}$ | $\begin{aligned} & -0.1 \\ & +0.1 \end{aligned}$ | $\begin{aligned} & -0.1 \\ & +0.1 \end{aligned}$ | $\begin{aligned} & -0.3 \\ & +0.3 \end{aligned}$ | $\begin{aligned} & +0.2 \\ & -0.2 \end{aligned}$ | $\begin{aligned} & -0.6 \\ & +0.6 \end{aligned}$ | $\begin{aligned} & +0.4 \\ & -0.4 \end{aligned}$ | $\begin{aligned} & -0.7 \\ & +0.8 \end{aligned}$ |
| b tagging | ${ }_{-0.2}^{+0.2}$ | $\begin{aligned} & +1.4 \\ & -1.0 \end{aligned}$ | $\begin{aligned} & +0.3 \\ & { }_{-1.9} \end{aligned}$ | +1.3 -0.6 | +0.8 -0.6 | +0.6 -0.3 | ${ }_{-0.2}^{+0.2}$ | +0.7 -1.6 | +1.5 -0.8 | $\begin{aligned} & +0.3 \\ & -1.3 \end{aligned}$ | +0.9 +0.9 | +0.8 -0.1 |
| Int. luminosity | $\begin{aligned} & +0.4 \\ & -0.4 \end{aligned}$ | $\begin{aligned} & -0.4 \\ & +0.4 \end{aligned}$ | $\begin{aligned} & -0.1 \\ & +0.1 \end{aligned}$ | $\begin{aligned} & +0.4 \\ & -0.4 \end{aligned}$ | $\begin{aligned} & -0.2 \\ & +0.2 \end{aligned}$ | $\begin{aligned} & +0.2 \\ & -0.2 \end{aligned}$ | $\begin{aligned} & +0.2 \\ & -0.2 \end{aligned}$ | $\begin{aligned} & -0.4 \\ & +0.4 \end{aligned}$ | $\begin{aligned} & -0.0 \\ & +0.0 \end{aligned}$ | $\begin{aligned} & -0.1 \\ & +0.1 \end{aligned}$ | $\begin{aligned} & +0.2 \\ & -0.2 \end{aligned}$ | $\begin{aligned} & +0.0 \\ & { }_{-0.0} \end{aligned}$ |
| $m_{\mathrm{t}}$ | $\begin{aligned} & -1.0 \\ & +0.6 \end{aligned}$ | $\begin{aligned} & -2.3 \\ & +1.7 \end{aligned}$ | $\begin{aligned} & -3.5 \\ & +3.6 \end{aligned}$ | $\begin{aligned} & +0.6 \\ & -1.4 \end{aligned}$ | $\begin{aligned} & +1.0 \\ & -0.5 \end{aligned}$ | -0.9 +1.4 | $\begin{aligned} & +3.1 \\ & -3.4 \end{aligned}$ | $\begin{aligned} & +3.2 \\ & -2.3 \end{aligned}$ | ${ }_{-0.7}^{+0.2}$ | $\begin{aligned} & +2.8 \\ & -3.7 \end{aligned}$ | +3.2 -3.7 | +3.0 -2.2 |
| $\mu_{\mathrm{f}}, \mu_{\mathrm{r}}$ | $\begin{aligned} & -1.5 \\ & -0.1 \end{aligned}$ | $\begin{aligned} & -1.5 \\ & +2.2 \end{aligned}$ | $\begin{aligned} & +4.8 \\ & +3.3 \end{aligned}$ | $\begin{aligned} & -1.1 \\ & +0.7 \end{aligned}$ | $\begin{aligned} & +2.3 \\ & -0.5 \end{aligned}$ | $\begin{aligned} & +0.5 \\ & { }_{-2.0} \end{aligned}$ | $\begin{aligned} & -7.9 \\ & +5.2 \end{aligned}$ | $\begin{aligned} & +9.2 \\ & +4.7 \end{aligned}$ | -2.9 -4.1 | $\begin{aligned} & +0.1 \\ & { }_{-4.7} \end{aligned}$ | $\begin{aligned} & -6.5 \\ & +4.6 \end{aligned}$ | $\begin{aligned} & +0.2 \\ & +2.6 \end{aligned}$ |
| Matching threshold | $\begin{aligned} & +2.8 \\ & +5.3 \end{aligned}$ | $\begin{aligned} & -1.8 \\ & +0.7 \end{aligned}$ | $\begin{aligned} & +2.2 \\ & -1.6 \end{aligned}$ | $\begin{aligned} & +0.3 \\ & { }_{-0.0} \end{aligned}$ | $\begin{aligned} & +0.1 \\ & -0.7 \end{aligned}$ | $\begin{aligned} & -0.6 \\ & -0.7 \end{aligned}$ | $\begin{aligned} & +3.4 \\ & +2.6 \end{aligned}$ | $\begin{aligned} & +5.5 \\ & +3.3 \end{aligned}$ | $\begin{aligned} & -3.3 \\ & -0.9 \end{aligned}$ | $\begin{aligned} & -0.3 \\ & -4.7 \end{aligned}$ | $\begin{aligned} & -6.1 \\ & -1.6 \end{aligned}$ | +2.9 +2.7 |
| PDFs | $\begin{aligned} & +1.7 \\ & -1.7 \end{aligned}$ | $\begin{aligned} & +0.4 \\ & { }_{-0.4} \end{aligned}$ | $\begin{aligned} & +5.3 \\ & -5.6 \end{aligned}$ | $\begin{aligned} & +0.6 \\ & { }_{-0.7} \end{aligned}$ | $\begin{aligned} & +0.6 \\ & { }_{-0.6}^{+} \end{aligned}$ | ${ }_{-04}^{+0.3}$ | $\begin{aligned} & +0.2 \\ & { }_{-0.1} \end{aligned}$ | $\begin{aligned} & +0.4 \\ & { }_{-0.4} \end{aligned}$ | ${ }_{-0}^{+0.3}$ | ${ }_{-0.3}^{+0.3}$ | $\begin{aligned} & +0.4 \\ & { }_{-0.5} \end{aligned}$ | $\begin{aligned} & +0.2 \\ & { }_{-0.2} \end{aligned}$ |
| Hadronization | $+6.8$ | $-4.2$ | $-3.3$ | +3.8 | -1.1 | +1.9 | -0.8 | $-5.4$ | +1.0 | -8.0 | $+2.2$ | -1.3 |
| Hard scattering | $-0.0$ | $+0.0$ | +5.1 | $+2.4$ | $-1.8$ | $-2.4$ | $-2.3$ | +7.6 | -2.6 | $-0.2$ | $-6.2$ | +4.9 |

