Published for SISSA by Springer

Received: *August 18, 2015*
Accepted: *August 19, 2015*
Published: *September 21, 2015*

# Erratum: Measurement of the inclusive jet cross-section in proton-proton collisions at $\sqrt{s} = 7$ TeV using 4.5 fb$^{-1}$ of data with the ATLAS detector

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Erratum to: JHEP02(2015)153

Abstract: It was found that the non-perturbative corrections calculated using Pythia with the Perugia 2011 tune did not include the effect of the underlying event. The affected correction factors were recomputed using the Pythia 6.427 generator. These corrections are applied as baseline to the NLO pQCD calculations and thus the central values of the theoretical predictions have changed by a few percent with the new corrections. This has a minor impact on the agreement between the data and the theoretical predictions. Figures 2 and 6 to 13, and all the tables have been updated with the new values. A few sentences in the discussion in sections 5.2 and 9 were altered or removed.

ArXiv ePrint: 1410.8857



doi:10.1007/JHEP09(2015)141

## Contents



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# 5 Theoretical predictions

## 5.2 Non-perturbative corrections to the NLO pQCD calculations

Non-perturbative corrections are applied to the parton-level cross-sections from the NLO pQCD calculations. The corrections are derived using LO MC generators complemented by an LL parton shower. The correction factors are calculated as the bin-by-bin ratio of the MC cross-sections obtained with and without modelling of hadronisation and the underlying event. The NLO pQCD calculations are then multiplied by these factors.

The correction factors are evaluated using several generators and tunes: Pythia 6.427 using the AUET2B [1] and Perugia 2011 [2] tunes, Herwig++ 2.6.3 using the UE-EE-3 [3] tune, and Pythia 8.157 using the 4C [4] and AU2 [5] tunes. The CTEQ6L1 PDF set [6] is used except for the calculation with the Perugia 2011 tune, where the CTEQ5L PDF set is used. The baseline correction is taken from Pythia with the Perugia 2011 tune. The envelope of all correction factors is considered as a systematic uncertainty.

The correction factors are shown in figure 2 in representative rapidity bins for jets with $R = 0.4$ and $R = 0.6$, as a function of the jet $p_{\mathrm{T}}$. The baseline correction factors for $R = 0.4$ have a very weak dependence on jet $p_{\mathrm{T}}$ and are typically 2% or less from unity. On the other hand the corrections for $R = 0.6$ are up to 6% at low $p_{\mathrm{T}}$. These differences between the two jet sizes result from the different interplay of hadronisation and underlying-event effects. In the high-rapidity region, the uncertainties are similar in size to those in the low-rapidity region at low $p_{\mathrm{T}}$, but do not decrease with the jet $p_{\mathrm{T}}$ as rapidly as in the low-rapidity region.

# 9 Results

The double-differential inclusive jet cross-sections are shown in figures 6 and 7 for jets reconstructed using the anti-$k_t$ algorithm with $R = 0.4$ and $R = 0.6$, respectively. The measurement extends over jet transverse momenta from 100 GeV to 2 TeV in the rapidity region $|y| < 3$. The NLO pQCD predictions calculated with NLOJET++ using the

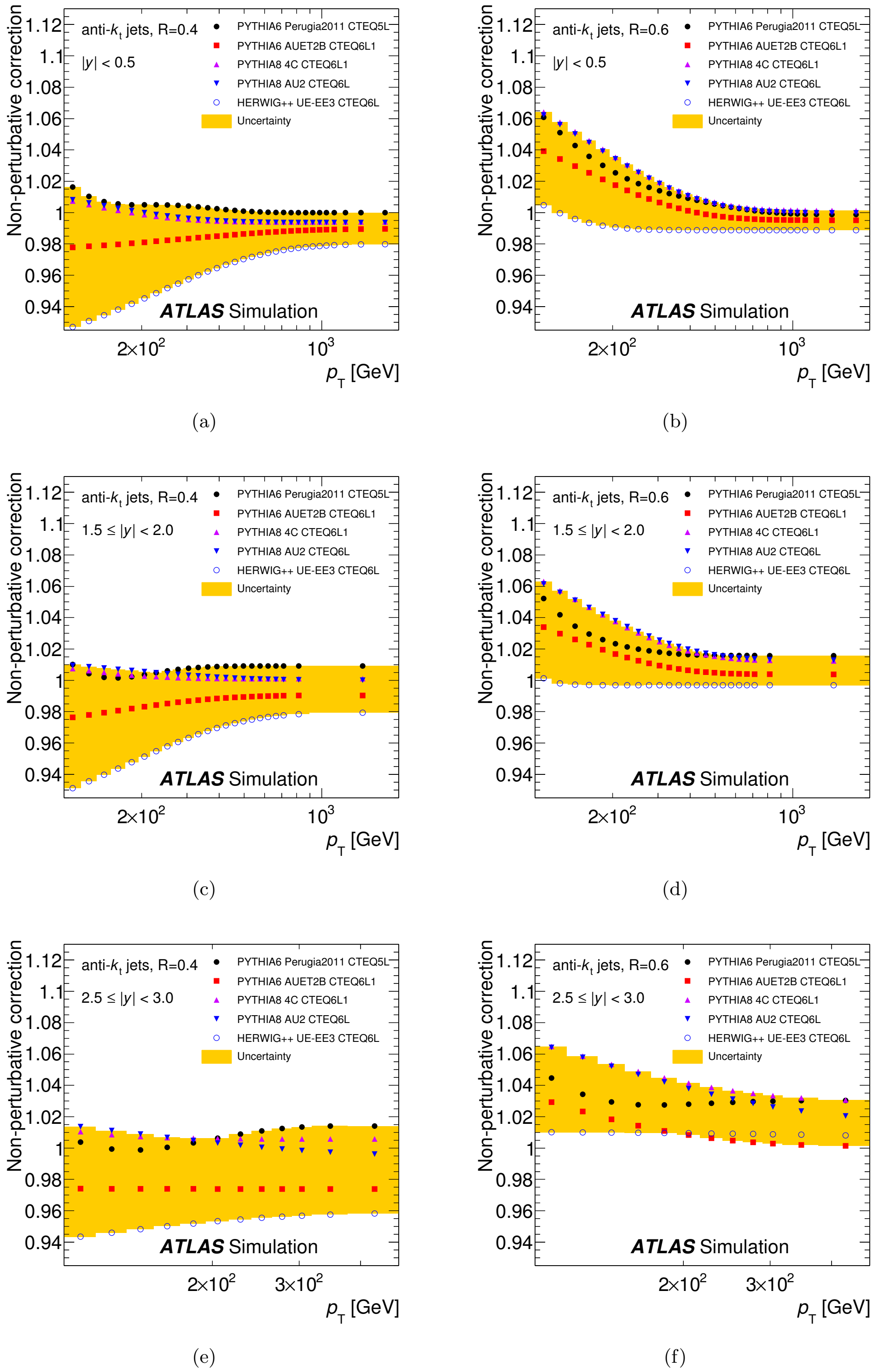


**Figure 2**. Non-perturbative correction factors applied to fixed order NLO calculations of the inclusive jet cross-section for anti-$k_t$ jets, with (a), (c), (e) $R = 0.4$ and (b), (d), (f) $R = 0.6$ in representative rapidity bins (as indicated in the legends), as a function of the parton-level jet $p_T$, calculated from MC simulations with various tunes.

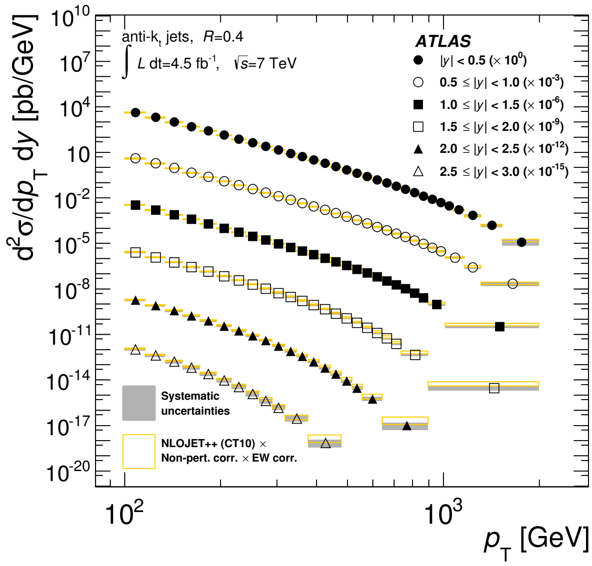


**Figure 6**. Double-differential inclusive jet cross-sections as a function of the jet $p_{\mathrm{T}}$ in bins of rapidity, for anti-$k_t$ jets with $R = 0.4$. For presentation, the cross-sections are multiplied by the factors indicated in the legend. The statistical uncertainties are smaller than the size of the symbols used to plot the cross-section values. The shaded areas indicate the experimental systematic uncertainties. The data are compared to NLO pQCD predictions calculated using NLOJET++ with the CT10 NLO PDF set, to which non-perturbative corrections and electroweak corrections are applied. The open boxes indicate the predictions with their uncertainties. The 1.8% uncertainty from the luminosity measurement is not shown.

CT10 PDF set with corrections for non-perturbative effects and electroweak effects applied are compared to the measurement. The figures show that the NLO pQCD predictions reproduce the measured cross-sections, which range over eight orders of magnitude in the six rapidity bins.

The ratios of the NLO pQCD predictions to the measured cross-sections are presented in figures 8–11. The comparison is shown for the predictions using the NLO PDF sets CT10, MSTW 2008, NNPDF 2.1, HERAPDF1.5 and ABM 11 ($n_{\mathrm{f}} = 5$). The predictions are generally consistent with the measured cross-sections for jets with both radius parameter values, though the level of consistency varies among the predictions with the different PDF sets.

A quantitative comparison of the theoretical predictions to the measurement is performed using a frequentist method. The employed method is fully described in ref. [7] for the ATLAS dijet cross-section measurement. It uses a generalised definition of $\chi^2$ which takes into account the asymmetry of the uncertainties. A large set of pseudo-experiments is generated by fluctuating the theoretical predictions according to the full set of experimental and theoretical uncertainties. The asymmetries and the correlations of these uncertainties are taken into account. The $\chi^2$ value is computed between each pseudo-experimental data set and the theoretical predictions, and a $\chi^2$ distribution is constructed. The observed $\chi^2$

| $y$ ranges | $P_{\text{obs}}$ | | | | | |
|---|---|---|---|---|---|---|
| | NLO PDF set: | CT10 | MSTW2008 | NNPDF2.1 | HERAPDF1.5 | ABM11 |
| $\|y\| < 0.5$ | | 81% | 60% | 70% | 58% | $< 0.1\%$ |
| $0.5 \leq \|y\| < 1.0$ | | 90% | 92% | 88% | 50% | $< 0.1\%$ |
| $1.0 \leq \|y\| < 1.5$ | | 87% | 87% | 84% | 92% | 3.5% |
| $1.5 \leq \|y\| < 2.0$ | | 91% | 88% | 90% | 72% | 60% |
| $2.0 \leq \|y\| < 2.5$ | | 89% | 82% | 85% | 25% | 54% |
| $2.5 \leq \|y\| < 3.0$ | | 95% | 92% | 96% | 83% | 87% |

**Table 1**. Observed p-values, $P_{\text{obs}}$, evaluated for the NLO pQCD predictions with corrections for non-perturbative and electroweak effects, in comparison to the measured cross-section of anti-$k_t$ jets with $R = 0.4$. The values are given for the predictions using the NLO PDF sets of CT10, MSTW2008, NNPDF2.1, HERAPDF1.5 and ABM11, for each rapidity bin.

value, $\chi^2_{\text{obs}}$, is calculated from the measured points and the theoretical prediction. The observed p-value, $P_{\text{obs}}$, which is defined as the fractional area of the $\chi^2$ distribution with $\chi^2 > \chi^2_{\text{obs}}$, is obtained. Tables 1 and 2 show the evaluated values of $P_{\text{obs}}$ for the NLO pQCD predictions with non-perturbative and electroweak corrections applied. The predictions generally show agreement with the measured cross-sections, with a few exceptions. The predictions using the ABM11 NLO PDF set fail to describe the measured cross-sections in the low-rapidity region but show good agreement in the high-rapidity region.

The comparisons of the POWHEG predictions with the measurement for jets with $R = 0.4$ and $R = 0.6$ are shown in figures 12 and 13, respectively, as a function of the jet $p_{\text{T}}$ in bins of the jet rapidity. The NLO pQCD prediction with the CT10 PDF set is also shown. In general, the POWHEG predictions are found to be in agreement with the measurement. In the high-rapidity region, the shape of the measured cross-section is very well reproduced by the POWHEG predictions, while the predictions tend to be slightly smaller than the measurement for high $p_{\text{T}}$ in the low-rapidity region. As seen in previous measurements [8, 9], the Perugia 2011 tune gives a consistently larger prediction than the AUET2B tune.

## A Tables of the measured cross-sections

The measured inclusive jet cross-sections are shown in tables 3–8 and 9–14 for jets with $R = 0.4$ and $R = 0.6$, respectively. The correction factors for non-perturbative effects and electroweak effects, which are applied to the NLO pQCD predictions, are also shown in the same table.

The uncertainties due to the JES uncertainty are separated into four categories, *in-situ*, *pile-up*, *close-by* and *flavour*. The *in-situ* category shows the uncertainties from the components of the JES uncertainty given by in-situ calibration techniques. These techniques are based on the transverse momentum balance between a jet and a well-calibrated reference object, such as the balance between a central jet and a forward jet in a dijet



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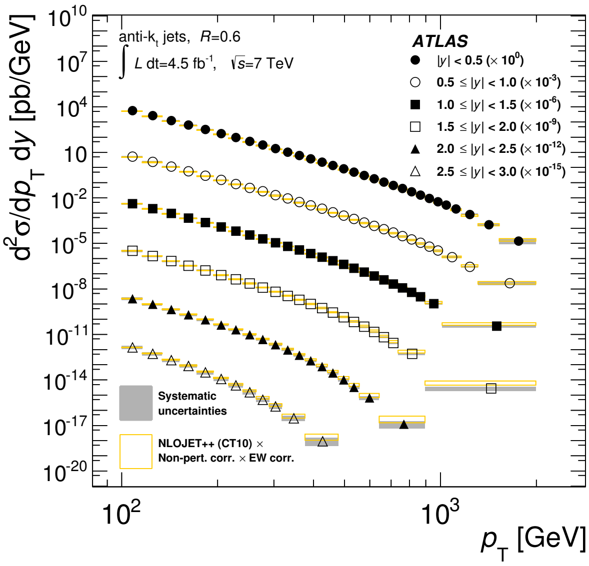


**Figure 7**. Double-differential inclusive jet cross-sections as a function of the jet $p_{\mathrm{T}}$ in bins of rapidity, for anti-$k_t$ jets with $R = 0.6$. For presentation, the cross-sections are multiplied by the factors indicated in the legend. The statistical uncertainties are smaller than the size of the symbols used to plot the cross-section values. The shaded areas indicate the experimental systematic uncertainties. The data are compared to NLO pQCD predictions calculated using NLOJET++ with the CT10 NLO PDF set, to which non-perturbative corrections and electroweak corrections are applied. The open boxes indicate the predictions with their uncertainties. The 1.8% uncertainty from the luminosity measurement is not shown.

| $y$ ranges | $P_{\mathrm{obs}}$ | | | | | |
|---|---|---|---|---|---|---|
| | NLO PDF set: | CT10 | MSTW2008 | NNPDF2.1 | HERAPDF1.5 | ABM11 |
| $\lvert y\rvert < 0.5$ | | 60% | 52% | 65% | 29% | $< 0.1$% |
| $0.5 \le \lvert y\rvert < 1.0$ | | 37% | 54% | 48% | 6.0% | $< 0.1$% |
| $1.0 \le \lvert y\rvert < 1.5$ | | 96% | 94% | 92% | 94% | 3.3% |
| $1.5 \le \lvert y\rvert < 2.0$ | | 90% | 84% | 86% | 93% | 56% |
| $2.0 \le \lvert y\rvert < 2.5$ | | 87% | 86% | 89% | 49% | 74% |
| $2.5 \le \lvert y\rvert < 3.0$ | | 92% | 99% | 98% | 80% | 80% |

**Table 2**. Observed p-values, $P_{\mathrm{obs}}$, evaluated for the NLO pQCD predictions with corrections for non-perturbative and electroweak effects, in comparison to the measured cross-section of anti-$k_t$ jets with $R = 0.6$. The values are given for the predictions using the NLO PDF sets of CT10, MSTW2008, NNPDF2.1, HERAPDF1.5 and ABM11, for each rapidity bin.

system, the balance between a jet and a $Z$ boson or a photon, and the balance between a recoil system of jets and a photon or a high-$p_{\mathrm{T}}$ jet. For jets with $p_{\mathrm{T}} \gtrsim 1$ TeV, where the techniques employing $p_{\mathrm{T}}$ balance are limited by sample size, the uncertainty is estimated from a study of the calorimeter response to single hadrons. The *pile-up* category shows



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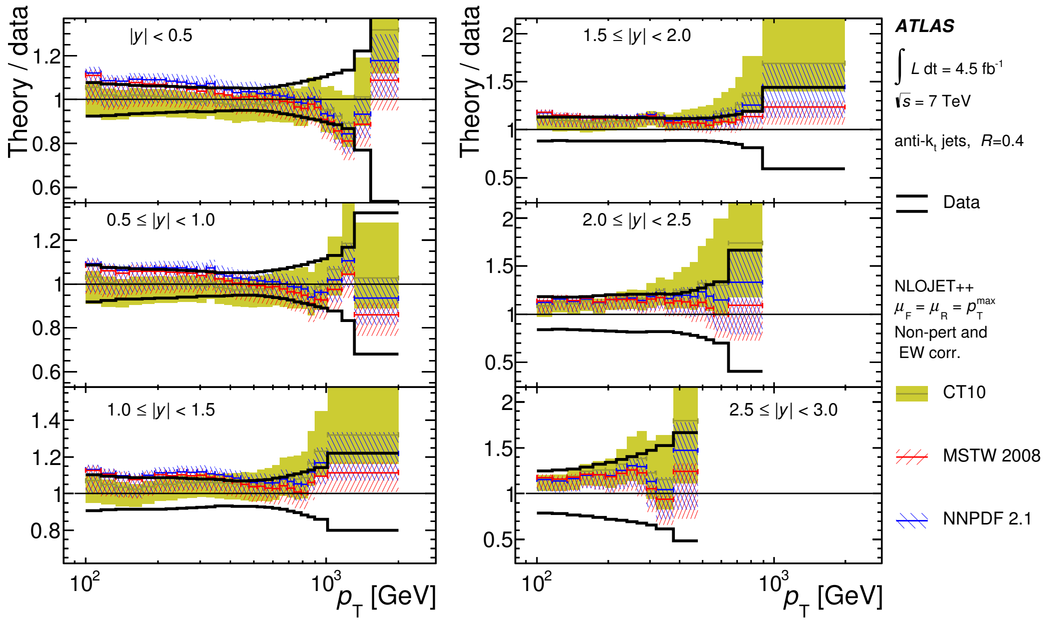


**Figure 8**. Ratio of NLO pQCD predictions to the measured double-differential inclusive jet cross-section, shown as a function of the jet $p_{\mathrm{T}}$ in bins of the jet rapidity, for anti-$k_t$ jets with $R = 0.4$. The predictions are calculated using NLOJET++ with different NLO PDF sets, namely CT10, MSTW2008 and NNPDF 2.1. Non-perturbative corrections and electroweak corrections are applied to the predictions. Their uncertainties are shown by the bands, including all the uncertainties discussed in section 5. The data lines show the total uncertainty except the 1.8% uncertainty from the luminosity measurement.

the uncertainties from the JES due to the subtraction of pile-up energy in the calibration. These uncertainties are evaluated from in-situ studies based on the $N_{\mathrm{PV}}$ and $\langle\mu\rangle$ values. The *close-by* category shows the uncertainty from the JES due to the event topology, i.e. the presence of close-by jets. Finally, the *flavour* category shows the uncertainty from the JES due to the assumption of the fraction of jets originating from a quark or a gluon, which are likely to have different fragmentation. Further description can be found in ref. [10]. Due to improvements in the jet calibration technique in 2011, the correlation to the JES uncertainty in 2010 is not available.

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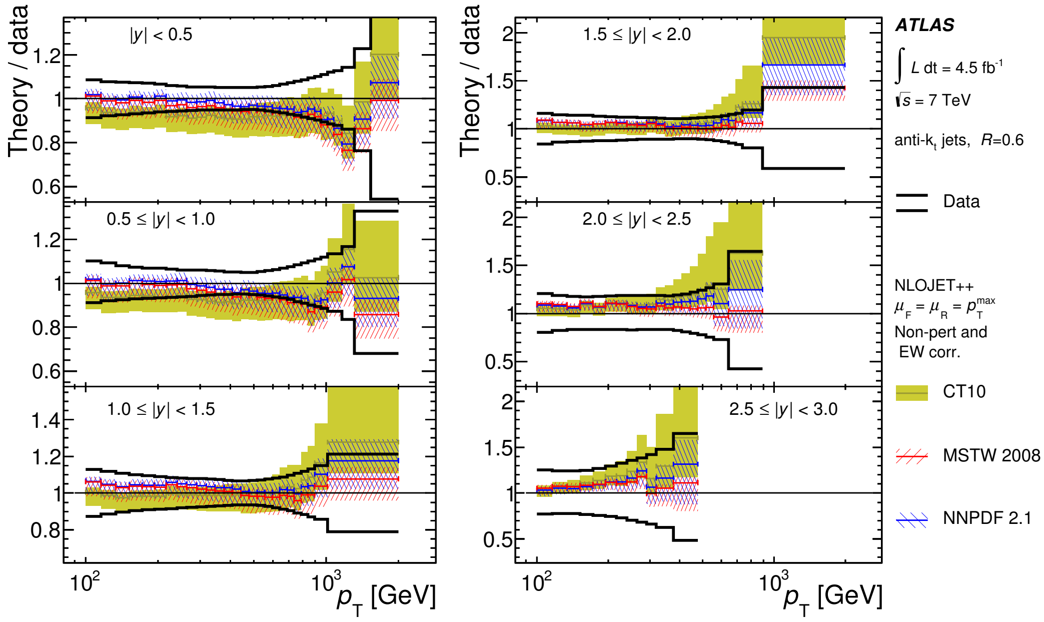


**Figure 9**. Ratio of NLO pQCD predictions to the measured double-differential inclusive jet cross-section, shown as a function of the jet $p_{\mathrm{T}}$ in bins of the jet rapidity, for anti-$k_t$ jets with $R = 0.6$. The predictions are calculated using NLOJET++ with different NLO PDF sets, namely CT10, MSTW2008 and NNPDF 2.1. Non-perturbative corrections and electroweak corrections are applied to the predictions. Their uncertainties are shown by the bands, including all the uncertainties discussed in section 5. The data lines show the total uncertainty except the 1.8% uncertainty from the luminosity measurement.

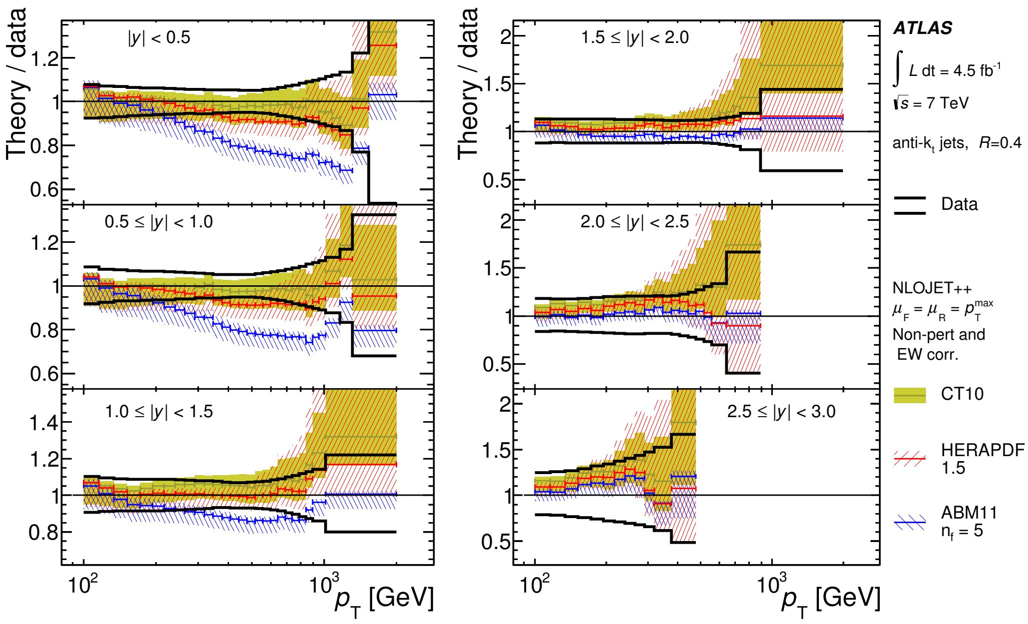


**Figure 10**. Ratio of NLO pQCD predictions to the measured double-differential inclusive jet cross-section, shown as a function of the jet $p_{\mathrm{T}}$ in bins of the jet rapidity, for anti-$k_t$ jets with $R = 0.4$. The predictions are calculated using NLOJET++ with different NLO PDF sets, namely CT10, HERAPDF 1.5 and ABM11. Non-perturbative corrections and electroweak corrections are applied to the predictions. Their uncertainties are shown by the bands, including all the uncertainties discussed in section 5. The data lines show the total uncertainty except the 1.8% uncertainty from the luminosity measurement.

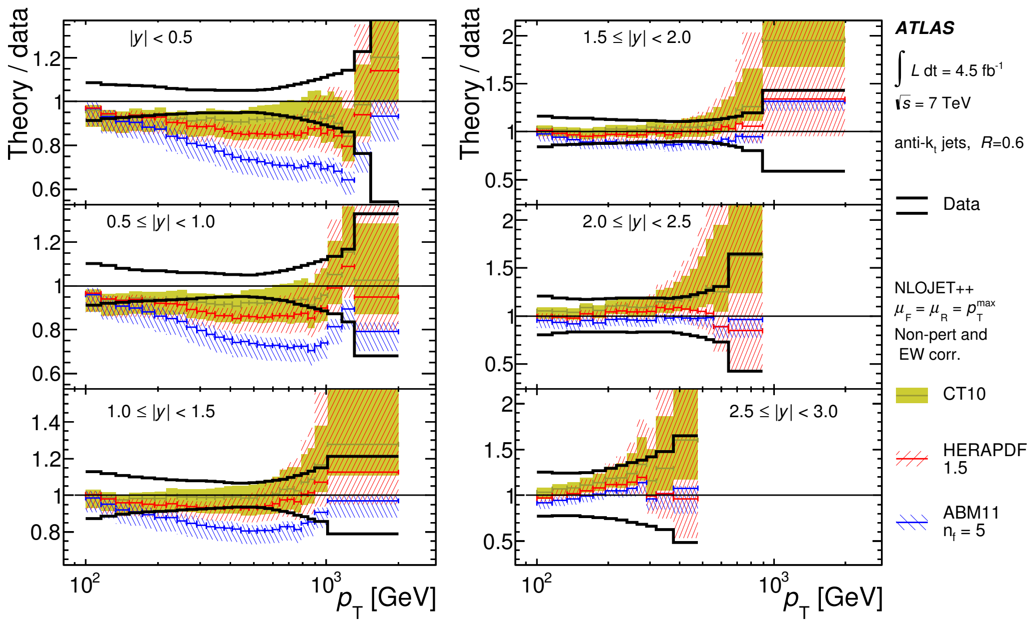


**Figure 11**. Ratio of NLO pQCD predictions to the measured double-differential inclusive jet cross-section, shown as a function of the jet $p_{\mathrm{T}}$ in bins of the jet rapidity, for anti-$k_t$ jets with $R = 0.6$. The predictions are calculated using NLOJET++ with different NLO PDF sets, namely CT10, HERAPDF 1.5 and ABM11. Non-perturbative corrections and electroweak corrections are applied to the predictions. Their uncertainties are shown by the bands, including all the uncertainties discussed in section 5. The data lines show the total uncertainty except the 1.8% uncertainty from the luminosity measurement.

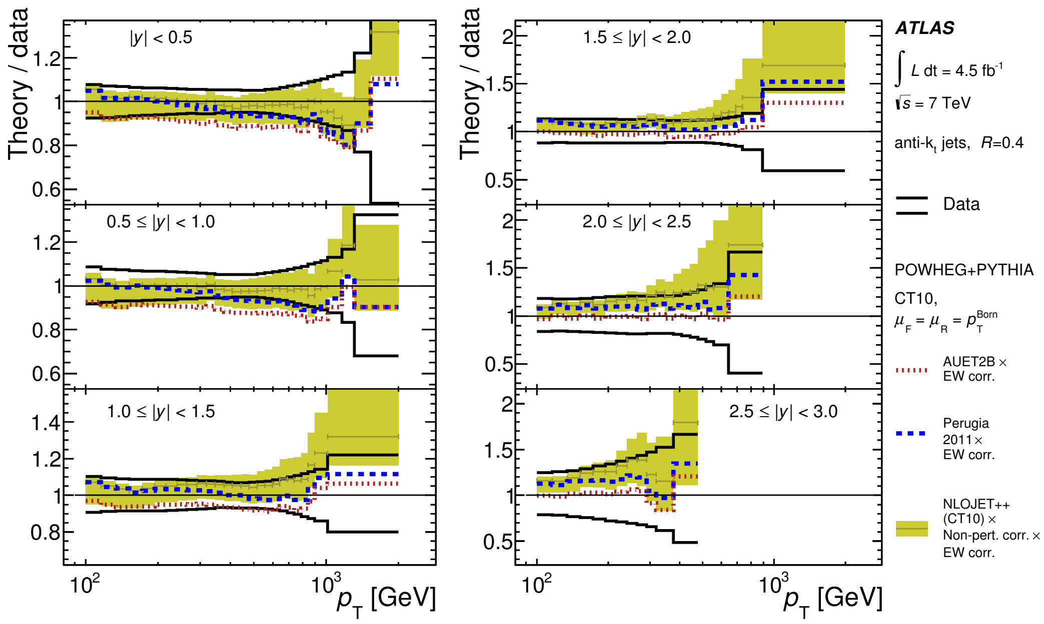


**Figure 12**. Ratio of predictions from POWHEG to the measured double-differential inclusive jet cross-section, shown as a function of the jet $p_{\mathrm{T}}$ in bins of jet rapidity, for anti-$k_t$ jets with $R = 0.4$. The figure also shows the NLO pQCD prediction using NLOJET++ with the CT10 NLO PDF set, corrected for non-perturbative effects and electroweak effects. The POWHEG predictions use PYTHIA for the simulation of parton showers, hadronisation, and the underlying event with the AUET2B tune and the Perugia 2011 tune. Electroweak corrections are applied to the predictions. The data lines show the total uncertainty except the 1.8% uncertainty from the luminosity measurement.

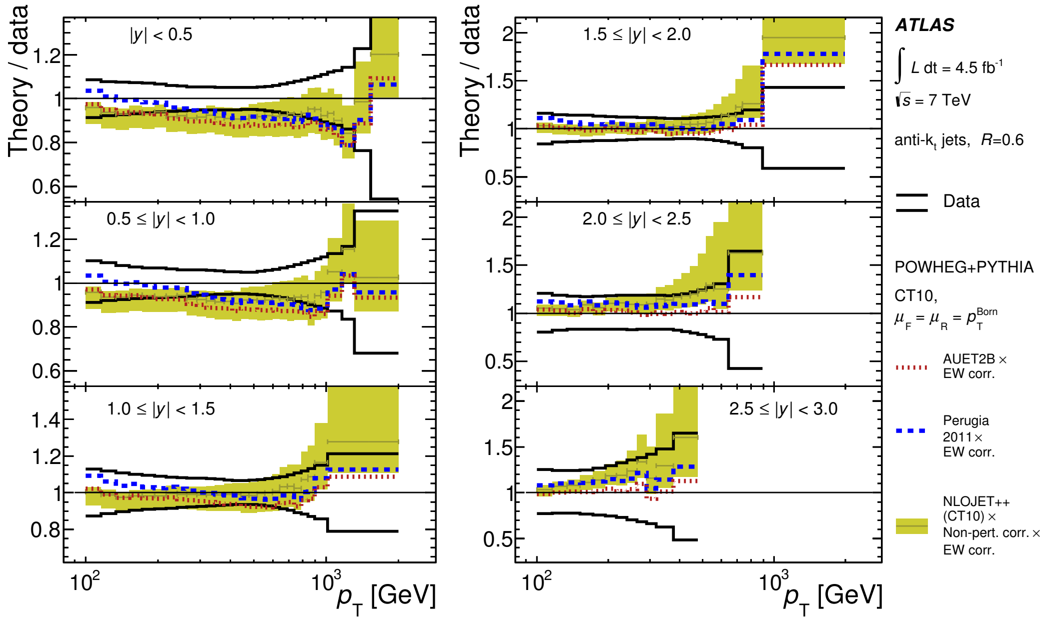


**Figure 13**. Ratio of predictions from POWHEG to the measured double-differential inclusive jet cross-section, shown as a function of the jet $p_T$ in bins of jet rapidity, for anti-$k_t$ jets with $R = 0.6$. The figure also shows the NLO pQCD prediction using NLOJET++ with the CT10 NLO PDF set, corrected for non-perturbative effects and electroweak effects. The POWHEG predictions use PYTHIA for the simulation of parton showers, hadronisation, and the underlying event with the AUET2B tune and the Perugia 2011 tune. Electroweak corrections are applied to the predictions. The data lines show the total uncertainty except the 1.8% uncertainty from the luminosity measurement.

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| $p_{\mathrm{T}}$range | $\sigma$ | $\delta_{\mathrm{stat}}^{\mathrm{data}}$ | $\delta_{\mathrm{stat}}^{\mathrm{MC}}$ | $u_{\text{in-situ}}$ | $u_{\text{pile-up}}$ | $u_{\text{close-by}}$ | $u_{\text{flavour}}$ | $u_{\mathrm{JER}}$ | $u_{\mathrm{JAR}}$ | $u_{\mathrm{unfold}}$ | $u_{\mathrm{qual.}}$ | $u_{\mathrm{lumi}}$ | NPC | $u_{\mathrm{NP}}$ | EWC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [GeV] | [pb/GeV] | % | % | % | % | % | % | % | % | % | % | % | | % | |
| 100–116 | $4.23 \cdot 10^{3}$ | 0.55 | 0.69 | $^{+3.9}_{-3.9}$ | $^{+1.4}_{-1.3}$ | $^{+0.8}_{-0.9}$ | $^{+5.8}_{-5.5}$ | 3.0 | 0.0 | 0.1 | | | 1.02 | $^{+0}_{-9}$ | 1.00 |
| 116–134 | $2.02 \cdot 10^{3}$ | 0.75 | 0.48 | $^{+3.8}_{-3.9}$ | $^{+1.1}_{-1.2}$ | $^{+0.8}_{-0.8}$ | $^{+5.3}_{-5.3}$ | 2.4 | 0.0 | 0.1 | | | 1.01 | $^{+0}_{-8}$ | 1.00 |
| 134–152 | $9.88 \cdot 10^{2}$ | 0.88 | 0.39 | $^{+3.9}_{-4.0}$ | $^{+0.9}_{-1.1}$ | $^{+0.7}_{-0.7}$ | $^{+5.0}_{-5.0}$ | 1.9 | 0.0 | 0.0 | | | 1.01 | $^{+0}_{-7}$ | 1.00 |
| 152–172 | $5.02 \cdot 10^{2}$ | 0.71 | 0.43 | $^{+4.0}_{-4.1}$ | $^{+0.9}_{-0.9}$ | $^{+0.7}_{-0.7}$ | $^{+4.7}_{-4.6}$ | 1.6 | 0.0 | 0.0 | | | 1.01 | $^{+0}_{-7}$ | 1.00 |
| 172–194 | $2.58 \cdot 10^{2}$ | 0.56 | 0.36 | $^{+4.1}_{-4.2}$ | $^{+0.8}_{-0.9}$ | $^{+0.8}_{-0.7}$ | $^{+4.3}_{-4.2}$ | 1.4 | 0.0 | 0.0 | | | 1.01 | $^{+0}_{-6}$ | 1.00 |
| 194–216 | $1.37 \cdot 10^{2}$ | 0.72 | 0.36 | $^{+4.3}_{-4.3}$ | $^{+0.8}_{-0.8}$ | $^{+0.8}_{-0.8}$ | $^{+4.0}_{-3.9}$ | 1.3 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-6}$ | 1.00 |
| 216–240 | $7.55 \cdot 10^{1}$ | 0.52 | 0.34 | $^{+4.3}_{-4.3}$ | $^{+0.7}_{-0.7}$ | $^{+0.9}_{-0.9}$ | $^{+3.6}_{-3.5}$ | 1.2 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-6}$ | 1.00 |
| 240–264 | $4.28 \cdot 10^{1}$ | 0.67 | 0.37 | $^{+4.3}_{-4.2}$ | $^{+0.7}_{-0.6}$ | $^{+1.0}_{-1.0}$ | $^{+3.3}_{-3.2}$ | 1.1 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-5}$ | 1.00 |
| 264–290 | $2.47 \cdot 10^{1}$ | 0.86 | 0.34 | $^{+4.2}_{-4.1}$ | $^{+0.6}_{-0.6}$ | $^{+1.1}_{-1.0}$ | $^{+3.0}_{-3.0}$ | 1.1 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-5}$ | 1.00 |
| 290–318 | $1.44 \cdot 10^{1}$ | 1.0 | 0.32 | $^{+4.2}_{-4.2}$ | $^{+0.6}_{-0.7}$ | $^{+1.1}_{-1.1}$ | $^{+2.9}_{-2.9}$ | 1.1 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-5}$ | 1.00 |
| 318–346 | $8.40 \cdot 10^{0}$ | 0.98 | 0.46 | $^{+4.1}_{-4.3}$ | $^{+0.6}_{-0.7}$ | $^{+1.1}_{-1.0}$ | $^{+2.8}_{-2.8}$ | 1.0 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-4}$ | 1.00 |
| 346–376 | $5.14 \cdot 10^{0}$ | 0.54 | 0.58 | $^{+4.2}_{-4.1}$ | $^{+0.8}_{-0.8}$ | $^{+1.0}_{-0.9}$ | $^{+2.7}_{-2.7}$ | 0.9 | 0.1 | 0.0 | | | 1.00 | $^{+0}_{-4}$ | 1.00 |
| 376–408 | $3.11 \cdot 10^{0}$ | 0.30 | 0.49 | $^{+4.4}_{-4.1}$ | $^{+0.8}_{-0.7}$ | $^{+0.9}_{-0.8}$ | $^{+2.7}_{-2.6}$ | 0.9 | 0.1 | 0.0 | | | 1.00 | $^{+0}_{-4}$ | 1.00 |
| 408–442 | $1.89 \cdot 10^{0}$ | 0.33 | 0.40 | $^{+4.5}_{-4.0}$ | $^{+0.7}_{-0.6}$ | $^{+0.6}_{-0.6}$ | $^{+2.5}_{-2.4}$ | 0.9 | 0.1 | 0.0 | | | 1.00 | $^{+0}_{-4}$ | 1.00 |
| 442–478 | $1.13 \cdot 10^{0}$ | 0.33 | 0.38 | $^{+4.3}_{-4.3}$ | $^{+0.4}_{-0.4}$ | $^{+0.4}_{-0.3}$ | $^{+2.2}_{-2.1}$ | 0.9 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-3}$ | 1.00 |
| 478–516 | $6.83 \cdot 10^{-1}$ | 0.27 | 0.28 | $^{+4.5}_{-4.4}$ | $^{+0.2}_{-0.1}$ | $^{+0.2}_{-0.2}$ | $^{+2.0}_{-1.9}$ | 0.8 | 0.0 | 0.0 | 0.25 | 1.8 | 1.00 | $^{+0}_{-3}$ | 1.01 |
| 516–556 | $4.19 \cdot 10^{-1}$ | 0.34 | 0.23 | $^{+4.7}_{-4.6}$ | $^{+0.1}_{-0.0}$ | $^{+0.1}_{-0.1}$ | $^{+1.8}_{-1.7}$ | 0.8 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-3}$ | 1.01 |
| 556–598 | $2.53 \cdot 10^{-1}$ | 0.42 | 0.21 | $^{+5.1}_{-5.0}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.7}_{-1.7}$ | 0.8 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-3}$ | 1.01 |
| 598–642 | $1.55 \cdot 10^{-1}$ | 0.53 | 0.20 | $^{+5.5}_{-5.5}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.6}_{-1.6}$ | 0.9 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-3}$ | 1.01 |
| 642–688 | $9.48 \cdot 10^{-2}$ | 0.67 | 0.22 | $^{+6.1}_{-6.0}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.6}_{-1.6}$ | 0.9 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-2}$ | 1.02 |
| 688–736 | $5.80 \cdot 10^{-2}$ | 0.83 | 0.22 | $^{+6.8}_{-6.6}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.7}_{-1.7}$ | 0.9 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-2}$ | 1.02 |
| 736–786 | $3.61 \cdot 10^{-2}$ | 1.0 | 0.22 | $^{+7.2}_{-7.2}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.7}_{-1.6}$ | 0.9 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-2}$ | 1.03 |
| 786–838 | $2.22 \cdot 10^{-2}$ | 1.3 | 0.22 | $^{+8.0}_{-7.8}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.6}_{-1.6}$ | 0.9 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-2}$ | 1.03 |
| 838–894 | $1.31 \cdot 10^{-2}$ | 1.6 | 0.23 | $^{+8.6}_{-8.4}$ | $^{+0.1}_{-0.0}$ | $^{+0.0}_{-0.0}$ | $^{+1.5}_{-1.5}$ | 1.0 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-2}$ | 1.04 |
| 894–952 | $7.94 \cdot 10^{-3}$ | 2.1 | 0.26 | $^{+9.3}_{-8.9}$ | $^{+0.1}_{-0.0}$ | $^{+0.0}_{-0.0}$ | $^{+1.4}_{-1.4}$ | 1.0 | 0.0 | 0.1 | | | 1.00 | $^{+0}_{-2}$ | 1.04 |
| 952–1012 | $4.98 \cdot 10^{-3}$ | 2.5 | 0.27 | $^{+9.9}_{-9.7}$ | $^{+0.1}_{-0.0}$ | $^{+0.0}_{-0.0}$ | $^{+1.3}_{-1.3}$ | 1.0 | 0.0 | 0.1 | | | 1.00 | $^{+0}_{-2}$ | 1.05 |
| 1012–1076 | $2.97 \cdot 10^{-3}$ | 3.3 | 0.37 | $^{+11}_{-10}$ | $^{+0.1}_{-0.0}$ | $^{+0.0}_{-0.0}$ | $^{+1.2}_{-1.2}$ | 1.0 | 0.0 | 0.1 | | | 1.00 | $^{+0}_{-2}$ | 1.06 |
| 1076–1162 | $1.67 \cdot 10^{-3}$ | 3.9 | 0.32 | $^{+11}_{-11}$ | $^{+0.1}_{-0.0}$ | $^{+0.0}_{-0.0}$ | $^{+1.1}_{-1.1}$ | 1.1 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-2}$ | 1.06 |
| 1162–1310 | $7.00 \cdot 10^{-4}$ | 5.3 | 0.25 | $^{+12}_{-12}$ | $^{+0.1}_{-0.0}$ | $^{+0.0}_{-0.0}$ | $^{+1.0}_{-0.9}$ | 1.3 | 0.0 | 1.0 | | | 1.00 | $^{+0}_{-2}$ | 1.08 |
| 1310–1530 | $1.55 \cdot 10^{-4}$ | 10 | 0.27 | $^{+20}_{-21}$ | $^{+0.1}_{-0.0}$ | $^{+0.0}_{-0.0}$ | $^{+0.9}_{-0.8}$ | 1.8 | 0.0 | 0.2 | | | 1.00 | $^{+0}_{-2}$ | 1.10 |
| 1530–1992 | $1.17 \cdot 10^{-5}$ | 25 | 0.42 | $^{+47}_{-39}$ | $^{+0.0}_{-0.0}$ | $^{+0.0}_{-0.0}$ | $^{+0.8}_{-0.8}$ | 3.0 | 0.0 | 5.5 | | | 1.00 | $^{+0}_{-2}$ | 1.12 |

**Table 3**. Measured double-differential inclusive jet cross-sections for jets with $R = 0.4$ in the rapidity bin $|y| < 0.5$. Here, $\sigma$ is the measured double differential cross-section $\mathrm{d}^2\sigma/\mathrm{d}p_{\mathrm{T}}\mathrm{d}y$, averaged in each bin. All uncertainties are given in %. The variable $\delta_{\mathrm{stat}}^{\mathrm{data}}$ ($\delta_{\mathrm{stat}}^{\mathrm{MC}}$) is the statistical uncertainty from the data (MC simulation). The $u$ components show the uncertainties due to the jet energy calibration from the in-situ, pile-up, close-by jet, and flavour components. The uncertainty due to the jet energy and angular resolution, the unfolding, the quality selection, and the integrated luminosity are also shown by the $u$ components. While all columns are uncorrelated with each other, the in-situ, pile-up, and flavour uncertainties shown here are the sum in quadrature of multiple uncorrelated components. In the last three columns, the correction factors for non-perturbative effects (NPC) with their uncertainties ($u_{\mathrm{NP}}$) and electroweak effects (EWC) are shown.



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| $p_T$range [GeV] | $\sigma$ [pb/GeV] | $\delta_{stat}^{data}$ % | $\delta_{stat}^{MC}$ % | $u_{in\text{-}situ}$ % | $u_{pile\text{-}up}$ % | $u_{close\text{-}by}$ % | $u_{flavour}$ % | $u_{JER}$ % | $u_{JAR}$ % | $u_{unfold}$ % | $u_{qual.}$ % | $u_{lumi}$ % | NPC | $u_{NP}$ % | EWC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100–116 | $4.03 \cdot 10^3$ | 0.55 | 0.91 | $^{+4.4}_{-4.5}$ | $^{+1.4}_{-1.2}$ | $^{+0.8}_{-0.8}$ | $^{+6.4}_{-5.9}$ | 3.0 | 0.2 | 0.1 | | | 1.02 | $^{+0}_{-9}$ | 1.00 |
| 116–134 | $1.90 \cdot 10^3$ | 0.77 | 0.52 | $^{+4.2}_{-4.2}$ | $^{+1.1}_{-1.1}$ | $^{+0.8}_{-0.8}$ | $^{+5.6}_{-5.3}$ | 2.5 | 0.1 | 0.1 | | | 1.01 | $^{+0}_{-8}$ | 1.00 |
| 134–152 | $9.31 \cdot 10^2$ | 0.92 | 0.40 | $^{+4.3}_{-4.2}$ | $^{+1.1}_{-1.0}$ | $^{+0.8}_{-0.7}$ | $^{+5.1}_{-4.8}$ | 2.2 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-7}$ | 1.00 |
| 152–172 | $4.67 \cdot 10^2$ | 0.72 | 0.37 | $^{+4.4}_{-4.3}$ | $^{+1.0}_{-1.0}$ | $^{+0.7}_{-0.7}$ | $^{+4.8}_{-4.6}$ | 1.9 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-7}$ | 1.00 |
| 172–194 | $2.39 \cdot 10^2$ | 0.57 | 0.38 | $^{+4.4}_{-4.5}$ | $^{+0.9}_{-0.9}$ | $^{+0.7}_{-0.7}$ | $^{+4.5}_{-4.4}$ | 1.6 | 0.1 | 0.0 | | | 1.00 | $^{+0}_{-6}$ | 1.00 |
| 194–216 | $1.26 \cdot 10^2$ | 0.73 | 0.37 | $^{+4.5}_{-4.5}$ | $^{+0.8}_{-0.8}$ | $^{+0.8}_{-0.8}$ | $^{+4.3}_{-4.2}$ | 1.4 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-6}$ | 1.00 |
| 216–240 | $6.89 \cdot 10^1$ | 0.54 | 0.33 | $^{+4.6}_{-4.6}$ | $^{+0.8}_{-0.7}$ | $^{+0.9}_{-0.9}$ | $^{+4.0}_{-3.9}$ | 1.3 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-6}$ | 1.00 |
| 240–264 | $3.86 \cdot 10^1$ | 0.70 | 0.35 | $^{+4.6}_{-4.5}$ | $^{+0.7}_{-0.6}$ | $^{+1.0}_{-1.0}$ | $^{+3.7}_{-3.5}$ | 1.3 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-5}$ | 1.00 |
| 264–290 | $2.22 \cdot 10^1$ | 0.91 | 0.39 | $^{+4.6}_{-4.5}$ | $^{+0.6}_{-0.6}$ | $^{+1.1}_{-1.1}$ | $^{+3.3}_{-3.1}$ | 1.2 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-5}$ | 1.00 |
| 290–318 | $1.28 \cdot 10^1$ | 1.2 | 0.37 | $^{+4.5}_{-4.4}$ | $^{+0.6}_{-0.6}$ | $^{+1.1}_{-1.1}$ | $^{+2.8}_{-2.7}$ | 1.2 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-5}$ | 1.00 |
| 318–346 | $7.41 \cdot 10^0$ | 1.1 | 0.50 | $^{+4.5}_{-4.4}$ | $^{+0.7}_{-0.7}$ | $^{+1.1}_{-1.1}$ | $^{+2.5}_{-2.5}$ | 1.1 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-4}$ | 1.00 |
| 346–376 | $4.50 \cdot 10^0$ | 0.58 | 0.62 | $^{+4.2}_{-4.6}$ | $^{+0.7}_{-0.8}$ | $^{+0.9}_{-1.0}$ | $^{+2.2}_{-2.3}$ | 1.0 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-4}$ | 1.00 |
| 376–408 | $2.71 \cdot 10^0$ | 0.31 | 0.49 | $^{+4.3}_{-4.5}$ | $^{+0.7}_{-0.8}$ | $^{+0.8}_{-0.8}$ | $^{+2.1}_{-2.1}$ | 1.1 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-4}$ | 1.00 |
| 408–442 | $1.63 \cdot 10^0$ | 0.36 | 0.42 | $^{+4.4}_{-4.4}$ | $^{+0.6}_{-0.6}$ | $^{+0.6}_{-0.6}$ | $^{+2.0}_{-2.0}$ | 1.1 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-3}$ | 1.00 |
| 442–478 | $9.69 \cdot 10^{-1}$ | 0.37 | 0.36 | $^{+4.5}_{-4.5}$ | $^{+0.4}_{-0.4}$ | $^{+0.3}_{-0.3}$ | $^{+1.8}_{-1.8}$ | 1.1 | 0.0 | 0.0 | 0.25 | 1.8 | 1.00 | $^{+0}_{-3}$ | 1.00 |
| 478–516 | $5.81 \cdot 10^{-1}$ | 0.30 | 0.28 | $^{+4.7}_{-4.7}$ | $^{+0.2}_{-0.2}$ | $^{+0.2}_{-0.2}$ | $^{+1.7}_{-1.7}$ | 1.1 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-3}$ | 1.00 |
| 516–556 | $3.46 \cdot 10^{-1}$ | 0.37 | 0.25 | $^{+5.2}_{-5.0}$ | $^{+0.1}_{-0.1}$ | $^{+0.1}_{-0.1}$ | $^{+1.6}_{-1.5}$ | 1.1 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-3}$ | 1.00 |
| 556–598 | $2.07 \cdot 10^{-1}$ | 0.47 | 0.23 | $^{+5.6}_{-5.4}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.5}_{-1.4}$ | 1.1 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-3}$ | 1.01 |
| 598–642 | $1.23 \cdot 10^{-1}$ | 0.57 | 0.20 | $^{+6.1}_{-5.9}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.4}_{-1.3}$ | 1.1 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-3}$ | 1.01 |
| 642–688 | $7.40 \cdot 10^{-2}$ | 0.74 | 0.21 | $^{+6.6}_{-6.4}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.3}_{-1.3}$ | 1.1 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-3}$ | 1.01 |
| 688–736 | $4.45 \cdot 10^{-2}$ | 0.94 | 0.23 | $^{+7.2}_{-7.1}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.2}_{-1.2}$ | 1.1 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-3}$ | 1.01 |
| 736–786 | $2.64 \cdot 10^{-2}$ | 1.2 | 0.23 | $^{+8.0}_{-7.8}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.2}_{-1.1}$ | 1.2 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-2}$ | 1.02 |
| 786–838 | $1.57 \cdot 10^{-2}$ | 1.5 | 0.24 | $^{+8.7}_{-8.5}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.1}_{-1.1}$ | 1.2 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-2}$ | 1.02 |
| 838–894 | $9.47 \cdot 10^{-3}$ | 1.9 | 0.26 | $^{+9.5}_{-9.2}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.1}_{-1.0}$ | 1.3 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-2}$ | 1.02 |
| 894–952 | $5.26 \cdot 10^{-3}$ | 2.5 | 0.28 | $^{+10}_{-9.9}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.0}_{-1.0}$ | 1.4 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-2}$ | 1.03 |
| 952–1012 | $2.99 \cdot 10^{-3}$ | 3.3 | 0.39 | $^{+11}_{-10}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.0}_{-0.9}$ | 1.5 | 0.0 | 0.1 | | | 1.00 | $^{+0}_{-2}$ | 1.03 |
| 1012–1162 | $1.12 \cdot 10^{-3}$ | 4.0 | 0.27 | $^{+12}_{-12}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.9}_{-0.9}$ | 1.6 | 0.0 | 0.1 | | | 1.00 | $^{+0}_{-2}$ | 1.04 |
| 1162–1310 | $2.56 \cdot 10^{-4}$ | 8.2 | 0.32 | $^{+14}_{-14}$ | $^{+0.0}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.8}_{-0.8}$ | 1.7 | 0.0 | 0.2 | | | 1.00 | $^{+0}_{-2}$ | 1.05 |
| 1310–1992 | $2.20 \cdot 10^{-5}$ | 14 | 0.31 | $^{+29}_{-28}$ | $^{+0.0}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.6}_{-0.7}$ | 3.7 | 0.0 | 0.8 | | | 1.00 | $^{+0}_{-2}$ | 1.06 |

**Table 4**. Measured double-differential inclusive jet cross-sections for jets with $R = 0.4$ in the rapidity bin $0.5 \leq |y| < 1.0$. See caption of table 3 for details.

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| $p_{\mathrm{T}}$range [GeV] | $\sigma$ [pb/GeV] | $\delta_{\mathrm{stat}}^{\mathrm{data}}$ % | $\delta_{\mathrm{stat}}^{\mathrm{MC}}$ % | $u_{\text{in-situ}}$ % | $u_{\text{pile-up}}$ % | $u_{\text{close-by}}$ % | $u_{\text{flavour}}$ % | $u_{\mathrm{JER}}$ % | $u_{\mathrm{JAR}}$ % | $u_{\mathrm{unfold}}$ % | $u_{\mathrm{qual.}}$ % | $u_{\mathrm{lumi}}$ % | NPC | $u_{\mathrm{NP}}$ % | EWC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100–116 | $3.33 \cdot 10^{3}$ | 0.61 | 0.73 | $^{+7.1}_{-6.3}$ | $^{+1.7}_{-1.2}$ | $^{+0.8}_{-0.8}$ | $^{+6.5}_{-5.8}$ | 3.4 | 0.4 | 0.1 | | | 1.01 | $^{+0}_{-8}$ | 1.00 |
| 116–134 | $1.56 \cdot 10^{3}$ | 0.85 | 0.56 | $^{+6.6}_{-6.2}$ | $^{+1.2}_{-1.1}$ | $^{+0.8}_{-0.8}$ | $^{+5.9}_{-5.3}$ | 2.9 | 0.3 | 0.1 | | | 1.01 | $^{+0}_{-7}$ | 1.00 |
| 134–152 | $7.58 \cdot 10^{2}$ | 1.0 | 0.42 | $^{+6.5}_{-6.4}$ | $^{+1.0}_{-1.0}$ | $^{+0.7}_{-0.7}$ | $^{+5.4}_{-4.9}$ | 2.4 | 0.1 | 0.0 | | | 1.00 | $^{+0}_{-7}$ | 1.00 |
| 152–172 | $3.86 \cdot 10^{2}$ | 0.78 | 0.40 | $^{+6.7}_{-6.6}$ | $^{+0.9}_{-0.9}$ | $^{+0.7}_{-0.7}$ | $^{+4.9}_{-4.7}$ | 2.0 | 0.1 | 0.0 | | | 1.00 | $^{+0}_{-6}$ | 1.00 |
| 172–194 | $1.92 \cdot 10^{2}$ | 0.63 | 0.41 | $^{+7.0}_{-6.8}$ | $^{+0.9}_{-0.9}$ | $^{+0.7}_{-0.7}$ | $^{+4.6}_{-4.4}$ | 1.8 | 0.1 | 0.0 | | | 1.00 | $^{+0}_{-6}$ | 1.00 |
| 194–216 | $9.88 \cdot 10^{1}$ | 0.83 | 0.45 | $^{+7.2}_{-7.0}$ | $^{+0.9}_{-0.8}$ | $^{+0.8}_{-0.8}$ | $^{+4.4}_{-4.2}$ | 1.7 | 0.1 | 0.0 | | | 1.00 | $^{+0}_{-5}$ | 1.00 |
| 216–240 | $5.33 \cdot 10^{1}$ | 0.61 | 0.42 | $^{+7.2}_{-7.0}$ | $^{+0.8}_{-0.8}$ | $^{+1.0}_{-0.9}$ | $^{+4.1}_{-3.9}$ | 1.6 | 0.1 | 0.0 | | | 1.00 | $^{+0}_{-5}$ | 1.00 |
| 240–264 | $2.92 \cdot 10^{1}$ | 0.79 | 0.43 | $^{+7.2}_{-6.9}$ | $^{+0.7}_{-0.7}$ | $^{+1.1}_{-1.0}$ | $^{+3.8}_{-3.6}$ | 1.5 | 0.1 | 0.0 | | | 1.00 | $^{+0}_{-5}$ | 1.00 |
| 264–290 | $1.65 \cdot 10^{1}$ | 1.0 | 0.43 | $^{+7.0}_{-6.7}$ | $^{+0.7}_{-0.7}$ | $^{+1.2}_{-1.1}$ | $^{+3.4}_{-3.2}$ | 1.5 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-5}$ | 1.00 |
| 290–318 | $9.29 \cdot 10^{0}$ | 1.3 | 0.44 | $^{+6.9}_{-6.4}$ | $^{+0.7}_{-0.7}$ | $^{+1.3}_{-1.1}$ | $^{+2.9}_{-2.7}$ | 1.5 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-5}$ | 1.00 |
| 318–346 | $5.33 \cdot 10^{0}$ | 1.3 | 0.52 | $^{+7.0}_{-6.3}$ | $^{+0.8}_{-0.7}$ | $^{+1.3}_{-1.1}$ | $^{+2.5}_{-2.3}$ | 1.5 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-4}$ | 1.00 |
| 346–376 | $3.12 \cdot 10^{0}$ | 0.68 | 0.59 | $^{+6.9}_{-6.1}$ | $^{+0.8}_{-0.7}$ | $^{+1.1}_{-1.0}$ | $^{+2.2}_{-2.0}$ | 1.5 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-4}$ | 1.00 |
| 376–408 | $1.82 \cdot 10^{0}$ | 0.40 | 0.50 | $^{+6.7}_{-6.2}$ | $^{+0.8}_{-0.8}$ | $^{+0.9}_{-0.8}$ | $^{+2.0}_{-1.8}$ | 1.4 | 0.1 | 0.0 | 0.25 | 1.8 | 1.01 | $^{+0}_{-4}$ | 1.00 |
| 408–442 | $1.05 \cdot 10^{0}$ | 0.42 | 0.51 | $^{+6.4}_{-6.4}$ | $^{+0.7}_{-0.7}$ | $^{+0.6}_{-0.6}$ | $^{+1.8}_{-1.8}$ | 1.3 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-4}$ | 1.00 |
| 442–478 | $6.08 \cdot 10^{-1}$ | 0.44 | 0.42 | $^{+6.3}_{-6.4}$ | $^{+0.4}_{-0.5}$ | $^{+0.4}_{-0.3}$ | $^{+1.7}_{-1.7}$ | 1.2 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-4}$ | 1.00 |
| 478–516 | $3.49 \cdot 10^{-1}$ | 0.38 | 0.32 | $^{+6.7}_{-6.6}$ | $^{+0.2}_{-0.2}$ | $^{+0.2}_{-0.2}$ | $^{+1.7}_{-1.7}$ | 1.3 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-4}$ | 1.00 |
| 516–556 | $1.97 \cdot 10^{-1}$ | 0.48 | 0.33 | $^{+7.0}_{-6.9}$ | $^{+0.0}_{-0.1}$ | $^{+0.1}_{-0.1}$ | $^{+1.6}_{-1.6}$ | 1.4 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-3}$ | 1.00 |
| 556–598 | $1.12 \cdot 10^{-1}$ | 0.61 | 0.30 | $^{+7.3}_{-7.2}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.6}_{-1.5}$ | 1.5 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-3}$ | 1.00 |
| 598–642 | $6.21 \cdot 10^{-2}$ | 0.79 | 0.26 | $^{+8.0}_{-7.5}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.5}_{-1.4}$ | 1.6 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-3}$ | 1.00 |
| 642–688 | $3.37 \cdot 10^{-2}$ | 1.0 | 0.28 | $^{+8.7}_{-8.3}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.3}_{-1.3}$ | 1.7 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-3}$ | 1.00 |
| 688–736 | $1.85 \cdot 10^{-2}$ | 1.4 | 0.32 | $^{+9.7}_{-9.1}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.2}_{-1.1}$ | 1.9 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-3}$ | 1.00 |
| 736–786 | $1.02 \cdot 10^{-2}$ | 1.8 | 0.34 | $^{+10}_{-10}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.0}_{-1.0}$ | 2.0 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-3}$ | 1.00 |
| 786–838 | $5.34 \cdot 10^{-3}$ | 2.5 | 0.37 | $^{+11}_{-11}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.9}_{-1.0}$ | 2.1 | 0.1 | 0.1 | | | 1.01 | $^{+0}_{-3}$ | 1.00 |
| 838–894 | $2.60 \cdot 10^{-3}$ | 3.4 | 0.40 | $^{+12}_{-12}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.9}_{-0.9}$ | 2.2 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-3}$ | 1.00 |
| 894–1012 | $9.15 \cdot 10^{-4}$ | 4.6 | 0.35 | $^{+13}_{-13}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.8}_{-0.9}$ | 2.2 | 0.1 | 1.1 | | | 1.01 | $^{+0}_{-3}$ | 1.01 |
| 1012–1992 | $3.18 \cdot 10^{-5}$ | 9.4 | 0.53 | $^{+19}_{-17}$ | $^{+0.1}_{-0.0}$ | $^{+0.0}_{-0.0}$ | $^{+0.9}_{-0.6}$ | 4.3 | 0.3 | 4.1 | | | 1.01 | $^{+0}_{-3}$ | 1.01 |

**Table 5**. Measured double-differential inclusive jet cross-sections for jets with $R = 0.4$ in the rapidity bin $1.0 \leq |y| < 1.5$. See caption of table 3 for details.

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| $p_T$range [GeV] | $\sigma$ [pb/GeV] | $\delta_{stat}^{data}$ % | $\delta_{stat}^{MC}$ % | $u_{in\text{-}situ}$ % | $u_{pile\text{-}up}$ % | $u_{close\text{-}by}$ % | $u_{flavour}$ % | $u_{JER}$ % | $u_{JAR}$ % | $u_{unfold}$ % | $u_{qual.}$ % | $u_{lumi}$ % | NPC | $u_{NP}$ % | EWC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100–116 | $2.54 \cdot 10^{3}$ | 0.74 | 0.87 | $^{+11}_{-9.6}$ | $^{+1.7}_{-1.2}$ | $^{+1.0}_{-0.8}$ | $^{+6.0}_{-5.3}$ | 3.5 | 0.5 | 0.1 | | | 1.01 | $^{+0}_{-8}$ | 1.00 |
| 116–134 | $1.16 \cdot 10^{3}$ | 1.0 | 0.67 | $^{+11}_{-9.6}$ | $^{+1.5}_{-1.1}$ | $^{+0.9}_{-0.7}$ | $^{+5.9}_{-5.1}$ | 3.0 | 0.4 | 0.1 | | | 1.00 | $^{+0}_{-7}$ | 1.00 |
| 134–152 | $5.52 \cdot 10^{2}$ | 1.3 | 0.47 | $^{+11}_{-10}$ | $^{+1.3}_{-1.0}$ | $^{+0.8}_{-0.7}$ | $^{+5.5}_{-4.8}$ | 2.6 | 0.3 | 0.0 | | | 1.00 | $^{+1}_{-6}$ | 1.00 |
| 152–172 | $2.75 \cdot 10^{2}$ | 0.96 | 0.43 | $^{+12}_{-11}$ | $^{+1.2}_{-1.1}$ | $^{+0.7}_{-0.7}$ | $^{+5.0}_{-4.6}$ | 2.3 | 0.3 | 0.0 | | | 1.00 | $^{+1}_{-6}$ | 1.00 |
| 172–194 | $1.37 \cdot 10^{2}$ | 0.76 | 0.45 | $^{+12}_{-11}$ | $^{+1.2}_{-1.0}$ | $^{+0.8}_{-0.8}$ | $^{+4.4}_{-4.1}$ | 2.1 | 0.3 | 0.0 | | | 1.00 | $^{+0}_{-5}$ | 1.00 |
| 194–216 | $6.81 \cdot 10^{1}$ | 1.1 | 0.47 | $^{+12}_{-11}$ | $^{+1.0}_{-0.9}$ | $^{+0.9}_{-0.9}$ | $^{+3.8}_{-3.6}$ | 1.8 | 0.3 | 0.0 | | | 1.00 | $^{+0}_{-5}$ | 1.00 |
| 216–240 | $3.56 \cdot 10^{1}$ | 0.77 | 0.44 | $^{+12}_{-11}$ | $^{+0.9}_{-0.8}$ | $^{+1.0}_{-1.0}$ | $^{+3.4}_{-3.2}$ | 1.7 | 0.2 | 0.0 | | | 1.00 | $^{+0}_{-5}$ | 1.00 |
| 240–264 | $1.90 \cdot 10^{1}$ | 0.99 | 0.42 | $^{+12}_{-11}$ | $^{+0.8}_{-0.8}$ | $^{+1.2}_{-1.1}$ | $^{+3.1}_{-3.0}$ | 1.7 | 0.2 | 0.0 | | | 1.01 | $^{+0}_{-5}$ | 1.00 |
| 264–290 | $1.01 \cdot 10^{1}$ | 1.3 | 0.53 | $^{+12}_{-11}$ | $^{+0.8}_{-0.7}$ | $^{+1.3}_{-1.2}$ | $^{+2.9}_{-2.9}$ | 1.6 | 0.2 | 0.0 | | | 1.01 | $^{+0}_{-5}$ | 1.00 |
| 290–318 | $5.30 \cdot 10^{0}$ | 1.8 | 0.49 | $^{+12}_{-11}$ | $^{+0.8}_{-0.8}$ | $^{+1.3}_{-1.2}$ | $^{+2.7}_{-2.7}$ | 1.6 | 0.2 | 0.0 | | | 1.01 | $^{+0}_{-4}$ | 1.00 |
| 318–346 | $2.91 \cdot 10^{0}$ | 1.8 | 0.64 | $^{+12}_{-11}$ | $^{+0.9}_{-0.9}$ | $^{+1.3}_{-1.2}$ | $^{+2.5}_{-2.5}$ | 1.6 | 0.2 | 0.0 | | | 1.01 | $^{+0}_{-4}$ | 1.00 |
| 346–376 | $1.63 \cdot 10^{0}$ | 0.96 | 0.70 | $^{+11}_{-11}$ | $^{+0.9}_{-1.0}$ | $^{+1.2}_{-1.0}$ | $^{+2.4}_{-2.4}$ | 1.7 | 0.3 | 0.0 | 0.25 | 1.8 | 1.01 | $^{+0}_{-4}$ | 0.99 |
| 376–408 | $8.63 \cdot 10^{-1}$ | 0.56 | 0.65 | $^{+11}_{-11}$ | $^{+0.9}_{-1.0}$ | $^{+1.0}_{-0.8}$ | $^{+2.3}_{-2.3}$ | 1.7 | 0.3 | 0.0 | | | 1.01 | $^{+0}_{-4}$ | 0.99 |
| 408–442 | $4.52 \cdot 10^{-1}$ | 0.67 | 0.73 | $^{+11}_{-11}$ | $^{+0.8}_{-0.9}$ | $^{+0.7}_{-0.6}$ | $^{+2.2}_{-2.2}$ | 1.7 | 0.3 | 0.0 | | | 1.01 | $^{+0}_{-4}$ | 0.99 |
| 442–478 | $2.32 \cdot 10^{-1}$ | 0.73 | 0.66 | $^{+11}_{-11}$ | $^{+0.5}_{-0.6}$ | $^{+0.4}_{-0.4}$ | $^{+2.1}_{-2.0}$ | 1.8 | 0.3 | 0.0 | | | 1.01 | $^{+0}_{-4}$ | 0.99 |
| 478–516 | $1.16 \cdot 10^{-1}$ | 0.67 | 0.52 | $^{+12}_{-11}$ | $^{+0.2}_{-0.2}$ | $^{+0.2}_{-0.2}$ | $^{+2.0}_{-1.9}$ | 2.0 | 0.3 | 0.0 | | | 1.01 | $^{+0}_{-4}$ | 0.99 |
| 516–556 | $5.80 \cdot 10^{-2}$ | 0.89 | 0.64 | $^{+12}_{-11}$ | $^{+0.1}_{-0.1}$ | $^{+0.1}_{-0.1}$ | $^{+1.9}_{-1.8}$ | 2.3 | 0.3 | 0.1 | | | 1.01 | $^{+0}_{-3}$ | 0.99 |
| 556–598 | $2.68 \cdot 10^{-2}$ | 1.2 | 0.56 | $^{+13}_{-12}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.8}_{-1.7}$ | 2.5 | 0.3 | 0.0 | | | 1.01 | $^{+0}_{-3}$ | 0.99 |
| 598–642 | $1.24 \cdot 10^{-2}$ | 1.8 | 0.54 | $^{+14}_{-13}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.6}_{-1.6}$ | 2.8 | 0.3 | 0.0 | | | 1.01 | $^{+0}_{-3}$ | 0.99 |
| 642–688 | $5.53 \cdot 10^{-3}$ | 2.6 | 0.63 | $^{+14}_{-14}$ | $^{+0.2}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.5}_{-1.4}$ | 3.0 | 0.3 | 0.1 | | | 1.01 | $^{+0}_{-3}$ | 0.99 |
| 688–736 | $2.34 \cdot 10^{-3}$ | 3.8 | 0.79 | $^{+15}_{-14}$ | $^{+0.2}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.3}_{-1.3}$ | 3.2 | 0.3 | 0.2 | | | 1.01 | $^{+0}_{-3}$ | 0.99 |
| 736–894 | $4.50 \cdot 10^{-4}$ | 5.7 | 0.68 | $^{+18}_{-18}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.1}_{-1.1}$ | 3.4 | 0.3 | 0.0 | | | 1.01 | $^{+0}_{-3}$ | 0.99 |
| 894–1992 | $2.80 \cdot 10^{-6}$ | 28 | 3.6 | $^{+31}_{-26}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.4}_{-0.8}$ | 8.0 | 0.3 | 9.2 | | | 1.01 | $^{+0}_{-3}$ | 0.99 |

**Table 6**. Measured double-differential inclusive jet cross-sections for jets with $R = 0.4$ in the rapidity bin $1.5 \leq |y| < 2.0$. See caption of table 3 for details.

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| $p_T$range [GeV] | $\sigma$ [pb/GeV] | $\delta_{\rm stat}^{\rm data}$ % | $\delta_{\rm stat}^{\rm MC}$ % | $u_{\rm in\text{-}situ}$ % | $u_{\rm pile\text{-}up}$ % | $u_{\rm close\text{-}by}$ % | $u_{\rm flavour}$ % | $u_{\rm JER}$ % | $u_{\rm JAR}$ % | $u_{\rm unfold}$ % | $u_{\rm qual.}$ % | $u_{\rm lumi}$ % | NPC | $u_{\rm NP}$ % | EWC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100–116 | $1.87 \cdot 10^{3}$ | 0.88 | 0.79 | $^{+17}_{-14}$ | $^{+1.7}_{-1.6}$ | $^{+0.7}_{-0.7}$ | $^{+4.4}_{-4.2}$ | 4.8 | 0.8 | 0.0 | | | 1.01 | $^{+1}_{-7}$ | 1.00 |
| 116–134 | $7.83 \cdot 10^{2}$ | 1.2 | 0.96 | $^{+17}_{-15}$ | $^{+1.3}_{-1.3}$ | $^{+0.7}_{-0.7}$ | $^{+3.9}_{-3.7}$ | 3.7 | 0.7 | 0.0 | | | 1.00 | $^{+1}_{-6}$ | 1.00 |
| 134–152 | $3.63 \cdot 10^{2}$ | 1.6 | 0.52 | $^{+17}_{-15}$ | $^{+1.3}_{-1.2}$ | $^{+0.6}_{-0.6}$ | $^{+3.5}_{-3.2}$ | 3.2 | 0.6 | 0.0 | | | 1.00 | $^{+1}_{-5}$ | 1.00 |
| 152–172 | $1.65 \cdot 10^{2}$ | 1.3 | 0.50 | $^{+18}_{-16}$ | $^{+1.3}_{-1.2}$ | $^{+0.6}_{-0.6}$ | $^{+3.2}_{-2.9}$ | 2.9 | 0.6 | 0.0 | | | 1.00 | $^{+1}_{-5}$ | 1.00 |
| 172–194 | $7.82 \cdot 10^{1}$ | 1.0 | 0.51 | $^{+19}_{-17}$ | $^{+1.3}_{-1.2}$ | $^{+0.7}_{-0.6}$ | $^{+2.8}_{-2.6}$ | 2.8 | 0.6 | 0.0 | | | 1.00 | $^{+0}_{-5}$ | 1.00 |
| 194–216 | $3.57 \cdot 10^{1}$ | 1.5 | 0.55 | $^{+20}_{-17}$ | $^{+1.3}_{-1.1}$ | $^{+0.9}_{-0.7}$ | $^{+2.4}_{-2.3}$ | 2.7 | 0.6 | 0.0 | | | 1.01 | $^{+0}_{-5}$ | 1.00 |
| 216–240 | $1.69 \cdot 10^{1}$ | 1.2 | 0.71 | $^{+20}_{-18}$ | $^{+1.1}_{-1.1}$ | $^{+0.9}_{-0.8}$ | $^{+2.1}_{-2.2}$ | 2.6 | 0.5 | 0.0 | | | 1.01 | $^{+0}_{-5}$ | 1.00 |
| 240–264 | $7.99 \cdot 10^{0}$ | 1.7 | 0.66 | $^{+20}_{-18}$ | $^{+1.0}_{-1.1}$ | $^{+1.0}_{-1.0}$ | $^{+2.0}_{-2.1}$ | 2.6 | 0.5 | 0.0 | | | 1.01 | $^{+0}_{-5}$ | 1.00 |
| 264–290 | $3.93 \cdot 10^{0}$ | 2.3 | 0.71 | $^{+20}_{-18}$ | $^{+0.9}_{-1.0}$ | $^{+1.0}_{-1.0}$ | $^{+1.9}_{-2.0}$ | 2.7 | 0.4 | 0.0 | | | 1.01 | $^{+0}_{-5}$ | 0.99 |
| 290–318 | $1.73 \cdot 10^{0}$ | 3.4 | 0.71 | $^{+20}_{-18}$ | $^{+1.0}_{-1.0}$ | $^{+1.0}_{-1.0}$ | $^{+2.0}_{-1.9}$ | 3.0 | 0.4 | 0.0 | 0.25 | 1.8 | 1.01 | $^{+0}_{-5}$ | 0.99 |
| 318–346 | $7.78 \cdot 10^{-1}$ | 3.7 | 1.1 | $^{+20}_{-17}$ | $^{+1.2}_{-1.1}$ | $^{+1.0}_{-0.9}$ | $^{+2.0}_{-1.8}$ | 3.3 | 0.4 | 0.0 | | | 1.01 | $^{+0}_{-5}$ | 0.99 |
| 346–376 | $3.66 \cdot 10^{-1}$ | 2.1 | 1.9 | $^{+20}_{-18}$ | $^{+1.3}_{-1.2}$ | $^{+0.9}_{-0.8}$ | $^{+2.0}_{-2.0}$ | 3.5 | 0.5 | 0.0 | | | 1.01 | $^{+0}_{-5}$ | 0.99 |
| 376–408 | $1.53 \cdot 10^{-1}$ | 1.3 | 1.3 | $^{+21}_{-19}$ | $^{+1.3}_{-1.2}$ | $^{+0.7}_{-0.6}$ | $^{+2.0}_{-2.2}$ | 3.7 | 0.5 | 0.0 | | | 1.01 | $^{+0}_{-5}$ | 0.99 |
| 408–442 | $6.28 \cdot 10^{-2}$ | 1.9 | 1.6 | $^{+22}_{-20}$ | $^{+1.0}_{-0.9}$ | $^{+0.4}_{-0.4}$ | $^{+1.9}_{-2.3}$ | 3.9 | 0.5 | 0.0 | | | 1.01 | $^{+0}_{-5}$ | 0.99 |
| 442–478 | $2.45 \cdot 10^{-2}$ | 2.6 | 1.5 | $^{+24}_{-21}$ | $^{+0.6}_{-0.6}$ | $^{+0.2}_{-0.2}$ | $^{+1.8}_{-2.2}$ | 4.4 | 0.5 | 0.0 | | | 1.01 | $^{+0}_{-5}$ | 0.99 |
| 478–516 | $8.45 \cdot 10^{-3}$ | 2.5 | 1.5 | $^{+27}_{-23}$ | $^{+0.3}_{-0.3}$ | $^{+0.1}_{-0.1}$ | $^{+1.7}_{-2.0}$ | 5.0 | 0.5 | 0.0 | | | 1.01 | $^{+0}_{-5}$ | 0.99 |
| 516–556 | $2.92 \cdot 10^{-3}$ | 4.3 | 2.3 | $^{+30}_{-25}$ | $^{+0.1}_{-0.2}$ | $^{+0.0}_{-0.0}$ | $^{+1.7}_{-1.9}$ | 5.7 | 0.5 | 0.1 | | | 1.01 | $^{+0}_{-5}$ | 0.99 |
| 556–642 | $5.60 \cdot 10^{-4}$ | 7.2 | 2.6 | $^{+32}_{-28}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.6}_{-1.7}$ | 6.3 | 0.6 | 0.1 | | | 1.01 | $^{+0}_{-5}$ | 0.99 |
| 642–894 | $9.83 \cdot 10^{-6}$ | 33 | 5.2 | $^{+56}_{-47}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.1}_{-0.6}$ | 16 | 2.7 | 0.2 | | | 1.01 | $^{+0}_{-5}$ | 0.98 |

**Table 7**. Measured double-differential inclusive jet cross-sections for jets with $R = 0.4$ in the rapidity bin $2.0 \leq |y| < 2.5$. See caption of table 3 for details.

| $p_T$range [GeV] | $\sigma$ [pb/GeV] | $\delta_{\rm stat}^{\rm data}$ % | $\delta_{\rm stat}^{\rm MC}$ % | $u_{\rm in\text{-}situ}$ % | $u_{\rm pile\text{-}up}$ % | $u_{\rm close\text{-}by}$ % | $u_{\rm flavour}$ % | $u_{\rm JER}$ % | $u_{\rm JAR}$ % | $u_{\rm unfold}$ % | $u_{\rm qual.}$ % | $u_{\rm lumi}$ % | NPC | $u_{\rm NP}$ % | EWC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100–116 | $1.04 \cdot 10^{3}$ | 1.2 | 1.1 | $^{+24}_{-20}$ | $^{+3.1}_{-2.1}$ | $^{+0.8}_{-0.7}$ | $^{+3.9}_{-3.5}$ | 5.3 | 1.5 | 0.1 | | | 1.00 | $^{+1}_{-6}$ | 1.00 |
| 116–134 | $4.16 \cdot 10^{2}$ | 1.7 | 0.95 | $^{+25}_{-21}$ | $^{+2.4}_{-1.9}$ | $^{+0.7}_{-0.6}$ | $^{+3.3}_{-3.1}$ | 5.0 | 1.5 | 0.1 | | | 1.00 | $^{+1}_{-5}$ | 1.00 |
| 134–152 | $1.60 \cdot 10^{2}$ | 2.4 | 0.86 | $^{+26}_{-22}$ | $^{+1.9}_{-2.0}$ | $^{+0.7}_{-0.6}$ | $^{+2.6}_{-2.8}$ | 4.6 | 1.3 | 0.1 | | | 1.00 | $^{+1}_{-5}$ | 1.00 |
| 152–172 | $6.41 \cdot 10^{1}$ | 2.0 | 0.84 | $^{+28}_{-24}$ | $^{+1.9}_{-1.9}$ | $^{+0.8}_{-0.7}$ | $^{+2.3}_{-2.5}$ | 4.6 | 1.3 | 0.0 | | | 1.00 | $^{+1}_{-5}$ | 1.00 |
| 172–194 | $2.46 \cdot 10^{1}$ | 1.8 | 0.97 | $^{+31}_{-25}$ | $^{+2.0}_{-1.8}$ | $^{+0.9}_{-0.9}$ | $^{+2.1}_{-2.1}$ | 4.9 | 1.3 | 0.1 | | | 1.00 | $^{+0}_{-5}$ | 1.00 |
| 194–216 | $9.40 \cdot 10^{0}$ | 2.8 | 1.3 | $^{+34}_{-27}$ | $^{+2.0}_{-1.8}$ | $^{+1.0}_{-1.1}$ | $^{+2.0}_{-1.9}$ | 5.1 | 1.3 | 0.1 | 0.25 | 1.8 | 1.01 | $^{+0}_{-5}$ | 1.00 |
| 216–240 | $3.40 \cdot 10^{0}$ | 2.5 | 1.1 | $^{+36}_{-28}$ | $^{+2.0}_{-1.8}$ | $^{+1.3}_{-1.2}$ | $^{+2.0}_{-2.0}$ | 5.4 | 1.1 | 0.0 | | | 1.01 | $^{+0}_{-5}$ | 0.99 |
| 240–264 | $1.18 \cdot 10^{0}$ | 4.0 | 1.9 | $^{+40}_{-30}$ | $^{+1.9}_{-1.8}$ | $^{+1.6}_{-1.3}$ | $^{+2.0}_{-1.9}$ | 6.1 | 1.1 | 0.0 | | | 1.01 | $^{+0}_{-6}$ | 0.99 |
| 264–290 | $4.11 \cdot 10^{-1}$ | 6.6 | 2.4 | $^{+42}_{-31}$ | $^{+1.7}_{-1.7}$ | $^{+1.6}_{-1.3}$ | $^{+2.0}_{-1.8}$ | 7.0 | 1.2 | 0.0 | | | 1.01 | $^{+0}_{-6}$ | 0.99 |
| 290–318 | $1.46 \cdot 10^{-1}$ | 10 | 2.1 | $^{+45}_{-32}$ | $^{+1.4}_{-1.7}$ | $^{+1.5}_{-1.3}$ | $^{+1.9}_{-1.8}$ | 8.0 | 1.4 | 0.1 | | | 1.01 | $^{+0}_{-6}$ | 0.99 |
| 318–376 | $2.82 \cdot 10^{-2}$ | 15 | 2.6 | $^{+49}_{-34}$ | $^{+1.4}_{-2.0}$ | $^{+1.2}_{-1.0}$ | $^{+1.9}_{-1.9}$ | 10 | 2.1 | 0.0 | | | 1.01 | $^{+0}_{-6}$ | 0.99 |
| 376–478 | $6.88 \cdot 10^{-4}$ | 12 | 7.9 | $^{+62}_{-46}$ | $^{+5.3}_{-3.1}$ | $^{+0.6}_{-0.5}$ | $^{+4.3}_{-1.4}$ | 17 | 6.8 | 0.6 | | | 1.01 | $^{+0}_{-6}$ | 0.99 |

**Table 8**. Measured double-differential inclusive jet cross-sections for jets with $R = 0.4$ in the rapidity bin $2.5 \leq |y| < 3.0$. See caption of table 3 for details.

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| $p_{\text{T}}$range [GeV] | $\sigma$ [pb/GeV] | $\delta_{\text{stat}}^{\text{data}}$ % | $\delta_{\text{stat}}^{\text{MC}}$ % | $u_{\text{in-situ}}$ % | $u_{\text{pile-up}}$ % | $u_{\text{close-by}}$ % | $u_{\text{flavour}}$ % | $u_{\text{JER}}$ % | $u_{\text{JAR}}$ % | $u_{\text{unfold}}$ % | $u_{\text{qual.}}$ % | $u_{\text{lumi}}$ % | NPC | $u_{\text{NP}}$ % | EWC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100–116 | $5.52 \cdot 10^{3}$ | 0.54 | 0.73 | $^{+4.8}_{-5.1}$ | $^{+1.5}_{-1.7}$ | $^{+1.3}_{-1.3}$ | $^{+6.0}_{-5.8}$ | 3.1 | 0.1 | 0.1 | | | 1.06 | $^{+0}_{-6}$ | 1.00 |
| 116–134 | $2.60 \cdot 10^{3}$ | 0.67 | 0.49 | $^{+4.4}_{-4.6}$ | $^{+1.2}_{-1.4}$ | $^{+1.1}_{-1.1}$ | $^{+5.7}_{-5.5}$ | 2.2 | 0.1 | 0.1 | | | 1.05 | $^{+1}_{-5}$ | 1.00 |
| 134–152 | $1.26 \cdot 10^{3}$ | 0.75 | 0.39 | $^{+4.3}_{-4.3}$ | $^{+1.1}_{-1.1}$ | $^{+1.0}_{-1.0}$ | $^{+5.5}_{-5.3}$ | 1.7 | 0.1 | 0.0 | | | 1.04 | $^{+1}_{-5}$ | 1.00 |
| 152–172 | $6.34 \cdot 10^{2}$ | 0.59 | 0.39 | $^{+4.3}_{-4.2}$ | $^{+1.1}_{-0.9}$ | $^{+1.0}_{-0.9}$ | $^{+5.4}_{-5.1}$ | 1.4 | 0.1 | 0.0 | | | 1.04 | $^{+1}_{-4}$ | 1.00 |
| 172–194 | $3.24 \cdot 10^{2}$ | 0.48 | 0.34 | $^{+4.4}_{-4.1}$ | $^{+1.0}_{-0.9}$ | $^{+0.9}_{-0.9}$ | $^{+5.1}_{-4.7}$ | 1.3 | 0.1 | 0.0 | | | 1.03 | $^{+1}_{-4}$ | 1.00 |
| 194–216 | $1.70 \cdot 10^{2}$ | 0.62 | 0.37 | $^{+4.3}_{-4.0}$ | $^{+0.9}_{-0.8}$ | $^{+0.9}_{-0.9}$ | $^{+4.5}_{-4.1}$ | 1.2 | 0.1 | 0.0 | | | 1.03 | $^{+1}_{-3}$ | 1.00 |
| 216–240 | $9.43 \cdot 10^{1}$ | 0.45 | 0.35 | $^{+4.2}_{-4.1}$ | $^{+0.9}_{-0.8}$ | $^{+1.0}_{-1.0}$ | $^{+3.8}_{-3.6}$ | 1.1 | 0.1 | 0.0 | | | 1.02 | $^{+1}_{-3}$ | 1.00 |
| 240–264 | $5.27 \cdot 10^{1}$ | 0.58 | 0.32 | $^{+4.2}_{-4.2}$ | $^{+0.8}_{-0.7}$ | $^{+1.0}_{-1.0}$ | $^{+3.3}_{-3.2}$ | 1.0 | 0.1 | 0.0 | | | 1.02 | $^{+1}_{-3}$ | 1.00 |
| 264–290 | $3.05 \cdot 10^{1}$ | 0.74 | 0.31 | $^{+4.1}_{-4.1}$ | $^{+0.7}_{-0.7}$ | $^{+1.0}_{-1.0}$ | $^{+3.0}_{-2.9}$ | 0.9 | 0.0 | 0.0 | | | 1.02 | $^{+1}_{-3}$ | 1.00 |
| 290–318 | $1.75 \cdot 10^{1}$ | 0.95 | 0.33 | $^{+4.1}_{-4.1}$ | $^{+0.8}_{-0.7}$ | $^{+1.0}_{-1.0}$ | $^{+2.8}_{-2.7}$ | 0.8 | 0.0 | 0.0 | | | 1.01 | $^{+1}_{-2}$ | 1.00 |
| 318–346 | $1.02 \cdot 10^{1}$ | 0.92 | 0.49 | $^{+4.3}_{-4.0}$ | $^{+0.8}_{-0.9}$ | $^{+0.9}_{-0.9}$ | $^{+2.7}_{-2.7}$ | 0.7 | 0.0 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 346–376 | $6.17 \cdot 10^{0}$ | 0.47 | 0.57 | $^{+4.2}_{-4.2}$ | $^{+0.8}_{-1.0}$ | $^{+0.8}_{-0.8}$ | $^{+2.6}_{-2.6}$ | 0.7 | 0.0 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 376–408 | $3.72 \cdot 10^{0}$ | 0.27 | 0.48 | $^{+4.2}_{-4.4}$ | $^{+0.8}_{-0.9}$ | $^{+0.6}_{-0.6}$ | $^{+2.4}_{-2.4}$ | 0.6 | 0.0 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 408–442 | $2.25 \cdot 10^{0}$ | 0.30 | 0.42 | $^{+4.5}_{-4.4}$ | $^{+0.7}_{-0.7}$ | $^{+0.4}_{-0.4}$ | $^{+2.2}_{-2.2}$ | 0.7 | 0.0 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 442–478 | $1.35 \cdot 10^{0}$ | 0.31 | 0.36 | $^{+4.5}_{-4.3}$ | $^{+0.4}_{-0.4}$ | $^{+0.2}_{-0.2}$ | $^{+2.0}_{-1.9}$ | 0.7 | 0.0 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 478–516 | $8.09 \cdot 10^{-1}$ | 0.25 | 0.28 | $^{+4.7}_{-4.4}$ | $^{+0.2}_{-0.1}$ | $^{+0.1}_{-0.1}$ | $^{+1.8}_{-1.7}$ | 0.7 | 0.0 | 0.0 | 0.25 | 1.8 | 1.01 | $^{+0}_{-2}$ | 1.01 |
| 516–556 | $4.92 \cdot 10^{-1}$ | 0.32 | 0.24 | $^{+5.0}_{-4.8}$ | $^{+0.1}_{-0.0}$ | $^{+0.1}_{-0.0}$ | $^{+1.6}_{-1.6}$ | 0.7 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-2}$ | 1.01 |
| 556–598 | $2.98 \cdot 10^{-1}$ | 0.39 | 0.22 | $^{+5.3}_{-5.2}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.5}_{-1.5}$ | 0.7 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-1}$ | 1.01 |
| 598–642 | $1.82 \cdot 10^{-1}$ | 0.49 | 0.21 | $^{+5.7}_{-5.7}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.4}_{-1.4}$ | 0.7 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-1}$ | 1.02 |
| 642–688 | $1.11 \cdot 10^{-1}$ | 0.62 | 0.22 | $^{+6.4}_{-6.3}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.3}_{-1.3}$ | 0.7 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-1}$ | 1.02 |
| 688–736 | $6.74 \cdot 10^{-2}$ | 0.77 | 0.21 | $^{+7.0}_{-6.9}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.3}_{-1.3}$ | 0.7 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-1}$ | 1.02 |
| 736–786 | $4.17 \cdot 10^{-2}$ | 0.94 | 0.21 | $^{+7.6}_{-7.4}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.3}_{-1.3}$ | 0.7 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-1}$ | 1.03 |
| 786–838 | $2.53 \cdot 10^{-2}$ | 1.2 | 0.26 | $^{+8.5}_{-8.1}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.2}_{-1.2}$ | 0.8 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-1}$ | 1.03 |
| 838–894 | $1.51 \cdot 10^{-2}$ | 1.5 | 0.23 | $^{+9.2}_{-8.8}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.1}_{-1.1}$ | 0.8 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-1}$ | 1.04 |
| 894–952 | $9.08 \cdot 10^{-3}$ | 1.9 | 0.26 | $^{+9.8}_{-9.4}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.1}_{-1.0}$ | 0.8 | 0.0 | 0.1 | | | 1.00 | $^{+0}_{-1}$ | 1.05 |
| 952–1012 | $5.61 \cdot 10^{-3}$ | 2.4 | 0.28 | $^{+11}_{-10}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.0}_{-0.9}$ | 0.8 | 0.0 | 0.2 | | | 1.00 | $^{+0}_{-1}$ | 1.05 |
| 1012–1076 | $3.29 \cdot 10^{-3}$ | 3.1 | 0.34 | $^{+12}_{-11}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.9}_{-0.9}$ | 0.8 | 0.0 | 0.4 | | | 1.00 | $^{+0}_{-1}$ | 1.06 |
| 1076–1162 | $1.85 \cdot 10^{-3}$ | 3.8 | 0.35 | $^{+12}_{-11}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.8}_{-0.8}$ | 0.8 | 0.0 | 0.2 | | | 1.00 | $^{+0}_{-1}$ | 1.07 |
| 1162–1310 | $8.05 \cdot 10^{-4}$ | 5.0 | 0.28 | $^{+13}_{-13}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.7}_{-0.7}$ | 1.0 | 0.0 | 2.7 | | | 1.00 | $^{+0}_{-1}$ | 1.08 |
| 1310–1530 | $1.72 \cdot 10^{-4}$ | 9.5 | 0.27 | $^{+21}_{-21}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.7}_{-0.6}$ | 1.3 | 0.0 | 2.1 | | | 1.00 | $^{+0}_{-1}$ | 1.10 |
| 1530–1992 | $1.39 \cdot 10^{-5}$ | 24 | 0.52 | $^{+46}_{-38}$ | $^{+0.0}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.5}_{-0.6}$ | 2.5 | 0.0 | 8.5 | | | 1.00 | $^{+0}_{-1}$ | 1.13 |

**Table 9**. Measured double-differential inclusive jet cross-sections for jets with $R = 0.6$ in the rapidity bin $|y| < 0.5$. Here, $\sigma$ is the measured double differential cross-section $\mathrm{d}^2\sigma/\mathrm{d}p_{\mathrm{T}}\mathrm{d}y$, averaged in each bin. All uncertainties are given in %. The variable $\delta_{\text{stat}}^{\text{data}}$ ($\delta_{\text{stat}}^{\text{MC}}$) is the statistical uncertainty from the data (MC simulation). The $u$ components show the uncertainties due to the jet energy calibration from the in-situ, pile-up, close-by jet, and flavour components. The uncertainty due to the jet energy and angular resolution, the unfolding, the quality selection, and the integrated luminosity are also shown by the $u$ components. While all columns are uncorrelated with each other, the in-situ, pile-up, and flavour uncertainties shown here are the sum in quadrature of multiple uncorrelated components. In the last three columns, the correction factors for non-perturbative effects (NPC) with their uncertainties ($u_{\text{NP}}$) and electroweak effects (EWC) are shown.

| $p_T$range [GeV] | $\sigma$ [pb/GeV] | $\delta_{stat}^{data}$ % | $\delta_{stat}^{MC}$ % | $u_{in\text{-}situ}$ % | $u_{pile\text{-}up}$ % | $u_{close\text{-}by}$ % | $u_{flavour}$ % | $u_{JER}$ % | $u_{JAR}$ % | $u_{unfold}$ % | $u_{qual.}$ % | $u_{lumi}$ % | NPC | $u_{NP}$ % | EWC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100–116 | $5.14 \cdot 10^{3}$ | 0.57 | 0.75 | $^{+5.7}_{-4.8}$ | $^{+1.9}_{-1.4}$ | $^{+1.6}_{-1.2}$ | $^{+6.7}_{-5.8}$ | 4.1 | 0.6 | 0.1 | | | 1.06 | $^{+0}_{-6}$ | 1.00 |
| 116–134 | $2.41 \cdot 10^{3}$ | 0.70 | 0.55 | $^{+5.6}_{-4.7}$ | $^{+1.7}_{-1.3}$ | $^{+1.3}_{-1.1}$ | $^{+6.1}_{-5.3}$ | 3.2 | 0.5 | 0.1 | | | 1.05 | $^{+1}_{-5}$ | 1.00 |
| 134–152 | $1.16 \cdot 10^{3}$ | 0.79 | 0.45 | $^{+5.0}_{-4.6}$ | $^{+1.4}_{-1.2}$ | $^{+1.0}_{-0.9}$ | $^{+5.5}_{-5.0}$ | 2.3 | 0.3 | 0.0 | | | 1.04 | $^{+1}_{-5}$ | 1.00 |
| 152–172 | $5.75 \cdot 10^{2}$ | 0.62 | 0.37 | $^{+4.6}_{-4.6}$ | $^{+1.2}_{-1.1}$ | $^{+0.9}_{-0.8}$ | $^{+5.0}_{-4.9}$ | 1.8 | 0.2 | 0.0 | | | 1.03 | $^{+1}_{-4}$ | 1.00 |
| 172–194 | $2.93 \cdot 10^{2}$ | 0.51 | 0.37 | $^{+4.7}_{-4.6}$ | $^{+1.1}_{-1.0}$ | $^{+0.9}_{-0.8}$ | $^{+4.7}_{-4.6}$ | 1.5 | 0.2 | 0.0 | | | 1.03 | $^{+1}_{-4}$ | 1.00 |
| 194–216 | $1.54 \cdot 10^{2}$ | 0.63 | 0.37 | $^{+4.8}_{-4.7}$ | $^{+1.0}_{-1.0}$ | $^{+0.9}_{-0.9}$ | $^{+4.4}_{-4.2}$ | 1.4 | 0.1 | 0.0 | | | 1.03 | $^{+1}_{-3}$ | 1.00 |
| 216–240 | $8.33 \cdot 10^{1}$ | 0.48 | 0.34 | $^{+4.7}_{-4.7}$ | $^{+0.9}_{-0.9}$ | $^{+1.0}_{-1.0}$ | $^{+3.9}_{-3.8}$ | 1.2 | 0.1 | 0.0 | | | 1.02 | $^{+1}_{-3}$ | 1.00 |
| 240–264 | $4.63 \cdot 10^{1}$ | 0.63 | 0.33 | $^{+4.6}_{-4.7}$ | $^{+0.8}_{-0.9}$ | $^{+1.0}_{-1.0}$ | $^{+3.5}_{-3.5}$ | 1.0 | 0.1 | 0.0 | | | 1.02 | $^{+1}_{-3}$ | 1.00 |
| 264–290 | $2.69 \cdot 10^{1}$ | 0.80 | 0.34 | $^{+4.7}_{-4.6}$ | $^{+0.8}_{-0.8}$ | $^{+1.1}_{-1.0}$ | $^{+3.2}_{-3.1}$ | 1.0 | 0.1 | 0.0 | | | 1.02 | $^{+1}_{-3}$ | 1.00 |
| 290–318 | $1.54 \cdot 10^{1}$ | 1.0 | 0.37 | $^{+4.7}_{-4.4}$ | $^{+0.9}_{-0.8}$ | $^{+1.0}_{-1.0}$ | $^{+2.9}_{-2.8}$ | 1.0 | 0.1 | 0.0 | | | 1.01 | $^{+1}_{-2}$ | 1.00 |
| 318–346 | $9.08 \cdot 10^{0}$ | 0.94 | 0.46 | $^{+4.8}_{-4.2}$ | $^{+1.0}_{-0.9}$ | $^{+0.9}_{-0.9}$ | $^{+2.6}_{-2.5}$ | 1.0 | 0.1 | 0.0 | | | 1.01 | $^{+1}_{-2}$ | 1.00 |
| 346–376 | $5.41 \cdot 10^{0}$ | 0.50 | 0.62 | $^{+4.7}_{-4.3}$ | $^{+1.0}_{-0.9}$ | $^{+0.8}_{-0.7}$ | $^{+2.3}_{-2.2}$ | 0.9 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 376–408 | $3.21 \cdot 10^{0}$ | 0.28 | 0.47 | $^{+4.5}_{-4.5}$ | $^{+1.0}_{-0.9}$ | $^{+0.6}_{-0.6}$ | $^{+2.0}_{-2.0}$ | 0.9 | 0.0 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 408–442 | $1.93 \cdot 10^{0}$ | 0.33 | 0.45 | $^{+4.7}_{-4.4}$ | $^{+0.8}_{-0.7}$ | $^{+0.5}_{-0.4}$ | $^{+1.8}_{-1.7}$ | 0.9 | 0.0 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 442–478 | $1.13 \cdot 10^{0}$ | 0.33 | 0.38 | $^{+4.6}_{-4.5}$ | $^{+0.5}_{-0.3}$ | $^{+0.3}_{-0.3}$ | $^{+1.5}_{-1.5}$ | 0.9 | 0.0 | 0.0 | 0.25 | 1.8 | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 478–516 | $6.77 \cdot 10^{-1}$ | 0.27 | 0.26 | $^{+4.7}_{-4.7}$ | $^{+0.2}_{-0.1}$ | $^{+0.1}_{-0.1}$ | $^{+1.3}_{-1.3}$ | 0.8 | 0.0 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 516–556 | $4.05 \cdot 10^{-1}$ | 0.34 | 0.26 | $^{+5.1}_{-5.0}$ | $^{+0.1}_{-0.0}$ | $^{+0.0}_{-0.0}$ | $^{+1.1}_{-1.1}$ | 0.8 | 0.0 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.01 |
| 556–598 | $2.41 \cdot 10^{-1}$ | 0.43 | 0.24 | $^{+5.6}_{-5.5}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.0}_{-1.0}$ | 0.8 | 0.0 | 0.0 | | | 1.01 | $^{+0}_{-1}$ | 1.01 |
| 598–642 | $1.43 \cdot 10^{-1}$ | 0.53 | 0.21 | $^{+6.1}_{-6.0}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.8}_{-0.8}$ | 0.9 | 0.0 | 0.0 | | | 1.00 | $^{+0}_{-1}$ | 1.01 |
| 642–688 | $8.58 \cdot 10^{-2}$ | 0.69 | 0.22 | $^{+6.7}_{-6.6}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.7}_{-0.7}$ | 0.9 | 0.1 | 0.0 | | | 1.00 | $^{+0}_{-1}$ | 1.01 |
| 688–736 | $5.13 \cdot 10^{-2}$ | 0.87 | 0.22 | $^{+7.3}_{-7.2}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.7}_{-0.7}$ | 0.9 | 0.1 | 0.0 | | | 1.00 | $^{+0}_{-1}$ | 1.01 |
| 736–786 | $3.03 \cdot 10^{-2}$ | 1.1 | 0.25 | $^{+8.2}_{-8.1}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.6}_{-0.6}$ | 0.9 | 0.1 | 0.0 | | | 1.00 | $^{+0}_{-1}$ | 1.02 |
| 786–838 | $1.79 \cdot 10^{-2}$ | 1.4 | 0.24 | $^{+9.0}_{-8.8}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.6}_{-0.6}$ | 0.9 | 0.1 | 0.0 | | | 1.00 | $^{+0}_{-1}$ | 1.02 |
| 838–894 | $1.08 \cdot 10^{-2}$ | 1.7 | 0.26 | $^{+9.9}_{-9.6}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.6}_{-0.6}$ | 1.0 | 0.1 | 0.0 | | | 1.00 | $^{+0}_{-1}$ | 1.02 |
| 894–952 | $6.00 \cdot 10^{-3}$ | 2.3 | 0.28 | $^{+11}_{-10}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.7}_{-0.7}$ | 1.1 | 0.1 | 0.0 | | | 1.00 | $^{+0}_{-1}$ | 1.03 |
| 952–1012 | $3.38 \cdot 10^{-3}$ | 3.1 | 0.35 | $^{+11}_{-11}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.7}_{-0.7}$ | 1.2 | 0.1 | 0.1 | | | 1.00 | $^{+0}_{-1}$ | 1.03 |
| 1012–1162 | $1.23 \cdot 10^{-3}$ | 3.7 | 0.26 | $^{+13}_{-12}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.9}_{-0.9}$ | 1.3 | 0.1 | 0.1 | | | 1.00 | $^{+0}_{-1}$ | 1.04 |
| 1162–1310 | $2.86 \cdot 10^{-4}$ | 7.7 | 0.33 | $^{+15}_{-14}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.0}_{-1.0}$ | 1.4 | 0.1 | 1.0 | | | 1.00 | $^{+0}_{-1}$ | 1.05 |
| 1310–1992 | $2.39 \cdot 10^{-5}$ | 14 | 0.34 | $^{+29}_{-28}$ | $^{+0.0}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.1}_{-1.1}$ | 2.8 | 0.1 | 4.4 | | | 1.00 | $^{+0}_{-1}$ | 1.06 |

**Table 10**. Measured double-differential inclusive jet cross-sections for jets with $R = 0.6$ in the rapidity bin $0.5 \leq |y| < 1.0$. See caption of table 9 for details.

| $p_{\mathrm{T}}$range [GeV] | $\sigma$ [pb/GeV] | $\delta_{\mathrm{stat}}^{\mathrm{data}}$ % | $\delta_{\mathrm{stat}}^{\mathrm{MC}}$ % | $u_{\text{in-situ}}$ % | $u_{\text{pile-up}}$ % | $u_{\text{close-by}}$ % | $u_{\text{flavour}}$ % | $u_{\mathrm{JER}}$ % | $u_{\mathrm{JAR}}$ % | $u_{\mathrm{unfold}}$ % | $u_{\mathrm{qual.}}$ % | $u_{\mathrm{lumi}}$ % | NPC | $u_{\mathrm{NP}}$ % | EWC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100–116 | $4.20 \cdot 10^{3}$ | 0.72 | 0.81 | $^{+7.6}_{-7.5}$ | $^{+1.9}_{-1.9}$ | $^{+1.4}_{-1.5}$ | $^{+6.8}_{-6.5}$ | 7.4 | 0.5 | 0.4 | | | 1.06 | $^{+1}_{-5}$ | 1.00 |
| 116–134 | $1.95 \cdot 10^{3}$ | 0.84 | 0.64 | $^{+7.7}_{-7.4}$ | $^{+1.7}_{-1.5}$ | $^{+1.3}_{-1.2}$ | $^{+6.2}_{-5.9}$ | 5.9 | 0.3 | 0.3 | | | 1.05 | $^{+1}_{-5}$ | 1.00 |
| 134–152 | $9.37 \cdot 10^{2}$ | 0.86 | 0.46 | $^{+7.5}_{-7.2}$ | $^{+1.5}_{-1.3}$ | $^{+1.1}_{-1.0}$ | $^{+5.6}_{-5.3}$ | 4.6 | 0.3 | 0.0 | | | 1.04 | $^{+1}_{-4}$ | 1.00 |
| 152–172 | $4.64 \cdot 10^{2}$ | 0.68 | 0.39 | $^{+7.4}_{-7.1}$ | $^{+1.3}_{-1.2}$ | $^{+1.0}_{-0.9}$ | $^{+5.1}_{-4.8}$ | 3.8 | 0.2 | 0.0 | | | 1.03 | $^{+1}_{-4}$ | 1.00 |
| 172–194 | $2.32 \cdot 10^{2}$ | 0.56 | 0.40 | $^{+7.4}_{-7.0}$ | $^{+1.3}_{-1.2}$ | $^{+0.9}_{-0.8}$ | $^{+4.6}_{-4.4}$ | 3.3 | 0.2 | 0.0 | | | 1.03 | $^{+1}_{-3}$ | 1.00 |
| 194–216 | $1.20 \cdot 10^{2}$ | 0.71 | 0.44 | $^{+7.3}_{-7.0}$ | $^{+1.1}_{-1.1}$ | $^{+1.0}_{-0.9}$ | $^{+4.2}_{-4.0}$ | 2.9 | 0.2 | 0.0 | | | 1.02 | $^{+1}_{-3}$ | 1.00 |
| 216–240 | $6.36 \cdot 10^{1}$ | 0.55 | 0.44 | $^{+7.0}_{-7.0}$ | $^{+1.0}_{-1.0}$ | $^{+1.0}_{-1.1}$ | $^{+3.8}_{-3.7}$ | 2.6 | 0.1 | 0.0 | | | 1.02 | $^{+1}_{-3}$ | 1.00 |
| 240–264 | $3.51 \cdot 10^{1}$ | 0.70 | 0.42 | $^{+6.9}_{-6.7}$ | $^{+1.0}_{-0.9}$ | $^{+1.1}_{-1.1}$ | $^{+3.5}_{-3.4}$ | 2.5 | 0.1 | 0.0 | | | 1.02 | $^{+1}_{-3}$ | 1.00 |
| 264–290 | $1.98 \cdot 10^{1}$ | 0.93 | 0.40 | $^{+6.7}_{-6.3}$ | $^{+1.0}_{-0.9}$ | $^{+1.1}_{-1.1}$ | $^{+3.2}_{-3.1}$ | 2.4 | 0.2 | 0.0 | | | 1.02 | $^{+1}_{-2}$ | 1.00 |
| 290–318 | $1.12 \cdot 10^{1}$ | 1.2 | 0.52 | $^{+6.5}_{-6.1}$ | $^{+1.0}_{-0.9}$ | $^{+1.1}_{-1.1}$ | $^{+2.9}_{-2.8}$ | 2.4 | 0.1 | 0.0 | | | 1.02 | $^{+1}_{-2}$ | 1.00 |
| 318–346 | $6.37 \cdot 10^{0}$ | 1.1 | 0.57 | $^{+6.4}_{-6.1}$ | $^{+1.1}_{-1.0}$ | $^{+1.0}_{-1.0}$ | $^{+2.6}_{-2.5}$ | 2.3 | 0.1 | 0.0 | | | 1.01 | $^{+1}_{-2}$ | 1.00 |
| 346–376 | $3.71 \cdot 10^{0}$ | 0.59 | 0.65 | $^{+6.3}_{-5.9}$ | $^{+1.2}_{-1.1}$ | $^{+0.9}_{-0.9}$ | $^{+2.3}_{-2.2}$ | 2.2 | 0.1 | 0.0 | | | 1.01 | $^{+1}_{-2}$ | 1.00 |
| 376–408 | $2.15 \cdot 10^{0}$ | 0.35 | 0.52 | $^{+6.1}_{-5.9}$ | $^{+1.2}_{-1.0}$ | $^{+0.7}_{-0.7}$ | $^{+2.0}_{-1.9}$ | 2.2 | 0.1 | 0.0 | 0.25 | 1.8 | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 408–442 | $1.23 \cdot 10^{0}$ | 0.39 | 0.50 | $^{+5.8}_{-5.8}$ | $^{+0.9}_{-0.8}$ | $^{+0.5}_{-0.5}$ | $^{+1.8}_{-1.7}$ | 2.1 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 442–478 | $7.13 \cdot 10^{-1}$ | 0.41 | 0.40 | $^{+6.0}_{-5.7}$ | $^{+0.5}_{-0.4}$ | $^{+0.3}_{-0.3}$ | $^{+1.6}_{-1.5}$ | 2.2 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 478–516 | $4.06 \cdot 10^{-1}$ | 0.35 | 0.32 | $^{+6.2}_{-5.8}$ | $^{+0.2}_{-0.1}$ | $^{+0.1}_{-0.1}$ | $^{+1.5}_{-1.4}$ | 2.2 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 516–556 | $2.29 \cdot 10^{-1}$ | 0.44 | 0.30 | $^{+6.6}_{-6.2}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.4}_{-1.3}$ | 2.3 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 556–598 | $1.29 \cdot 10^{-1}$ | 0.58 | 0.32 | $^{+7.0}_{-6.6}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.2}_{-1.2}$ | 2.4 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 598–642 | $7.17 \cdot 10^{-2}$ | 0.75 | 0.28 | $^{+7.6}_{-7.4}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.1}_{-1.1}$ | 2.4 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 642–688 | $3.90 \cdot 10^{-2}$ | 0.98 | 0.26 | $^{+8.3}_{-8.2}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.0}_{-1.0}$ | 2.5 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 688–736 | $2.13 \cdot 10^{-2}$ | 1.3 | 0.28 | $^{+9.3}_{-9.1}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.0}_{-1.0}$ | 2.6 | 0.1 | 0.0 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 736–786 | $1.17 \cdot 10^{-2}$ | 1.7 | 0.30 | $^{+10}_{-10}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.9}_{-1.0}$ | 2.8 | 0.1 | 0.1 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 786–838 | $5.96 \cdot 10^{-3}$ | 2.3 | 0.34 | $^{+11}_{-11}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+0.9}_{-1.0}$ | 3.0 | 0.1 | 0.1 | | | 1.01 | $^{+0}_{-2}$ | 1.00 |
| 838–894 | $3.05 \cdot 10^{-3}$ | 3.2 | 0.45 | $^{+12}_{-12}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.0}_{-1.0}$ | 3.1 | 0.1 | 0.9 | | | 1.01 | $^{+0}_{-2}$ | 1.01 |
| 894–1012 | $1.06 \cdot 10^{-3}$ | 4.3 | 0.33 | $^{+14}_{-13}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.0}_{-1.0}$ | 3.4 | 0.1 | 2.4 | | | 1.01 | $^{+0}_{-2}$ | 1.01 |
| 1012–1992 | $3.59 \cdot 10^{-5}$ | 8.8 | 0.50 | $^{+19}_{-18}$ | $^{+0.1}_{-0.2}$ | $^{+0.0}_{-0.0}$ | $^{+1.5}_{-1.7}$ | 4.4 | 0.1 | 2.0 | | | 1.01 | $^{+0}_{-2}$ | 1.01 |

**Table 11**. Measured double-differential inclusive jet cross-sections for jets with $R = 0.6$ in the rapidity bin $1.0 \leq |y| < 1.5$. See caption of table 9 for details.

| $p_T$range | $\sigma$ | $\delta_{stat}^{data}$ | $\delta_{stat}^{MC}$ | $u_{in-situ}$ | $u_{pile-up}$ | $u_{close-by}$ | $u_{flavour}$ | $u_{JER}$ | $u_{JAR}$ | $u_{unfold}$ | $u_{qual.}$ | $u_{lumi}$ | NPC | $u_{NP}$ | EWC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [GeV] | [pb/GeV] | % | % | % | % | % | % | % | % | % | % | % | | % | |
| 100–116 | $3.25 \cdot 10^3$ | 0.63 | 0.99 | $^{+11}_{-10}$ | $^{+2.0}_{-2.0}$ | $^{+1.6}_{-1.4}$ | $^{+6.9}_{-6.6}$ | 9.1 | 1.0 | 0.4 | | | 1.05 | $^{+1}_{-5}$ | 1.00 |
| 116–134 | $1.47 \cdot 10^3$ | 0.87 | 0.66 | $^{+11}_{-10}$ | $^{+1.8}_{-1.5}$ | $^{+1.5}_{-1.2}$ | $^{+6.1}_{-5.6}$ | 7.1 | 0.7 | 0.2 | | | 1.04 | $^{+2}_{-4}$ | 1.00 |
| 134–152 | $6.91 \cdot 10^2$ | 1.1 | 0.54 | $^{+12}_{-10}$ | $^{+1.8}_{-1.3}$ | $^{+1.2}_{-1.0}$ | $^{+5.6}_{-4.9}$ | 5.9 | 0.6 | 0.0 | | | 1.03 | $^{+2}_{-4}$ | 1.00 |
| 152–172 | $3.42 \cdot 10^2$ | 0.81 | 0.43 | $^{+12}_{-11}$ | $^{+1.6}_{-1.3}$ | $^{+1.0}_{-1.0}$ | $^{+5.0}_{-4.6}$ | 5.2 | 0.5 | 0.0 | | | 1.03 | $^{+2}_{-3}$ | 1.00 |
| 172–194 | $1.66 \cdot 10^2$ | 0.67 | 0.45 | $^{+12}_{-11}$ | $^{+1.4}_{-1.3}$ | $^{+1.0}_{-1.0}$ | $^{+4.4}_{-4.1}$ | 4.5 | 0.4 | 0.0 | | | 1.03 | $^{+2}_{-3}$ | 1.00 |
| 194–216 | $8.16 \cdot 10^1$ | 0.92 | 0.47 | $^{+11}_{-11}$ | $^{+1.3}_{-1.2}$ | $^{+1.0}_{-1.0}$ | $^{+3.8}_{-3.6}$ | 3.9 | 0.3 | 0.0 | | | 1.02 | $^{+1}_{-3}$ | 1.00 |
| 216–240 | $4.28 \cdot 10^1$ | 0.69 | 0.43 | $^{+11}_{-10}$ | $^{+1.1}_{-1.1}$ | $^{+1.1}_{-1.1}$ | $^{+3.4}_{-3.3}$ | 3.8 | 0.3 | 0.0 | | | 1.02 | $^{+1}_{-2}$ | 1.00 |
| 240–264 | $2.28 \cdot 10^1$ | 0.90 | 0.42 | $^{+11}_{-10}$ | $^{+1.1}_{-1.0}$ | $^{+1.2}_{-1.1}$ | $^{+3.2}_{-3.1}$ | 3.7 | 0.3 | 0.0 | | | 1.02 | $^{+1}_{-2}$ | 1.00 |
| 264–290 | $1.23 \cdot 10^1$ | 1.2 | 0.50 | $^{+11}_{-9.6}$ | $^{+1.1}_{-1.0}$ | $^{+1.3}_{-1.1}$ | $^{+3.1}_{-2.9}$ | 3.7 | 0.3 | 0.0 | | | 1.02 | $^{+1}_{-2}$ | 1.00 |
| 290–318 | $6.38 \cdot 10^0$ | 1.6 | 0.52 | $^{+10}_{-9.3}$ | $^{+1.2}_{-1.1}$ | $^{+1.2}_{-1.1}$ | $^{+2.9}_{-2.7}$ | 3.6 | 0.3 | 0.1 | | | 1.02 | $^{+1}_{-2}$ | 1.00 |
| 318–346 | $3.48 \cdot 10^0$ | 1.6 | 0.66 | $^{+9.9}_{-9.3}$ | $^{+1.2}_{-1.2}$ | $^{+1.1}_{-1.0}$ | $^{+2.6}_{-2.6}$ | 3.7 | 0.3 | 0.0 | | | 1.02 | $^{+1}_{-2}$ | 1.00 |
| 346–376 | $1.93 \cdot 10^0$ | 0.84 | 0.78 | $^{+9.7}_{-9.5}$ | $^{+1.3}_{-1.2}$ | $^{+0.9}_{-0.9}$ | $^{+2.3}_{-2.4}$ | 3.9 | 0.3 | 0.0 | 0.25 | 1.8 | 1.02 | $^{+0}_{-2}$ | 1.00 |
| 376–408 | $1.02 \cdot 10^0$ | 0.50 | 0.80 | $^{+9.7}_{-9.1}$ | $^{+1.3}_{-1.2}$ | $^{+0.7}_{-0.8}$ | $^{+2.2}_{-2.2}$ | 4.0 | 0.3 | 0.0 | | | 1.02 | $^{+0}_{-2}$ | 0.99 |
| 408–442 | $5.31 \cdot 10^{-1}$ | 0.63 | 0.67 | $^{+9.7}_{-8.8}$ | $^{+1.1}_{-1.0}$ | $^{+0.5}_{-0.5}$ | $^{+2.1}_{-2.0}$ | 4.0 | 0.3 | 0.0 | | | 1.02 | $^{+0}_{-2}$ | 0.99 |
| 442–478 | $2.74 \cdot 10^{-1}$ | 0.69 | 0.59 | $^{+10}_{-8.9}$ | $^{+0.7}_{-0.6}$ | $^{+0.3}_{-0.3}$ | $^{+2.0}_{-1.9}$ | 4.2 | 0.3 | 0.0 | | | 1.02 | $^{+0}_{-2}$ | 0.99 |
| 478–516 | $1.37 \cdot 10^{-1}$ | 0.60 | 0.52 | $^{+10}_{-9.3}$ | $^{+0.3}_{-0.2}$ | $^{+0.1}_{-0.1}$ | $^{+1.9}_{-1.8}$ | 4.5 | 0.3 | 0.0 | | | 1.02 | $^{+0}_{-2}$ | 0.99 |
| 516–556 | $6.73 \cdot 10^{-2}$ | 0.81 | 0.58 | $^{+11}_{-9.7}$ | $^{+0.1}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.8}_{-1.7}$ | 5.0 | 0.3 | 0.1 | | | 1.02 | $^{+0}_{-2}$ | 0.99 |
| 556–598 | $3.17 \cdot 10^{-2}$ | 1.2 | 0.57 | $^{+11}_{-11}$ | $^{+0.2}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.7}_{-1.7}$ | 5.5 | 0.3 | 0.1 | | | 1.02 | $^{+0}_{-2}$ | 0.99 |
| 598–642 | $1.44 \cdot 10^{-2}$ | 1.6 | 0.52 | $^{+12}_{-12}$ | $^{+0.2}_{-0.2}$ | $^{+0.0}_{-0.0}$ | $^{+1.6}_{-1.6}$ | 6.1 | 0.3 | 0.1 | | | 1.02 | $^{+0}_{-2}$ | 0.99 |
| 642–688 | $6.47 \cdot 10^{-3}$ | 2.5 | 0.64 | $^{+13}_{-13}$ | $^{+0.1}_{-0.2}$ | $^{+0.0}_{-0.0}$ | $^{+1.5}_{-1.6}$ | 6.8 | 0.3 | 0.1 | | | 1.02 | $^{+0}_{-2}$ | 0.99 |
| 688–736 | $2.66 \cdot 10^{-3}$ | 3.6 | 0.61 | $^{+14}_{-14}$ | $^{+0.1}_{-0.2}$ | $^{+0.0}_{-0.0}$ | $^{+1.4}_{-1.5}$ | 7.4 | 0.3 | 1.3 | | | 1.02 | $^{+0}_{-2}$ | 0.99 |
| 736–894 | $5.36 \cdot 10^{-4}$ | 5.3 | 0.55 | $^{+16}_{-16}$ | $^{+0.0}_{-0.1}$ | $^{+0.0}_{-0.0}$ | $^{+1.2}_{-1.2}$ | 8.5 | 0.3 | 2.7 | | | 1.02 | $^{+0}_{-2}$ | 0.99 |
| 894–1992 | $2.70 \cdot 10^{-6}$ | 27 | 2.9 | $^{+30}_{-27}$ | $^{+0.0}_{-0.5}$ | $^{+0.0}_{-0.0}$ | $^{+1.3}_{-1.4}$ | 15 | 0.6 | 4.3 | | | 1.02 | $^{+0}_{-2}$ | 0.99 |

**Table 12**. Measured double-differential inclusive jet cross-sections for jets with $R = 0.6$ in the rapidity bin $1.5 \leq |y| < 2.0$. See caption of table 9 for details.

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| $p_T$ range [GeV] | $\sigma$ [pb/GeV] | $\delta_{stat}^{data}$ % | $\delta_{stat}^{MC}$ % | $u_{in\text{-}situ}$ % | $u_{pile\text{-}up}$ % | $u_{close\text{-}by}$ % | $u_{flavour}$ % | $u_{JER}$ % | $u_{JAR}$ % | $u_{unfold}$ % | $u_{qual.}$ % | $u_{lumi}$ % | NPC | $u_{NP}$ % | EWC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100–116 | $2.26 \cdot 10^{3}$ | 0.86 | 1.0 | $^{+15}_{-14}$ | $^{+2.0}_{-2.3}$ | $^{+1.6}_{-1.3}$ | $^{+4.8}_{-4.5}$ | 12 | 1.5 | 0.4 | | | 1.05 | $^{+2}_{-4}$ | 1.00 |
| 116–134 | $9.78 \cdot 10^{2}$ | 1.1 | 0.97 | $^{+15}_{-14}$ | $^{+2.0}_{-1.9}$ | $^{+1.2}_{-1.1}$ | $^{+4.2}_{-3.9}$ | 9.7 | 1.1 | 0.1 | | | 1.04 | $^{+2}_{-3}$ | 1.00 |
| 134–152 | $4.45 \cdot 10^{2}$ | 1.4 | 0.82 | $^{+15}_{-14}$ | $^{+1.8}_{-1.6}$ | $^{+1.0}_{-1.0}$ | $^{+3.8}_{-3.5}$ | 7.6 | 0.9 | 0.0 | | | 1.03 | $^{+2}_{-3}$ | 1.00 |
| 152–172 | $1.98 \cdot 10^{2}$ | 1.1 | 1.1 | $^{+15}_{-15}$ | $^{+1.6}_{-1.5}$ | $^{+1.0}_{-1.0}$ | $^{+3.4}_{-3.3}$ | 6.4 | 0.8 | 0.0 | | | 1.03 | $^{+2}_{-3}$ | 1.00 |
| 172–194 | $9.36 \cdot 10^{1}$ | 0.92 | 0.51 | $^{+16}_{-15}$ | $^{+1.6}_{-1.5}$ | $^{+1.0}_{-0.9}$ | $^{+3.2}_{-3.1}$ | 5.9 | 0.8 | 0.0 | | | 1.03 | $^{+2}_{-2}$ | 1.00 |
| 194–216 | $4.22 \cdot 10^{1}$ | 1.3 | 0.55 | $^{+17}_{-15}$ | $^{+1.6}_{-1.4}$ | $^{+1.0}_{-1.0}$ | $^{+3.0}_{-2.9}$ | 5.4 | 0.7 | 0.1 | | | 1.02 | $^{+2}_{-2}$ | 1.00 |
| 216–240 | $2.00 \cdot 10^{1}$ | 1.0 | 0.77 | $^{+17}_{-16}$ | $^{+1.5}_{-1.4}$ | $^{+1.1}_{-1.1}$ | $^{+2.8}_{-2.8}$ | 5.2 | 0.7 | 0.0 | | | 1.02 | $^{+1}_{-2}$ | 1.00 |
| 240–264 | $9.67 \cdot 10^{0}$ | 1.5 | 0.59 | $^{+18}_{-16}$ | $^{+1.3}_{-1.3}$ | $^{+1.2}_{-1.2}$ | $^{+2.7}_{-2.6}$ | 5.2 | 0.7 | 0.0 | | | 1.02 | $^{+1}_{-2}$ | 1.00 |
| 264–290 | $4.69 \cdot 10^{0}$ | 2.1 | 0.71 | $^{+18}_{-15}$ | $^{+1.3}_{-1.2}$ | $^{+1.3}_{-1.2}$ | $^{+2.5}_{-2.5}$ | 5.5 | 0.7 | 0.0 | | | 1.02 | $^{+1}_{-2}$ | 0.99 |
| 290–318 | $2.14 \cdot 10^{0}$ | 3.0 | 0.76 | $^{+17}_{-15}$ | $^{+1.4}_{-1.3}$ | $^{+1.2}_{-1.2}$ | $^{+2.5}_{-2.4}$ | 5.8 | 0.8 | 0.1 | 0.25 | 1.8 | 1.02 | $^{+1}_{-2}$ | 0.99 |
| 318–346 | $9.48 \cdot 10^{-1}$ | 3.4 | 0.86 | $^{+17}_{-15}$ | $^{+1.6}_{-1.4}$ | $^{+1.1}_{-1.0}$ | $^{+2.3}_{-2.3}$ | 6.2 | 0.7 | 0.0 | | | 1.02 | $^{+1}_{-2}$ | 0.99 |
| 346–376 | $4.32 \cdot 10^{-1}$ | 1.9 | 1.2 | $^{+17}_{-15}$ | $^{+1.8}_{-1.6}$ | $^{+0.9}_{-0.9}$ | $^{+2.2}_{-2.2}$ | 6.6 | 0.6 | 0.1 | | | 1.02 | $^{+1}_{-2}$ | 0.99 |
| 376–408 | $1.83 \cdot 10^{-1}$ | 1.2 | 1.1 | $^{+17}_{-16}$ | $^{+1.8}_{-1.6}$ | $^{+0.7}_{-0.7}$ | $^{+2.1}_{-2.3}$ | 7.2 | 0.5 | 0.0 | | | 1.02 | $^{+1}_{-2}$ | 0.99 |
| 408–442 | $7.48 \cdot 10^{-2}$ | 1.8 | 1.6 | $^{+18}_{-17}$ | $^{+1.6}_{-1.3}$ | $^{+0.5}_{-0.5}$ | $^{+2.1}_{-2.3}$ | 7.8 | 0.4 | 0.0 | | | 1.02 | $^{+0}_{-2}$ | 0.99 |
| 442–478 | $2.88 \cdot 10^{-2}$ | 2.4 | 1.4 | $^{+20}_{-18}$ | $^{+1.1}_{-0.8}$ | $^{+0.3}_{-0.3}$ | $^{+2.1}_{-2.2}$ | 8.5 | 0.4 | 0.1 | | | 1.02 | $^{+0}_{-2}$ | 0.99 |
| 478–516 | $1.01 \cdot 10^{-2}$ | 2.3 | 1.3 | $^{+22}_{-20}$ | $^{+0.5}_{-0.4}$ | $^{+0.2}_{-0.1}$ | $^{+2.1}_{-2.1}$ | 9.4 | 0.4 | 0.1 | | | 1.02 | $^{+0}_{-2}$ | 0.99 |
| 516–556 | $3.29 \cdot 10^{-3}$ | 4.0 | 2.2 | $^{+24}_{-22}$ | $^{+0.1}_{-0.1}$ | $^{+0.1}_{-0.0}$ | $^{+1.9}_{-2.0}$ | 11 | 0.4 | 0.8 | | | 1.02 | $^{+0}_{-2}$ | 0.99 |
| 556–642 | $6.57 \cdot 10^{-4}$ | 6.6 | 2.4 | $^{+27}_{-22}$ | $^{+0.1}_{-0.2}$ | $^{+0.0}_{-0.0}$ | $^{+1.4}_{-1.8}$ | 13 | 0.4 | 1.2 | | | 1.02 | $^{+0}_{-3}$ | 0.99 |
| 642–894 | $1.20 \cdot 10^{-5}$ | 29 | 5.5 | $^{+48}_{-38}$ | $^{+0.2}_{-0.3}$ | $^{+0.0}_{-0.0}$ | $^{+0.2}_{-0.7}$ | 31 | 0.4 | 1.7 | | | 1.02 | $^{+0}_{-3}$ | 0.98 |

**Table 13**. Measured double-differential inclusive jet cross-sections for jets with $R = 0.6$ in the rapidity bin $2.0 \leq |y| < 2.5$. See caption of table 9 for details.

| $p_T$ range [GeV] | $\sigma$ [pb/GeV] | $\delta_{stat}^{data}$ % | $\delta_{stat}^{MC}$ % | $u_{in\text{-}situ}$ % | $u_{pile\text{-}up}$ % | $u_{close\text{-}by}$ % | $u_{flavour}$ % | $u_{JER}$ % | $u_{JAR}$ % | $u_{unfold}$ % | $u_{qual.}$ % | $u_{lumi}$ % | NPC | $u_{NP}$ % | EWC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100–116 | $1.36 \cdot 10^{3}$ | 1.0 | 1.1 | $^{+21}_{-18}$ | $^{+2.6}_{-1.9}$ | $^{+1.4}_{-1.4}$ | $^{+3.5}_{-3.0}$ | 13 | 2.6 | 0.1 | | | 1.04 | $^{+2}_{-3}$ | 1.00 |
| 116–134 | $5.20 \cdot 10^{2}$ | 1.5 | 1.1 | $^{+22}_{-19}$ | $^{+2.1}_{-2.1}$ | $^{+1.3}_{-1.1}$ | $^{+2.8}_{-2.9}$ | 10 | 2.3 | 0.1 | | | 1.03 | $^{+2}_{-2}$ | 1.00 |
| 134–152 | $2.04 \cdot 10^{2}$ | 2.1 | 0.83 | $^{+22}_{-20}$ | $^{+2.1}_{-2.4}$ | $^{+1.1}_{-1.0}$ | $^{+2.6}_{-2.9}$ | 9.0 | 2.1 | 0.0 | | | 1.03 | $^{+2}_{-2}$ | 1.00 |
| 152–172 | $8.20 \cdot 10^{1}$ | 1.7 | 0.83 | $^{+23}_{-21}$ | $^{+2.1}_{-2.6}$ | $^{+1.0}_{-1.0}$ | $^{+2.5}_{-2.9}$ | 8.4 | 1.9 | 0.0 | | | 1.03 | $^{+2}_{-2}$ | 1.00 |
| 172–194 | $3.10 \cdot 10^{1}$ | 1.6 | 0.92 | $^{+25}_{-22}$ | $^{+2.1}_{-2.5}$ | $^{+1.0}_{-1.1}$ | $^{+2.4}_{-2.8}$ | 8.4 | 2.0 | 0.0 | | | 1.03 | $^{+2}_{-2}$ | 1.00 |
| 194–216 | $1.14 \cdot 10^{1}$ | 2.5 | 1.1 | $^{+28}_{-23}$ | $^{+2.2}_{-2.2}$ | $^{+1.1}_{-1.1}$ | $^{+2.6}_{-2.6}$ | 8.9 | 2.3 | 0.1 | 0.25 | 1.8 | 1.03 | $^{+1}_{-2}$ | 1.00 |
| 216–240 | $4.30 \cdot 10^{0}$ | 2.2 | 1.6 | $^{+31}_{-25}$ | $^{+2.3}_{-2.2}$ | $^{+1.2}_{-1.1}$ | $^{+2.8}_{-2.6}$ | 9.7 | 2.7 | 0.0 | | | 1.03 | $^{+1}_{-2}$ | 0.99 |
| 240–264 | $1.50 \cdot 10^{0}$ | 3.5 | 1.6 | $^{+34}_{-27}$ | $^{+2.5}_{-2.2}$ | $^{+1.4}_{-1.3}$ | $^{+2.9}_{-2.7}$ | 10 | 2.9 | 0.0 | | | 1.03 | $^{+1}_{-2}$ | 0.99 |
| 264–290 | $4.86 \cdot 10^{-1}$ | 5.7 | 2.3 | $^{+36}_{-28}$ | $^{+2.5}_{-2.3}$ | $^{+1.5}_{-1.4}$ | $^{+2.7}_{-2.5}$ | 12 | 2.9 | 0.1 | | | 1.03 | $^{+1}_{-3}$ | 0.99 |
| 290–318 | $1.77 \cdot 10^{-1}$ | 9.2 | 2.1 | $^{+38}_{-29}$ | $^{+2.4}_{-2.4}$ | $^{+1.6}_{-1.4}$ | $^{+2.6}_{-2.4}$ | 13 | 3.0 | 0.0 | | | 1.03 | $^{+0}_{-3}$ | 0.99 |
| 318–376 | $2.89 \cdot 10^{-2}$ | 14 | 2.3 | $^{+42}_{-30}$ | $^{+2.6}_{-2.9}$ | $^{+1.5}_{-1.2}$ | $^{+2.9}_{-2.6}$ | 16 | 3.6 | 0.1 | | | 1.03 | $^{+0}_{-3}$ | 0.99 |
| 376–478 | $8.92 \cdot 10^{-4}$ | 9.9 | 6.9 | $^{+55}_{-38}$ | $^{+6.3}_{-5.6}$ | $^{+1.4}_{-0.3}$ | $^{+3.0}_{-3.4}$ | 29 | 11 | 0.3 | | | 1.03 | $^{+0}_{-3}$ | 0.99 |

**Table 14**. Measured double-differential inclusive jet cross-sections for jets with $R = 0.6$ in the rapidity bin $2.5 \leq |y| < 3.0$. See caption of table 9 for details.

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