

Gauge boson production

NNLO [nb] +/- PDF	27 TeV	14 TeV	Ratio
W ⁺ e ⁺ ν _u	22.9 +/- 2.9%	12.1 +/- 2.2%	1.89
W e ν _u	17.6 +/- 2.9%	9.2 +/- 2.3%	1.91
Z e ⁺ e ⁻	4.0 +/- 2.7%	2.1 +/- 2.1%	1.90

Gauge boson pair production

NNLO [pb] +/- PDF	27 TeV	14 TeV	Ratio
WW e μ ⁺	3.46 +2.8% - 2.4%	1.49 +2.4% - 2.2%	2.3
ZW e μ μ	0.48 +/- 2.1%	0.208 +/- 2%	2.3
ZZ ee μ μ	0.095 + 2.9% - 2.4%	0.0396 +2.4% - 2.1%	2.4

Triple Gauge boson production

NLO* [fb] +/- PDF	27 TeV	14 TeV	Ratio
W ⁺ W ⁺ W ⁺	406.6	148.5	2.7
W ⁺ W ⁺ W ⁻	258.5	99	2.6
W ⁺ W ⁺ Z	571.4	184.7	3.1
W ⁺ ZZ	117.3	39.8	2.9
W ⁻ ZZ	74.1	22.1	3.4
ZZZ	42.1	15.5	2.7

Top pair production

NNLO [pb]	27 TeV	14 TeV	Ratio
nt _{op=173, 3 GeV}	3824	981	3.90

Single Top production

NLO [pb]	27 TeV	14 TeV
s channel top	15.0	6.80
s channel antitop	10.4	4.28
t channel top	434	151
t channel antitop	285	90.2
W t	136	35.7
W ⁺ t bar	136	35.7

Top pair + V production [pt () > 25]

LO [pb]	27 TeV	14 TeV	Ratio
t t Z	3.00	0.64	4.7
t t W	1.14	0.39	2.9
t t	5.8	1.2	4.8

Z[ee] +j et s, $m(ee) > 50$, $pt(j et) > 25$, HT spect ra LO

$H_{T, min}$	$H_{T, max}$	(27 TeV) [pb]	(14 TeV) [pb]	Ratio
100	200	1.1E+02	3.9E+01	2.9
200	400	3.2E+01	9.5E+00	3.3
400	600	4.2E+00	1.0E+00	4.0
600	800	1.0E+00	2.3E-01	4.6
800	1200	4.8E-01	9.4E-02	5.1
1200	2500	1.3E-01	2.0E-02	6.8
2500	7000	6.0E-03	4.1E-04	14.6

Z[] +j et s, $pt(j et) > 25$, HT spect ra LO

Same as previous, up to overall BR factor = 20% / (3.3%) = 6, which cancels in the ratios

Z[ee] +j et s, $m(ee) > 50$, $pt(j et) > 25$, pT spect ra LO

$P_{T, min}$	$P_{T, max}$	(27 TeV) [pb]	(14 TeV) [pb]	Ratio
25	50	5.5E+02	2.3E+02	2.3
50	100	2.3E+02	9.3E+01	2.5
100	200	5.3E+01	1.9E+01	2.8
200	1000	6.7E+00	2.0E+00	3.4

Z[ee] +j et s, $5 < m(ee)$, $pt(j et) > 25$, HT spect ra LO

$H_{T, min}$	$H_{T, max}$	(27 TeV) [pb]	(14 TeV) [pb]	Ratio
100	200	1.1E+02	4.7E+01	2.4
200	400	1.9E+01	6.7E+00	2.8
400	600	1.9E+00	5.7E-01	3.4
600	800	4.3E-01	1.1E-01	3.9
800	1200	1.7E-01	3.9E-02	4.4
1200	2500	4.6E-02	7.2E-03	6.4
2500	7000	1.6E-03	1.3E-04	12.5

W[e] +j et s, $pt(j et) > 25$, HT spect ra LO

$H_{T, min}$	$H_{T, max}$	(27 TeV) [pb]	(14 TeV) [pb]	Ratio
100	200	9.9E+02	3.6E+02	2.8
200	400	2.7E+02	8.2E+01	3.3
400	600	3.5E+01	9.2E+00	3.8
600	800	8.8E+00	2.0E+00	4.5
800	1200	4.2E+00	7.9E-01	5.4
1200	2500	1.1E+00	1.7E-01	6.6
2500	7000	5.1E-02	3.7E-03	14.0

W e]+jets, pt(jet)>25, pT spectra LO

$P_{T, \min}$	$P_{T, \max}$	(27 TeV) [pb]	(14 TeV) [pb]	Ratio
25	50	4.8E+03	2.2E+03	2.3
50	100	1.9E+03	7.9E+02	2.4
100	200	4.1E+02	1.5E+02	2.7
200	1000	5.0E+01	1.5E+01	3.3

+jets, pt(jet,)>25, HT spectra LO

$H_{T, \min}$	$H_{T, \max}$	(27 TeV) [pb]	(14 TeV) [pb]	Ratio
40	100	4.4E+04	2.2E+04	2.0
100	200	1.5E+04	6.3E+03	2.4
200	400	2.8E+03	9.4E+02	2.9
400	600	2.8E+02	8.2E+01	3.4
600	7000	9.1E+01	2.2E+01	4.1

Inclusive jets, pT spectra LO

$P_{T, \min}$	$P_{T, \max}$	(27 TeV) [pb]	(14 TeV) [pb]	Ratio
50	80	5.5E+07	2.1E+07	2.7
80	120	9.8E+06	3.2E+06	3.0
120	170	2.0E+06	6.0E+05	3.4
170	300	4.8E+05	1.3E+05	3.7
300	470	4.2E+04	9.1E+03	4.6
470	600	5.4E+03	9.3E+02	5.8
600	800	1.6E+03	2.5E+02	6.7
800	1000	3.8E+02	4.6E+01	8.3
1000	7000	1.2E+02	1.1E+01	10.4

Inclusive jets, HT spectra LO

$H_{T, \min}$	$H_{T, \max}$	(27 TeV) [pb]	(14 TeV) [pb]	Ratio
500	700	9.4E+04	2.2E+04	4.3
700	1000	2.1E+04	4.3E+03	4.9
1000	1500	4.0E+03	6.7E+02	6.0
1500	2000	5.4E+02	6.7E+01	7.9
2000	5000	1.2E+02	1.1E+01	10.4
5000	10000	4.0E-01	6.2E-03	64.2
10000	13000	8.4E-04	3.6E-08	2.4E+04

-- MchangelomAngano - 2018-11-05

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