

# Impact of jet predictions on LHC Run-I and Tevatron data

May 20, 2014

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## 1 Summary

- Predictions are computed with NNPDF23\_nnlo\_as\_0118 replica 0.
- K-factors are computed to the respective codes (naive choice just to see how it works, and possibly different from Daniel and Werner's paper)

- Data: from CMS paper as implemented in NNPDF, central values are shifted due to the symmetrization, data is rescaled by non perturbative factors provided by paper. In the left plots of the pdf in attachment, data uncertainty is computed from the sqrt of the diagonal of the covmat, as in nnpdf, using the multiplicative definition for systematics.
- In blue, we have the LO and NLO predictions from the fastNLO tables (NLOjet++), on the right plots we compute the ratio between these quantities.
- In red, we have the LO and NLO of Werner's NJA code, i.e. full NLO in the "narrow jet approximation".
- In green we have LO, NLO and NNLO of Werner's jet threshold approximation.

## 2 CMS 2011 7 TeV

### 2.1 All channels

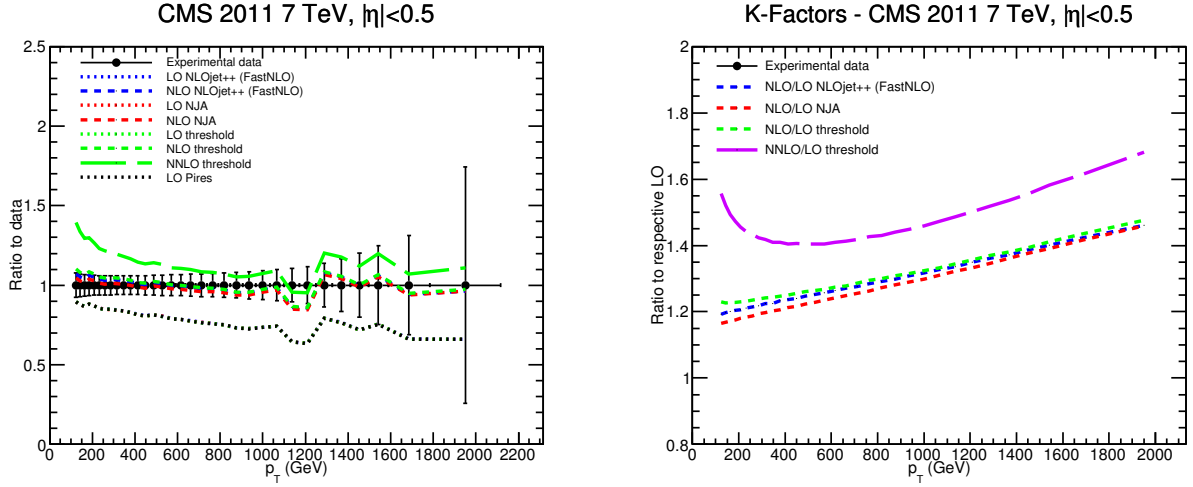


Figure 1: Jet predictions using all channels.

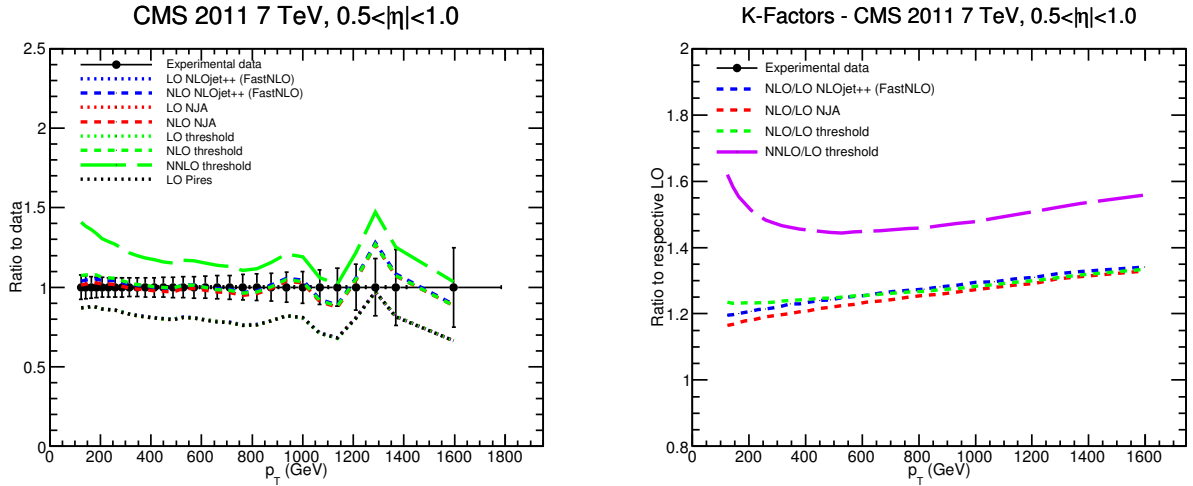


Figure 2: Jet predictions using all channels.

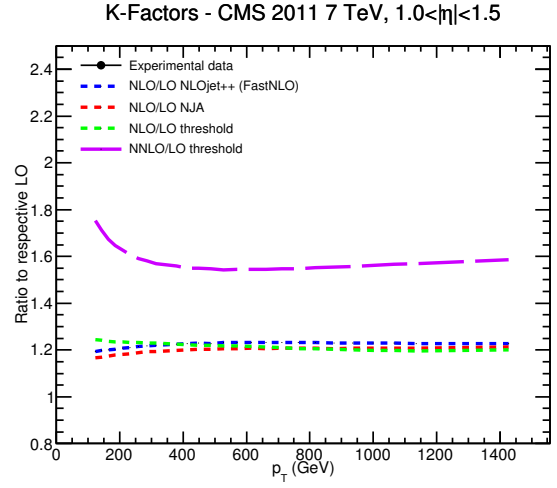
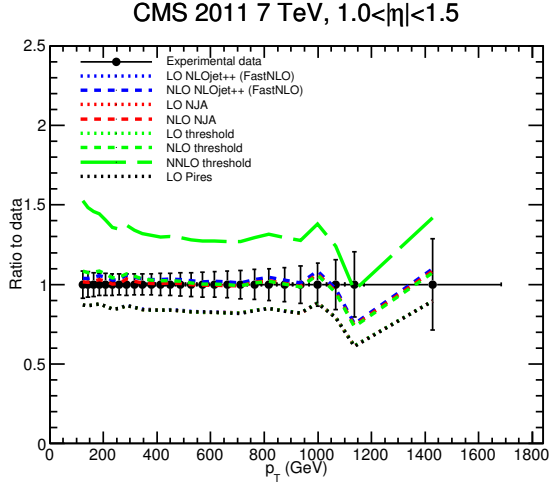


Figure 3: Jet predictions using all channels.

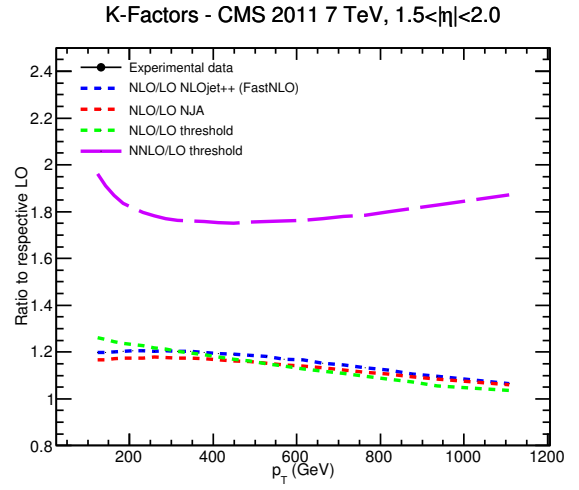
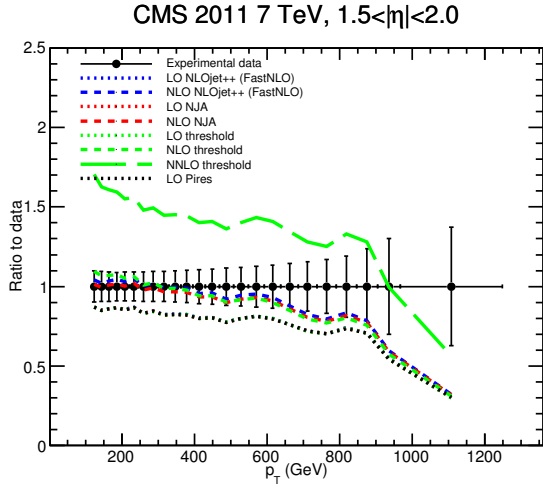


Figure 4: Jet predictions using all channels.

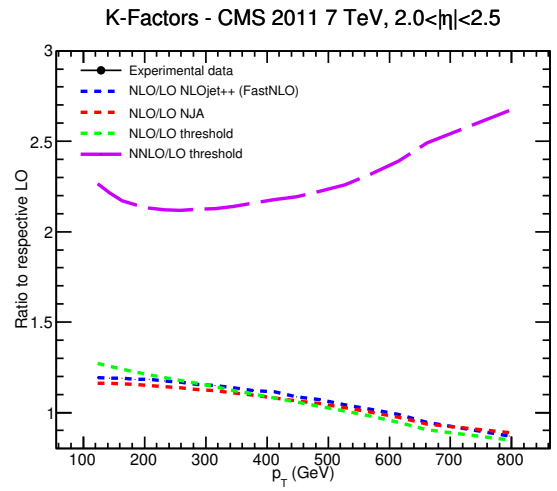
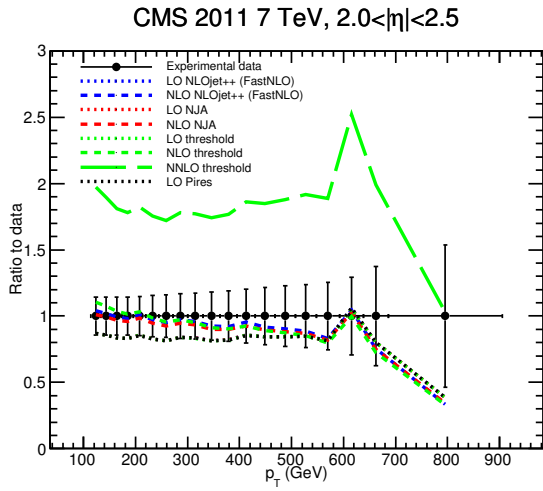


Figure 5: Jet predictions using all channels.

### 2.1.1 Ratio all channels

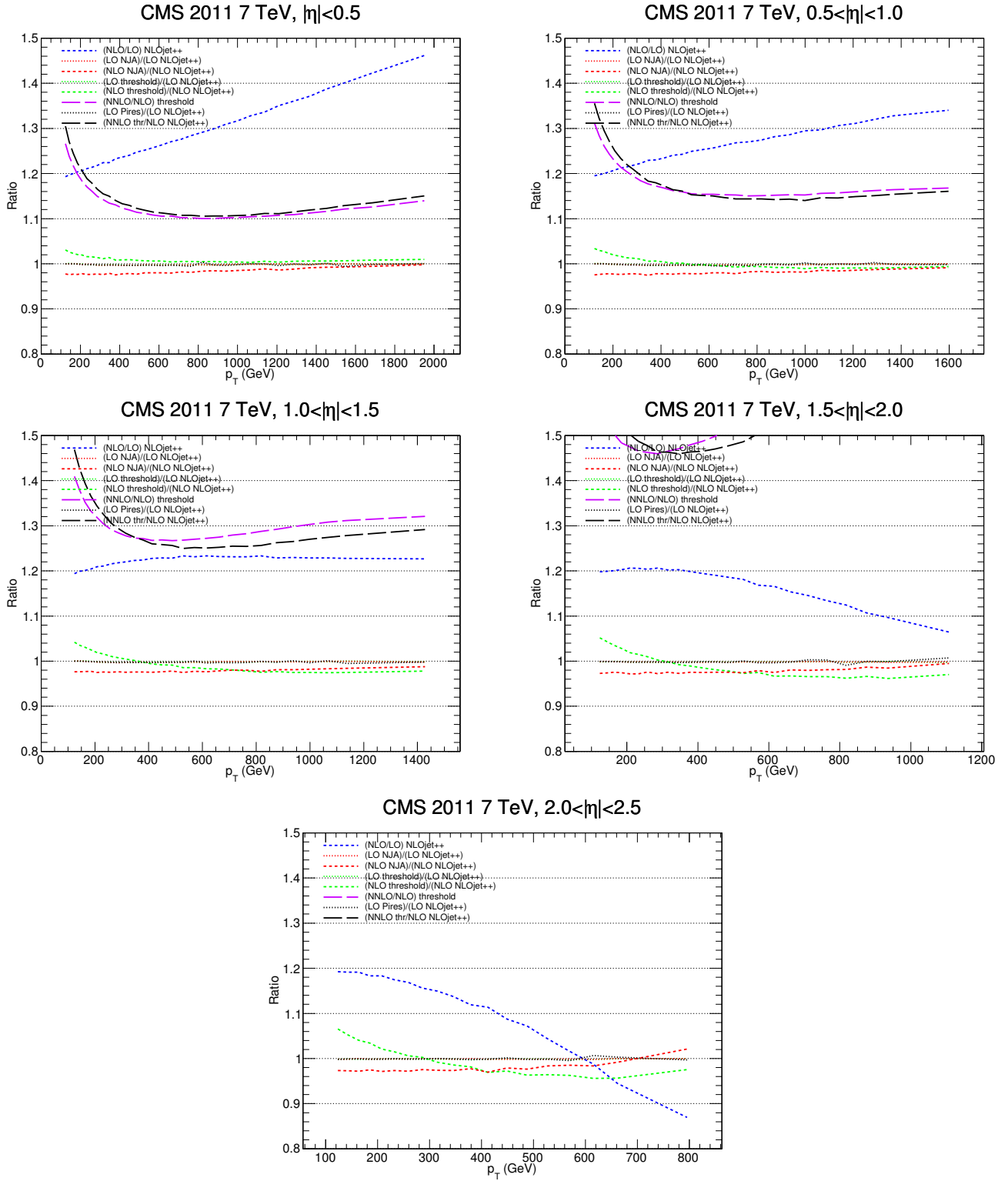


Figure 6:

### 2.1.2 C-Factors full prediction

$p_T$ bin	$ \eta  < 0.5$		C-Factor, NNLO <sup>thr</sup> /		$\delta\%$
	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	
1	2.6410e+03	7.6605	1.3048	1.2659	3.07
2	1.2183e+03	7.1419	1.2707	1.2386	2.59
3	5.8988e+02	6.792	1.2446	1.2168	2.28
4	2.9063e+02	6.4492	1.223	1.1986	2.04
5	1.5159e+02	6.2029	1.2064	1.1832	1.96
6	8.1069e+01	6.1243	1.1885	1.1701	1.57
7	4.3880e+01	6.0216	1.1784	1.1607	1.52
8	2.3974e+01	6.0715	1.1651	1.1494	1.37
9	1.3433e+01	5.8393	1.1552	1.1423	1.13
10	7.5741e+00	5.9264	1.1498	1.1344	1.36
11	4.3578e+00	5.9078	1.1399	1.1304	0.84
12	2.5573e+00	5.9821	1.1328	1.1233	0.85
13	1.4881e+00	6.1044	1.1293	1.1189	0.93
14	8.5545e-01	6.2194	1.1227	1.1142	0.76
15	5.0729e-01	6.3647	1.1189	1.1113	0.68
16	3.0281e-01	6.5208	1.1146	1.108	0.60
17	1.7834e-01	6.6938	1.1126	1.1056	0.63
18	1.0597e-01	6.8921	1.1102	1.1059	0.39
19	6.2975e-02	7.1057	1.1076	1.1021	0.50
20	3.7135e-02	7.4103	1.1076	1.1018	0.53
21	2.1920e-02	7.7651	1.1054	1.1005	0.45
22	1.2961e-02	8.0882	1.1059	1.1003	0.51
23	7.4565e-03	8.5461	1.1061	1.1018	0.39
24	4.1735e-03	9.0727	1.107	1.1024	0.42
25	2.3067e-03	9.7688	1.1077	1.1045	0.29
26	1.4581e-03	10.5048	1.1117	1.1056	0.55
27	7.9732e-04	11.675	1.1113	1.1074	0.35
28	3.3575e-04	13.8013	1.1151	1.1092	0.53
29	1.7796e-04	16.6118	1.1191	1.1123	0.61
30	9.4376e-05	20.2308	1.1226	1.116	0.59
31	4.3007e-05	24.8293	1.1288	1.1211	0.69
32	1.6149e-05	31.2229	1.1349	1.1257	0.82
33	2.0397e-06	74.2148	1.1504	1.1395	0.96
Average		11.39%	14.57%	13.42%	0.99%

Table 1:

0.5 < $ \eta $ < 1.0			C-Factor, NNLO <sup>thr</sup> /		$\delta\%$
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	
1	2.5139e+03	7.5636	1.3556	1.3116	3.35
2	1.1242e+03	7.1969	1.322	1.284	2.96
3	5.3237e+02	6.7635	1.2945	1.2606	2.69
4	2.6596e+02	6.3742	1.2715	1.2432	2.28
5	1.3774e+02	6.236	1.2503	1.227	1.90
6	7.2171e+01	6.0804	1.2333	1.2138	1.61
7	3.8690e+01	6.0468	1.2197	1.2035	1.35
8	2.1313e+01	6.0777	1.2086	1.1941	1.21
9	1.1977e+01	5.8952	1.1965	1.1842	1.04
10	6.7334e+00	5.9752	1.1834	1.177	0.54
11	3.8290e+00	6.0043	1.1795	1.1724	0.61
12	2.2126e+00	6.1107	1.1726	1.168	0.39
13	1.2718e+00	6.256	1.164	1.1624	0.14
14	7.3168e-01	6.4134	1.1611	1.1595	0.14
15	4.1588e-01	6.5246	1.1528	1.1551	-0.20
16	2.4081e-01	6.7438	1.1515	1.1541	-0.23
17	1.4048e-01	6.9955	1.1504	1.154	-0.31
18	8.1789e-02	7.2545	1.1469	1.1529	-0.52
19	4.7098e-02	7.549	1.1439	1.1523	-0.73
20	2.7347e-02	7.9077	1.1438	1.1504	-0.57
21	1.5332e-02	8.3018	1.1436	1.1508	-0.63
22	8.2629e-03	8.7487	1.1424	1.1518	-0.82
23	4.3435e-03	9.3442	1.1434	1.1529	-0.82
24	2.3794e-03	10.0384	1.1404	1.1525	-1.05
25	1.4168e-03	10.8963	1.1465	1.1558	-0.80
26	7.6208e-04	12.0167	1.1459	1.1569	-0.95
27	3.2068e-04	14.3403	1.1487	1.1594	-0.92
28	1.2875e-04	18.0273	1.1507	1.1622	-0.99
29	7.1113e-05	23.9171	1.1541	1.164	-0.85
30	1.5280e-05	25.0011	1.1608	1.1679	-0.61
Average		9.09%	18.59%	18.18%	0.31%

Table 2:

1.0 < $ \eta $ < 1.5			C-Factor, NNLO <sup>thr</sup> /		$\delta\%$
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	
1	2.1264e+03	8.5889	1.4686	1.4093	4.21
2	9.4841e+02	7.9701	1.4272	1.3789	3.50
3	4.4306e+02	7.4691	1.3938	1.3522	3.08
4	2.1618e+02	7.0327	1.3659	1.3327	2.49
5	1.1088e+02	6.8391	1.3432	1.3183	1.89
6	5.8338e+01	6.7066	1.3246	1.304	1.58
7	3.0596e+01	6.6778	1.3063	1.2922	1.09
8	1.5963e+01	6.7257	1.2941	1.2846	0.74
9	8.7895e+00	6.5556	1.2834	1.2777	0.45
10	4.8448e+00	6.6157	1.2746	1.2728	0.14
11	2.6745e+00	6.6891	1.2686	1.2714	-0.22
12	1.4883e+00	6.8583	1.2601	1.2676	-0.59
13	8.1723e-01	7.0252	1.2583	1.2686	-0.81
14	4.5003e-01	7.2632	1.2563	1.2672	-0.86
15	2.5032e-01	7.4774	1.2494	1.2678	-1.45
16	1.3720e-01	7.7719	1.2516	1.2699	-1.44
17	7.3806e-02	8.0491	1.2504	1.2721	-1.71
18	3.9477e-02	8.4185	1.2522	1.2746	-1.76
19	2.0829e-02	8.861	1.2546	1.2793	-1.93
20	1.0519e-02	9.3895	1.2543	1.2825	-2.20
21	5.2512e-03	9.9954	1.2562	1.2876	-2.44
22	2.6204e-03	10.729	1.2624	1.2921	-2.30
23	1.2672e-03	11.7912	1.2652	1.298	-2.53
24	5.3787e-04	13.4956	1.27	1.3027	-2.51
25	2.6212e-04	15.7359	1.2744	1.3078	-2.55
26	1.4076e-04	20.3812	1.2783	1.3114	-2.52
27	8.7777e-06	28.7096	1.2915	1.3208	-2.22
Average		9.62%	29.39%	29.86%	-0.4%

Table 3:

1.5 < $ \eta $ < 2.0			C-Factor, NNLO <sup>thr</sup> /		$\delta\%$
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	
1	1.6383e+03	9.8147	1.6346	1.5544	5.16
2	7.2786e+02	9.4223	1.5914	1.5253	4.33
3	3.3039e+02	9.2082	1.5568	1.5033	3.56
4	1.5735e+02	8.8989	1.5253	1.4836	2.81
5	7.8425e+01	8.9829	1.5026	1.4749	1.88
6	3.8482e+01	9.0271	1.4868	1.4653	1.47
7	2.0336e+01	9.2244	1.4771	1.4625	1.00
8	1.0188e+01	9.5367	1.4637	1.4596	0.28
9	5.3698e+00	9.5504	1.4628	1.4652	-0.16
10	2.7229e+00	9.8666	1.4592	1.4708	-0.79
11	1.3901e+00	10.1524	1.4635	1.4793	-1.07
12	7.2674e-01	10.6414	1.4652	1.487	-1.47
13	3.5895e-01	11.1039	1.4699	1.4983	-1.90
14	1.8085e-01	11.7564	1.477	1.5106	-2.22
15	8.4817e-02	12.1784	1.4858	1.527	-2.70
16	3.8799e-02	12.8059	1.5043	1.5429	-2.50
17	1.7787e-02	13.5472	1.5103	1.5623	-3.33
18	8.1318e-03	14.4264	1.5316	1.5837	-3.29
19	3.5729e-03	15.4913	1.5512	1.6066	-3.45
20	1.4427e-03	16.9187	1.5726	1.6286	-3.44
21	5.0721e-04	19.2911	1.5951	1.6577	-3.78
22	1.8119e-04	23.6026	1.6342	1.6912	-3.37
23	7.2472e-05	30.0853	1.6648	1.7316	-3.86
24	1.0486e-05	37.339	1.753	1.8065	-2.96
Average		13.87%	53.50%	54.91%	-0.82%

Table 4:

2.0 < $ \eta $ < 2.5			C-Factor, NNLO <sup>thr</sup> /		$\delta\%$
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	
1	1.1132e+03	14.1459	1.8975	1.7812	6.53
2	4.7126e+02	14.1487	1.8567	1.7645	5.23
3	2.1037e+02	14.4018	1.8202	1.7495	4.04
4	9.5500e+01	14.4783	1.813	1.7533	3.41
5	4.2179e+01	14.9297	1.7999	1.763	2.09
6	1.9811e+01	15.4727	1.8044	1.7778	1.50
7	9.1229e+00	16.119	1.8095	1.7987	0.60
8	3.9568e+00	17.053	1.8345	1.8296	0.27
9	1.7580e+00	17.3833	1.8493	1.8648	-0.83
10	7.6681e-01	18.263	1.879	1.9066	-1.45
11	3.1497e-01	19.115	1.9241	1.9601	-1.84
12	1.2120e-01	20.1733	1.9513	2.0129	-3.06
13	4.6228e-02	21.4236	2.0158	2.0733	-2.77
14	1.6192e-02	23.0682	2.0728	2.1516	-3.66
15	5.3245e-03	23.6751	2.1636	2.244	-3.58
16	1.6421e-03	25.5906	2.275	2.3638	-3.76
17	3.2618e-04	29.3629	2.4168	2.5276	-4.38
18	9.2622e-05	37.3502	2.6341	2.7535	-4.34
19	8.1124e-06	53.6435	3.0689	3.1458	-2.44
Average		21.57%	104.6%	106.4%	-0.45%

Table 5:



## 2.2 Gluon channel

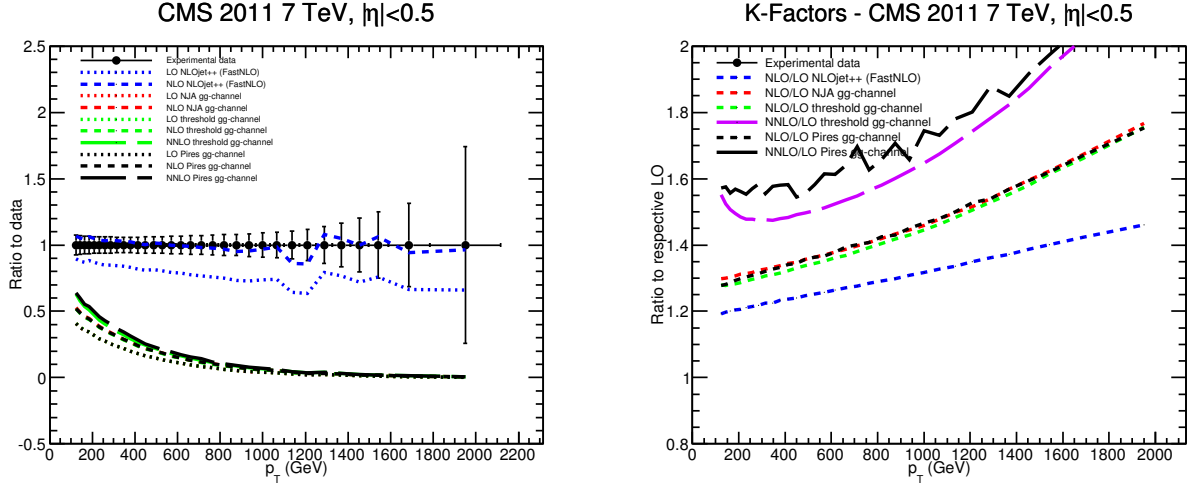


Figure 7:

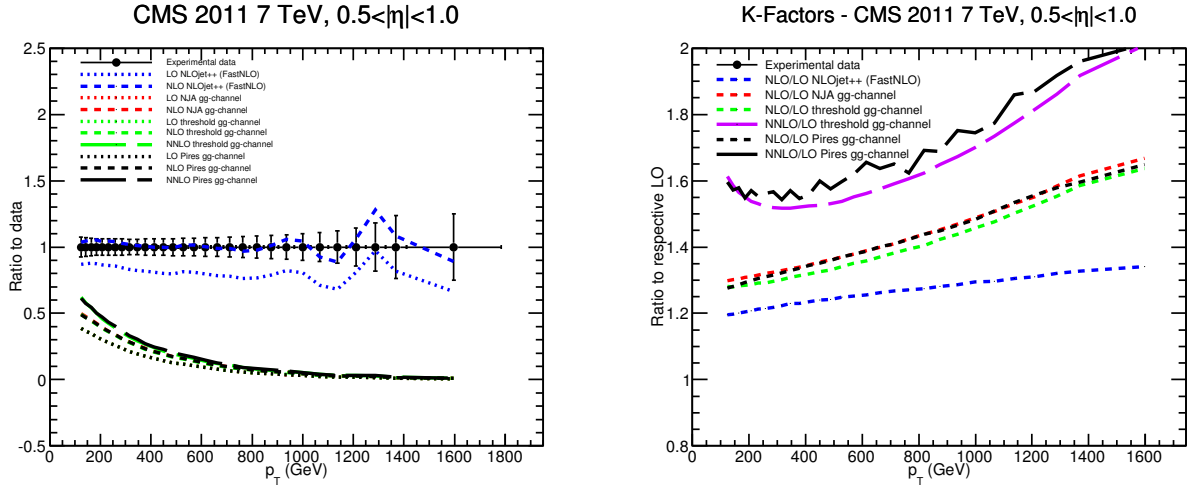


Figure 8:

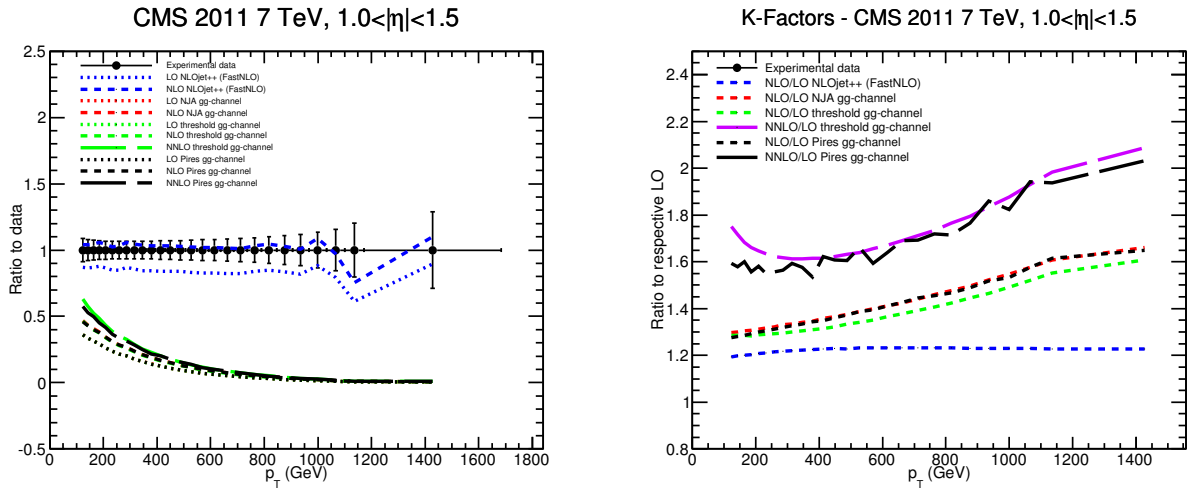


Figure 9:

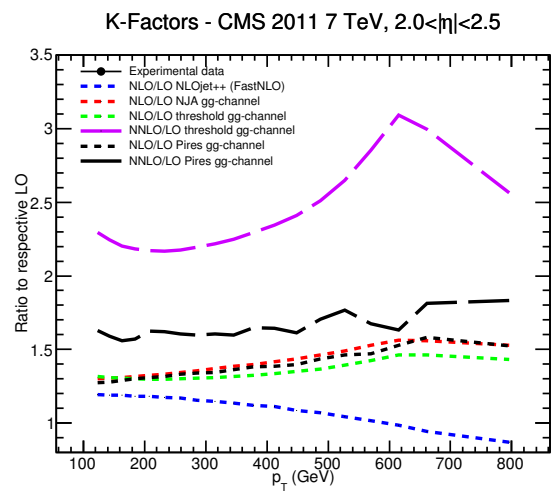
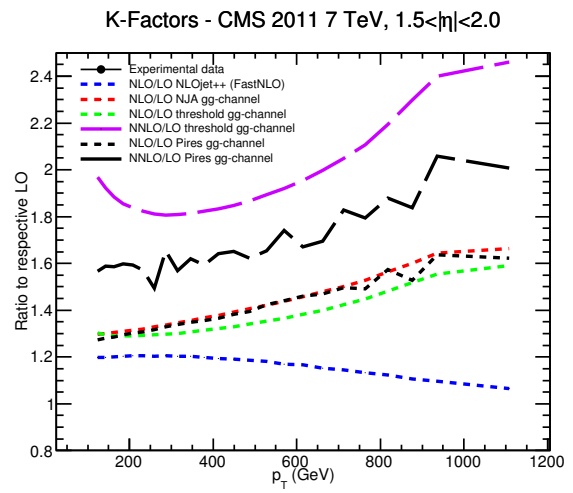


Figure 11:

### 2.2.1 Ratio gluon channel

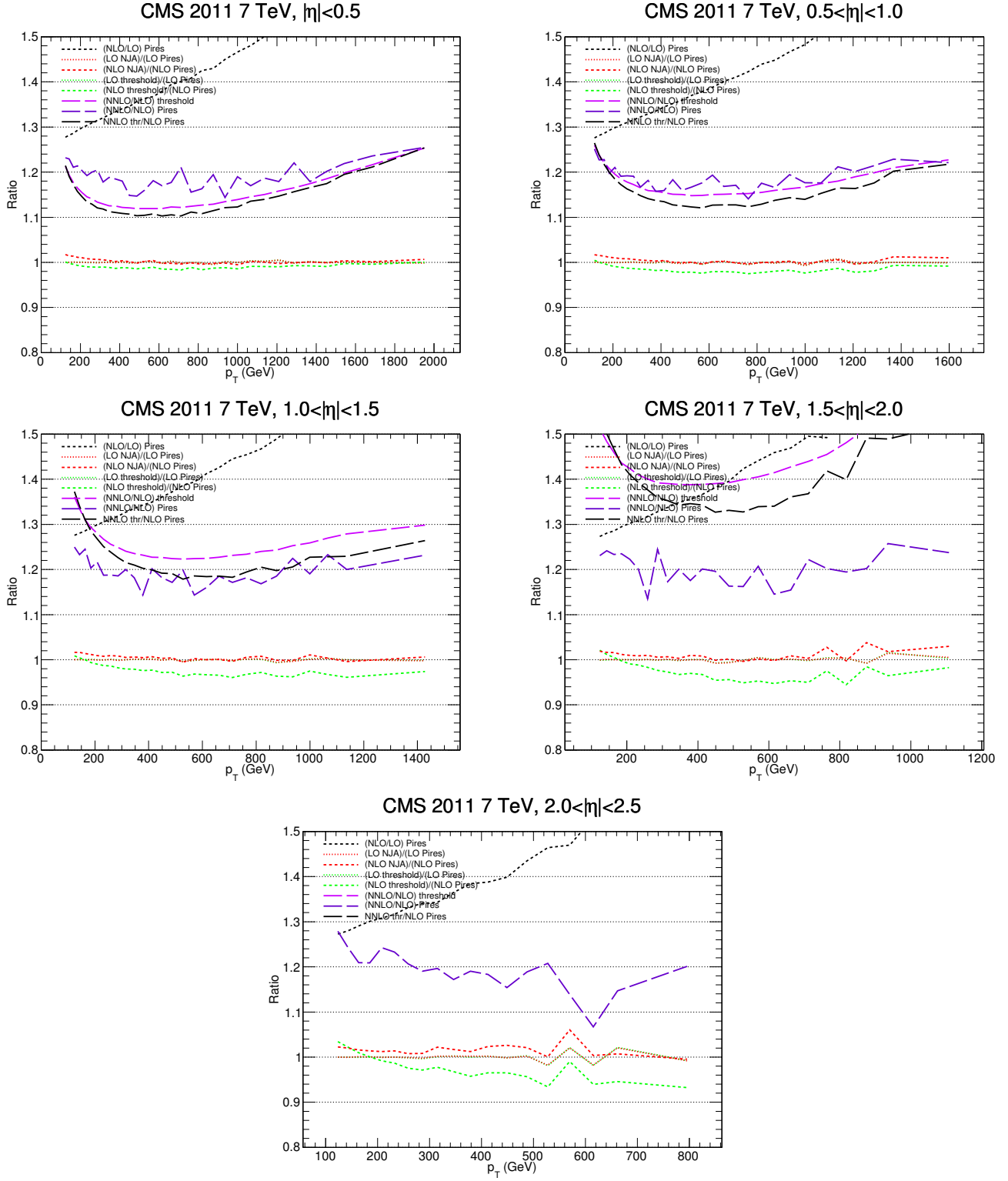


Figure 12:

### 2.2.2 C-Factors gluon channel

$ \eta  < 0.5$			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	2.6410e+03	7.6605	1.2315	1.2129	1.53	1.2143	1.2129	0.12
2	1.2183e+03	7.1419	1.2289	1.1932	2.99	1.1904	1.1932	-0.23
3	5.8988e+02	6.792	1.2107	1.1771	2.85	1.1724	1.1771	-0.40
4	2.9063e+02	6.4492	1.2141	1.1649	4.22	1.157	1.1649	-0.68
5	1.5159e+02	6.2029	1.2032	1.1545	4.22	1.1453	1.1545	-0.80
6	8.1069e+01	6.1243	1.1921	1.1453	4.09	1.1339	1.1453	-1.00
7	4.3880e+01	6.0216	1.1998	1.1406	5.19	1.1291	1.1406	-1.01
8	2.3974e+01	6.0715	1.2045	1.1333	6.28	1.1209	1.1333	-1.09
9	1.3433e+01	5.8393	1.1779	1.1295	4.29	1.118	1.1295	-1.02
10	7.5741e+00	5.9264	1.1882	1.1253	5.59	1.1128	1.1253	-1.11
11	4.3578e+00	5.9078	1.1849	1.125	5.32	1.1103	1.125	-1.31
12	2.5573e+00	5.9821	1.18	1.122	5.17	1.1085	1.122	-1.20
13	1.4881e+00	6.1044	1.1484	1.1208	2.46	1.1072	1.1208	-1.21
14	8.5545e-01	6.2194	1.1467	1.1192	2.46	1.1031	1.1192	-1.44
15	5.0729e-01	6.3647	1.1602	1.119	3.68	1.1046	1.119	-1.29
16	3.0281e-01	6.5208	1.1811	1.1191	5.54	1.1074	1.1191	-1.05
17	1.7834e-01	6.6938	1.17	1.1193	4.53	1.1029	1.1193	-1.47
18	1.0597e-01	6.8921	1.1769	1.1228	4.82	1.1054	1.1228	-1.55
19	6.2975e-02	7.1057	1.2109	1.1215	7.97	1.1028	1.1215	-1.67
20	3.7135e-02	7.4103	1.1553	1.1244	2.75	1.1116	1.1244	-1.14
21	2.1920e-02	7.7651	1.1631	1.1266	3.24	1.1081	1.1266	-1.64
22	1.2961e-02	8.0882	1.1944	1.129	5.79	1.1145	1.129	-1.28
23	7.4565e-03	8.5461	1.1438	1.1347	0.80	1.1214	1.1347	-1.17
24	4.1735e-03	9.0727	1.1898	1.1393	4.43	1.1227	1.1393	-1.46
25	2.3067e-03	9.7688	1.1698	1.1455	2.12	1.1356	1.1455	-0.86
26	1.4581e-03	10.5048	1.1865	1.1506	3.12	1.1399	1.1506	-0.93
27	7.9732e-04	11.675	1.1789	1.1583	1.78	1.1468	1.1583	-0.99
28	3.3575e-04	13.8013	1.2203	1.1651	4.74	1.1565	1.1651	-0.74
29	1.7796e-04	16.6118	1.1792	1.1746	0.39	1.1656	1.1746	-0.77
30	9.4376e-05	20.2308	1.2017	1.1853	1.38	1.1745	1.1853	-0.91
31	4.3007e-05	24.8293	1.2189	1.1982	1.73	1.1949	1.1982	-0.28
32	1.6149e-05	31.2229	1.2357	1.2165	1.58	1.2113	1.2165	-0.43
33	2.0397e-06	74.2148	1.2546	1.2532	0.11	1.2538	1.2532	0.05
Average		11.39%	19.1%	15.05%	3.55%	13.95%	15.05%	-0.97%

Table 6:

0.5 < $ \eta $ < 1.0			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	2.5139e+03	7.5636	1.251	1.2592	-0.65	1.2647	1.2592	0.44
2	1.1242e+03	7.1969	1.2269	1.2379	-0.89	1.2376	1.2379	-0.02
3	5.3237e+02	6.7635	1.2275	1.2203	0.59	1.2171	1.2203	-0.26
4	2.6596e+02	6.3742	1.1975	1.2079	-0.86	1.1996	1.2079	-0.69
5	1.3774e+02	6.236	1.2101	1.1955	1.22	1.1846	1.1955	-0.91
6	7.2171e+01	6.0804	1.1907	1.1853	0.46	1.1724	1.1853	-1.09
7	3.8690e+01	6.0468	1.1919	1.178	1.18	1.1628	1.178	-1.29
8	2.1313e+01	6.0777	1.191	1.1722	1.60	1.1562	1.1722	-1.36
9	1.1977e+01	5.8952	1.1665	1.165	0.13	1.1477	1.165	-1.48
10	6.7334e+00	5.9752	1.1818	1.1593	1.94	1.141	1.1593	-1.58
11	3.8290e+00	6.0043	1.1577	1.1575	0.02	1.1369	1.1575	-1.78
12	2.2126e+00	6.1107	1.1589	1.1545	0.38	1.1347	1.1545	-1.72
13	1.2718e+00	6.256	1.183	1.1509	2.79	1.1276	1.1509	-2.02
14	7.3168e-01	6.4134	1.1594	1.1502	0.80	1.1251	1.1502	-2.18
15	4.1588e-01	6.5246	1.1666	1.1476	1.66	1.1229	1.1476	-2.15
16	2.4081e-01	6.7438	1.1759	1.1483	2.40	1.1208	1.1483	-2.39
17	1.4048e-01	6.9955	1.1935	1.1502	3.76	1.1268	1.1502	-2.03
18	8.1789e-02	7.2545	1.1683	1.1508	1.52	1.1274	1.1508	-2.03
19	4.7098e-02	7.549	1.1707	1.1519	1.63	1.1272	1.1519	-2.14
20	2.7347e-02	7.9077	1.1407	1.1525	-1.02	1.1235	1.1525	-2.52
21	1.5332e-02	8.3018	1.1757	1.1549	1.80	1.1289	1.1549	-2.25
22	8.2629e-03	8.7487	1.1659	1.1597	0.53	1.1374	1.1597	-1.92
23	4.3435e-03	9.3442	1.1942	1.1633	2.66	1.1432	1.1633	-1.73
24	2.3794e-03	10.0384	1.1765	1.1668	0.83	1.1395	1.1668	-2.34
25	1.4168e-03	10.8963	1.1758	1.1746	0.10	1.1529	1.1746	-1.85
26	7.6208e-04	12.0167	1.2119	1.1803	2.68	1.1648	1.1803	-1.31
27	3.2068e-04	14.3403	1.2017	1.1898	1.00	1.1637	1.1898	-2.19
28	1.2875e-04	18.0273	1.2141	1.1986	1.29	1.1761	1.1986	-1.88
29	7.1113e-05	23.9171	1.2286	1.21	1.54	1.2019	1.21	-0.67
30	1.5280e-05	25.0011	1.2209	1.2273	-0.52	1.2174	1.2273	-0.81
Average		9.09%	18.92%	17.73%	1.02%	15.94%	17.73%	-1.54%

Table 7:

1.0 < $ \eta $ < 1.5			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	2.1264e+03	8.5889	1.2496	1.3606	-8.16	1.3722	1.3606	0.85
2	9.4841e+02	7.9701	1.2325	1.3343	-7.63	1.3401	1.3343	0.43
3	4.4306e+02	7.4691	1.2448	1.3102	-4.99	1.3099	1.3102	-0.02
4	2.1618e+02	7.0327	1.2032	1.2929	-6.94	1.2852	1.2929	-0.60
5	1.1088e+02	6.8391	1.217	1.2802	-4.94	1.2679	1.2802	-0.96
6	5.8338e+01	6.7066	1.1874	1.267	-6.28	1.2508	1.267	-1.28
7	3.0596e+01	6.6778	1.1879	1.2556	-5.39	1.2383	1.2556	-1.38
8	1.5963e+01	6.7257	1.1859	1.2484	-5.01	1.2263	1.2484	-1.77
9	8.7895e+00	6.5556	1.2001	1.2403	-3.24	1.2151	1.2403	-2.03
10	4.8448e+00	6.6157	1.1816	1.2355	-4.36	1.2097	1.2355	-2.09
11	2.6745e+00	6.6891	1.1431	1.2317	-7.19	1.2023	1.2317	-2.39
12	1.4883e+00	6.8583	1.2015	1.2273	-2.10	1.199	1.2273	-2.31
13	8.1723e-01	7.0252	1.1819	1.2264	-3.63	1.1919	1.2264	-2.81
14	4.5003e-01	7.2632	1.1711	1.2243	-4.35	1.1907	1.2243	-2.74
15	2.5032e-01	7.4774	1.1986	1.2231	-2.00	1.1784	1.2231	-3.65
16	1.3720e-01	7.7719	1.1431	1.2243	-6.63	1.1855	1.2243	-3.17
17	7.3806e-02	8.0491	1.1604	1.2248	-5.26	1.1844	1.2248	-3.30
18	3.9477e-02	8.4185	1.1851	1.2269	-3.41	1.1851	1.2269	-3.41
19	2.0829e-02	8.861	1.1712	1.2311	-4.87	1.1828	1.2311	-3.92
20	1.0519e-02	9.3895	1.1818	1.2338	-4.21	1.1942	1.2338	-3.21
21	5.2512e-03	9.9954	1.1683	1.2401	-5.79	1.2052	1.2401	-2.81
22	2.6204e-03	10.729	1.1851	1.2429	-4.65	1.1976	1.2429	-3.64
23	1.2672e-03	11.7912	1.2245	1.2528	-2.26	1.2055	1.2528	-3.78
24	5.3787e-04	13.4956	1.1904	1.2589	-5.44	1.2274	1.2589	-2.50
25	2.6212e-04	15.7359	1.2328	1.2696	-2.90	1.2282	1.2696	-3.26
26	1.4076e-04	20.3812	1.2001	1.2788	-6.15	1.229	1.2788	-3.89
27	8.7777e-06	28.7096	1.2319	1.2983	-5.11	1.2642	1.2983	-2.63
Average		9.62%	19.49%	25.70%	-4.92%	22.84%	25.70%	-2.30%

Table 8:

1.5 < $ \eta $ < 2.0			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	1.6383e+03	9.8147	1.2308	1.5131	-18.66	1.5446	1.5131	2.08
2	7.2786e+02	9.4223	1.2414	1.4836	-16.33	1.5007	1.4836	1.15
3	3.3039e+02	9.2082	1.2331	1.4595	-15.51	1.4667	1.4595	0.49
4	1.5735e+02	8.8989	1.2347	1.4359	-14.01	1.4324	1.4359	-0.24
5	7.8425e+01	8.9829	1.2227	1.4236	-14.11	1.4103	1.4236	-0.93
6	3.8482e+01	9.0271	1.2005	1.4091	-14.80	1.3923	1.4091	-1.19
7	2.0336e+01	9.2244	1.1349	1.4005	-18.96	1.3766	1.4005	-1.71
8	1.0188e+01	9.5367	1.2446	1.3918	-10.58	1.3592	1.3918	-2.34
9	5.3698e+00	9.5504	1.1731	1.3903	-15.62	1.3522	1.3903	-2.74
10	2.7229e+00	9.8666	1.2005	1.3885	-13.54	1.3428	1.3885	-3.29
11	1.3901e+00	10.1524	1.1757	1.3876	-15.27	1.3456	1.3876	-3.03
12	7.2674e-01	10.6414	1.2009	1.3882	-13.49	1.3428	1.3882	-3.27
13	3.5895e-01	11.1039	1.1958	1.3901	-13.98	1.3271	1.3901	-4.53
14	1.8085e-01	11.7564	1.1631	1.3921	-16.45	1.3309	1.3921	-4.40
15	8.4817e-02	12.1784	1.1623	1.3991	-16.93	1.3276	1.3991	-5.11
16	3.8799e-02	12.8059	1.2074	1.4051	-14.07	1.3391	1.4051	-4.70
17	1.7787e-02	13.5472	1.1453	1.4144	-19.03	1.3401	1.4144	-5.25
18	8.1318e-03	14.4264	1.1545	1.427	-19.10	1.3608	1.427	-4.64
19	3.5729e-03	15.4913	1.2218	1.4395	-15.12	1.3676	1.4395	-4.99
20	1.4427e-03	16.9187	1.202	1.4546	-17.37	1.4186	1.4546	-2.47
21	5.0721e-04	19.2911	1.1943	1.4808	-19.35	1.3992	1.4808	-5.51
22	1.8119e-04	23.6026	1.202	1.5142	-20.62	1.4913	1.5142	-1.51
23	7.2472e-05	30.0853	1.2574	1.5437	-18.55	1.4891	1.5437	-3.54
24	1.0486e-05	37.339	1.2376	1.5484	-20.07	1.5215	1.5484	-1.74
Average		13.87%	20.15%	43.66%	-16.31%	39.91%	43.67%	-2.64%

Table 9:

2.0 < $ \eta $ < 2.5			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	1.1132e+03	14.1459	1.2788	1.7432	-26.64	1.8029	1.7432	3.42
2	4.7126e+02	14.1487	1.2423	1.7157	-27.59	1.7535	1.7157	2.20
3	2.1037e+02	14.4018	1.2091	1.6903	-28.47	1.7066	1.6903	0.96
4	9.5500e+01	14.4783	1.2089	1.6788	-27.99	1.6799	1.6788	0.07
5	4.2179e+01	14.9297	1.2427	1.6734	-25.74	1.6596	1.6734	-0.82
6	1.9811e+01	15.4727	1.2326	1.6704	-26.21	1.6479	1.6704	-1.35
7	9.1229e+00	16.119	1.2065	1.6725	-27.86	1.6316	1.6725	-2.45
8	3.9568e+00	17.053	1.1905	1.6787	-29.08	1.6304	1.6787	-2.88
9	1.7580e+00	17.3833	1.1963	1.6929	-29.33	1.6549	1.6929	-2.24
10	7.6681e-01	18.263	1.1718	1.7049	-31.27	1.65	1.7049	-3.22
11	3.1497e-01	19.115	1.1905	1.7329	-31.30	1.659	1.7329	-4.26
12	1.2120e-01	20.1733	1.1832	1.753	-32.50	1.6916	1.753	-3.50
13	4.6228e-02	21.4236	1.1541	1.7832	-35.28	1.721	1.7832	-3.49
14	1.6192e-02	23.0682	1.1889	1.8329	-35.14	1.753	1.8329	-4.36
15	5.3245e-03	23.6751	1.2078	1.9006	-36.45	1.7754	1.9006	-6.59
16	1.6421e-03	25.5906	1.1385	2	-43.08	1.9806	2	-0.97
17	3.2618e-04	29.3629	1.0669	2.109	-49.41	1.9818	2.109	-6.03
18	9.2622e-05	37.3502	1.1467	2.0432	-43.88	1.9319	2.0432	-5.45
19	8.1124e-06	53.6435	1.2011	1.7888	-32.85	1.6677	1.7888	-6.77
Average		21.57%	19.25%	78.23%	-32.64%	73.57%	78.23%	-2.51%

Table 10:

### 3 ATLAS 7 TeV jets

#### 3.1 All channels

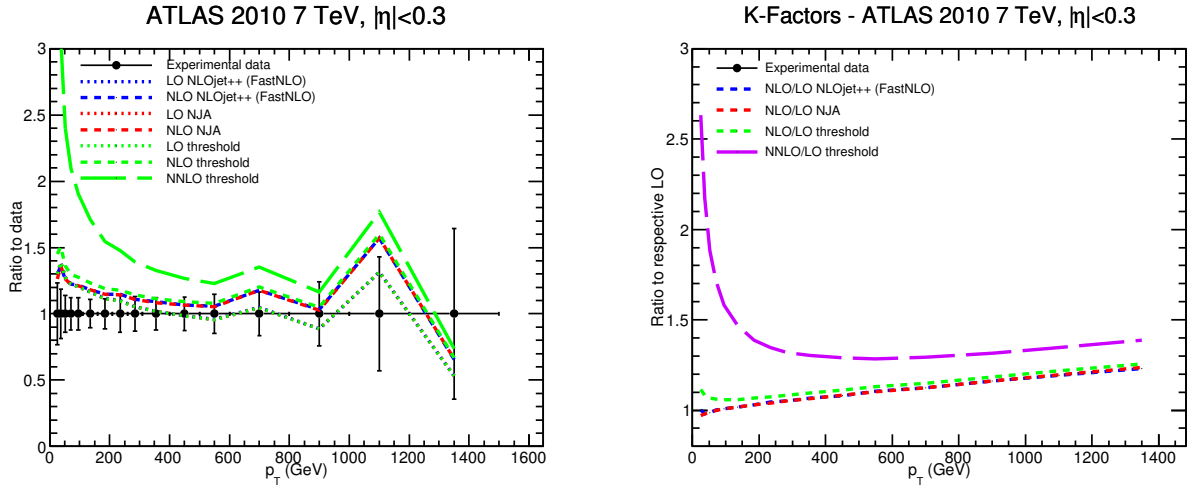


Figure 13:

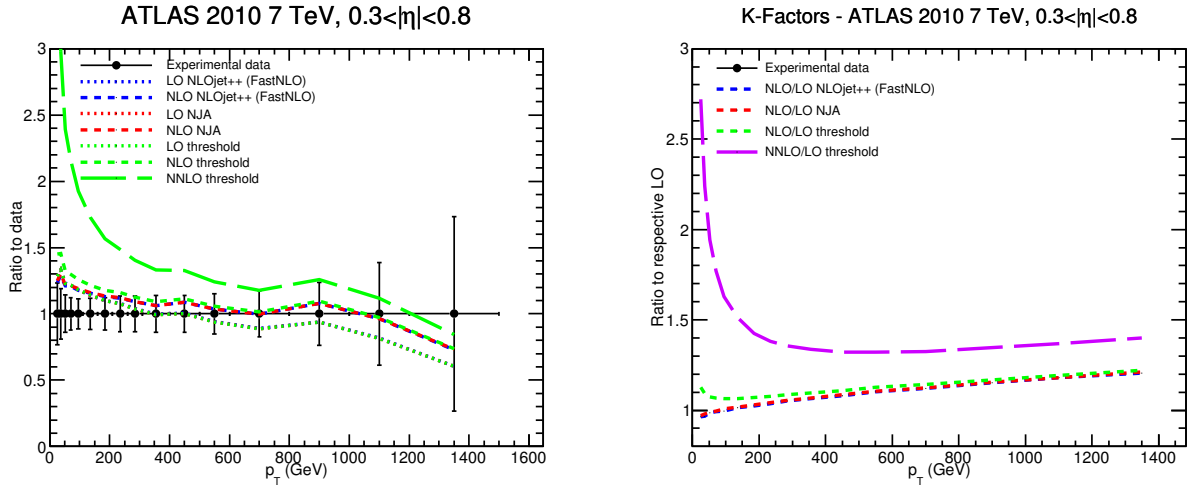


Figure 14:

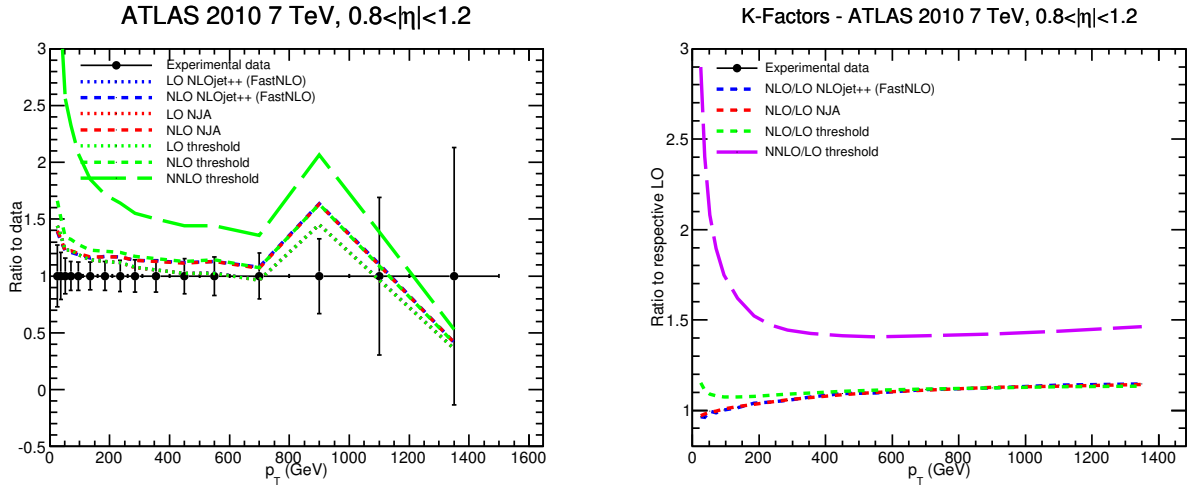


Figure 15:



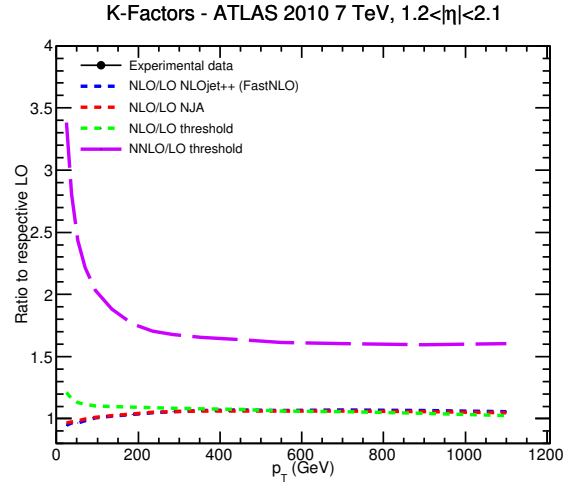
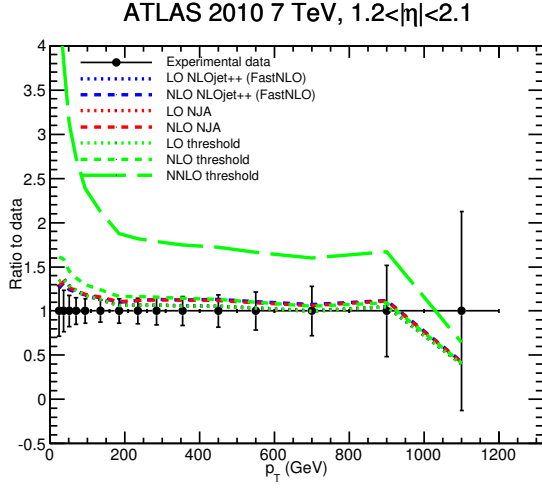


Figure 16:

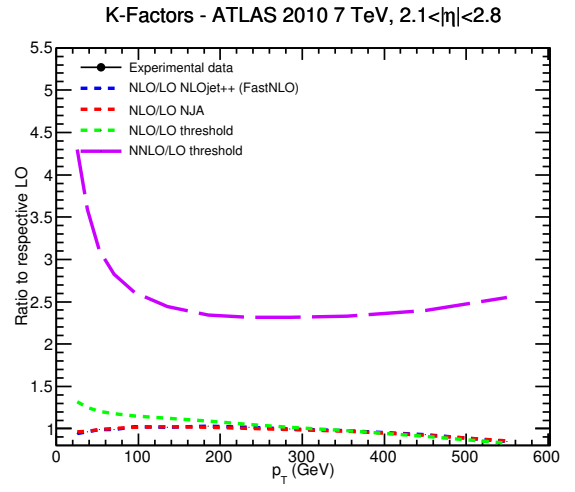
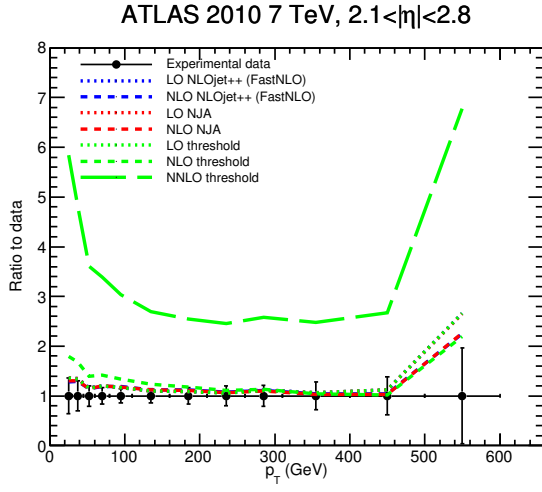


Figure 17:

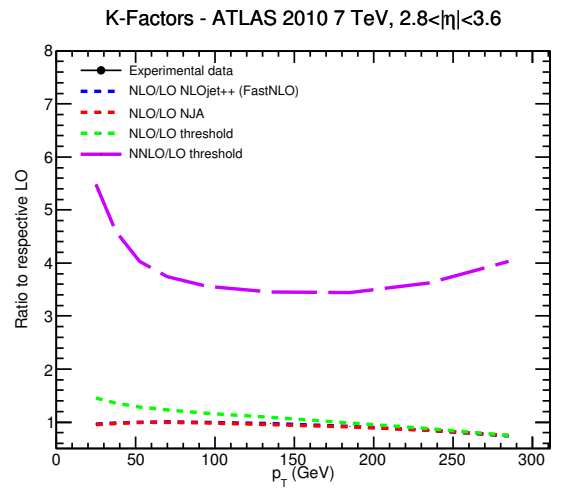
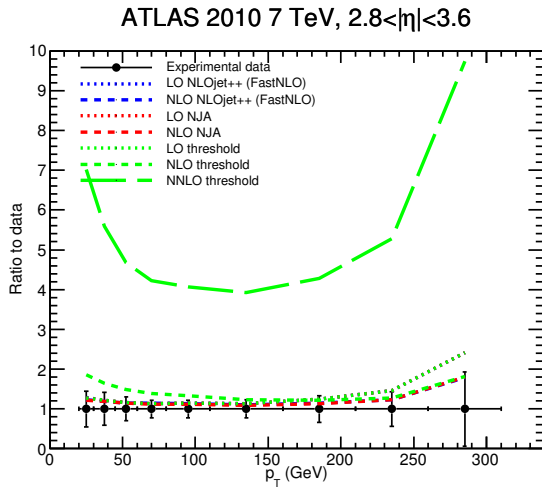


Figure 18:

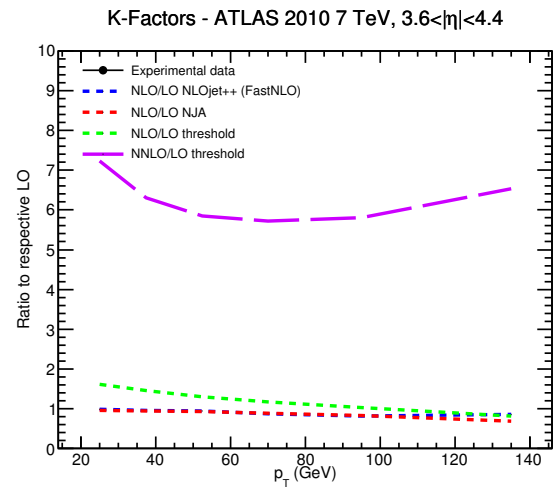
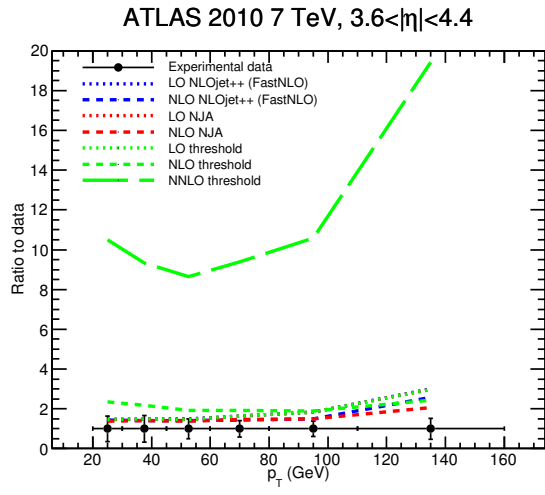
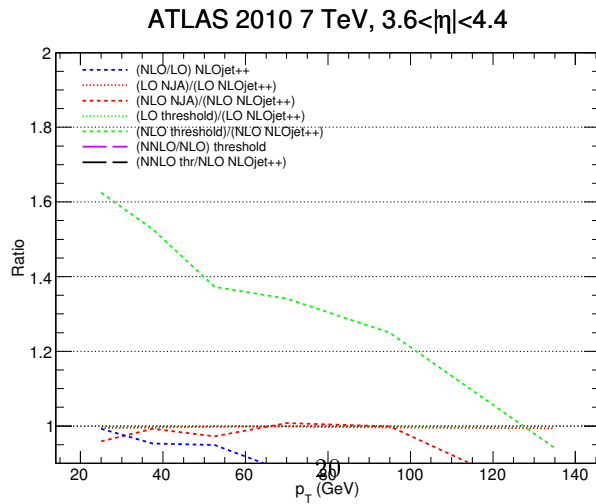
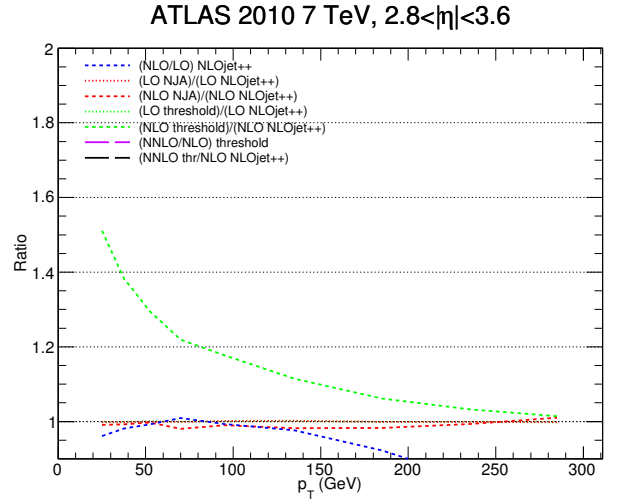
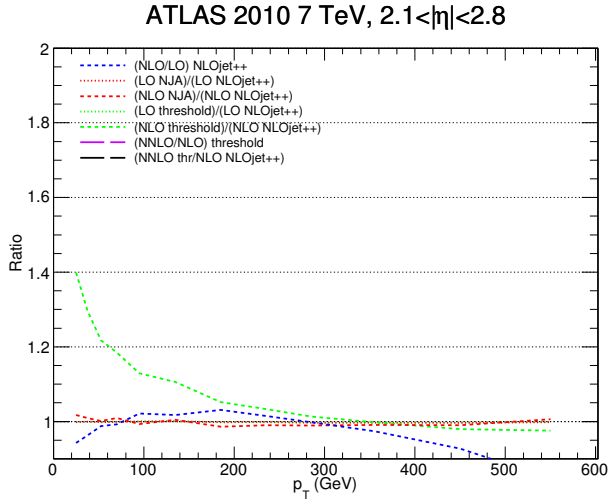
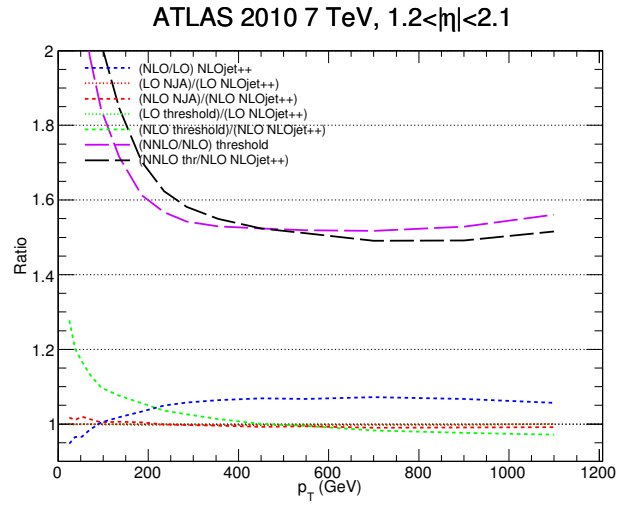
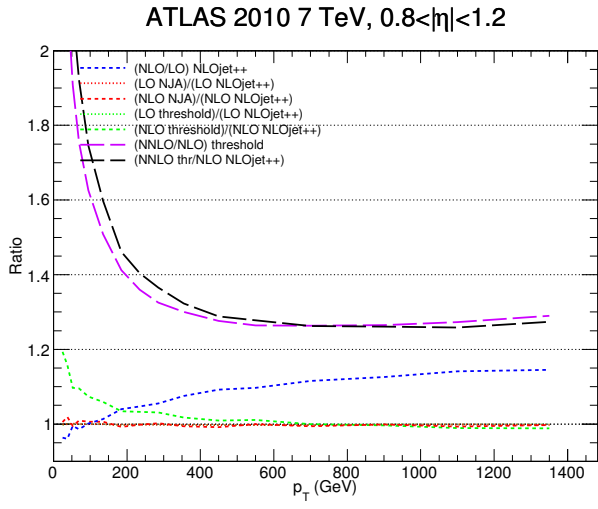
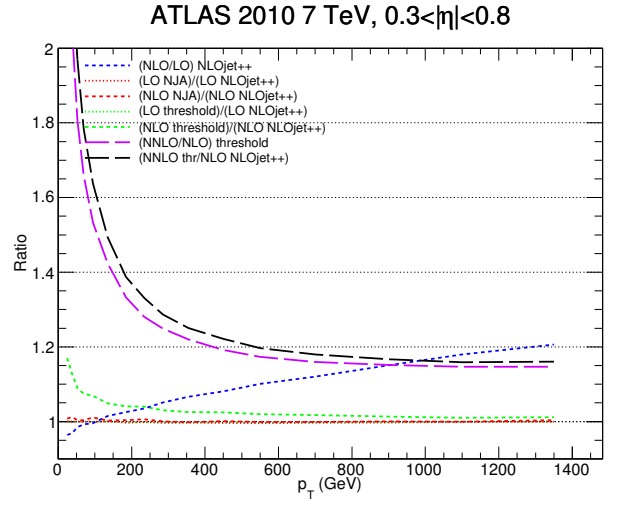
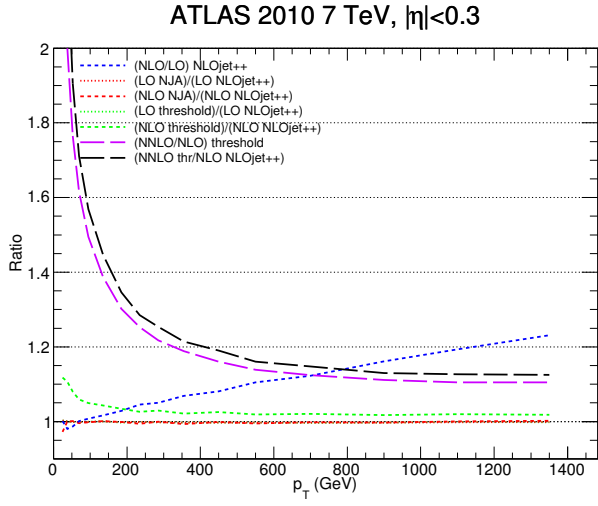


Figure 19:



### 3.1.1 Ratio all channels



### 3.1.2 C-Factors full prediction

$ \eta  < 0.3$			C-Factor, NNLO <sup>thr</sup> /		$\delta\%$
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	
1	4.7475e+06	23.3268	2.6353	2.3578	11.77
2	7.2424e+05	18.5066	2.2195	2.0056	10.67
3	1.4949e+05	13.9274	1.9058	1.7647	8.00
4	3.8485e+04	12.0152	1.7111	1.6151	5.94
5	8.6061e+03	12.261	1.5691	1.4948	4.97
6	1.4949e+03	10.6946	1.4469	1.387	4.32
7	2.5400e+02	11.2422	1.3458	1.3017	3.39
8	6.3400e+01	14.0325	1.2853	1.2529	2.59
9	2.0700e+01	13.1113	1.2535	1.2177	2.94
10	5.9600e+00	12.046	1.2143	1.1886	2.16
11	1.3300e+00	12.7419	1.1898	1.1606	2.52
12	3.4700e-01	14.693	1.1604	1.1386	1.91
13	6.4400e-02	16.3403	1.1479	1.1245	2.08
14	1.0100e-02	24.3375	1.1303	1.111	1.74
15	1.1400e-03	43.0001	1.1265	1.1046	1.98
16	4.0000e-04	64.3242	1.1249	1.1051	1.79
Average		19.8%	46.7%	39.6%	4.3%

Table 11:

$0.3 <  \eta  < 0.8$			C-Factor, NNLO <sup>thr</sup> /		$\delta\%$
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	
1	4.7041e+06	23.275	2.822	2.4117	17.01
2	7.3737e+05	18.9232	2.3149	2.0521	12.81
3	1.5051e+05	14.1032	1.9703	1.8076	9.00
4	3.7475e+04	12.0853	1.7833	1.6592	7.48
5	8.4343e+03	11.4745	1.6372	1.5323	6.85
6	1.4545e+03	11.7405	1.4929	1.4234	4.88
7	2.4343e+02	12.0632	1.3868	1.3324	4.08
8	6.0600e+01	13.2759	1.3311	1.2806	3.94
9	1.9600e+01	13.3945	1.287	1.2492	3.03
10	5.6400e+00	14.0202	1.2509	1.2195	2.57
11	1.1900e+00	14.0031	1.2218	1.1921	2.49
12	3.1600e-01	15.1863	1.1964	1.1736	1.94
13	6.6000e-02	17.3743	1.1797	1.1597	1.72
14	7.8000e-03	23.7402	1.167	1.1518	1.32
15	1.3800e-03	38.8769	1.1586	1.1466	1.05
16	2.3500e-04	73.3069	1.16	1.1468	1.15
Average		20.4%	52.2%	43.4%	5.01%

Table 12:

0.8 < $ \eta $ < 1.2			C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	4.0000e+06	27.1532	3.0037	2.5167	19.35
2	6.7959e+05	20.6534	2.5031	2.1617	15.79
3	1.4040e+05	15.5795	2.0935	1.9081	9.72
4	3.4242e+04	12.8432	1.9213	1.7537	9.56
5	7.6263e+03	12.4546	1.7454	1.6256	7.37
6	1.2929e+03	12.3535	1.5976	1.5083	5.92
7	2.0707e+02	12.6587	1.4607	1.4122	3.43
8	5.0100e+01	13.8718	1.4044	1.3599	3.27
9	1.5900e+01	14.1359	1.3657	1.3249	3.08
10	4.3800e+00	14.2512	1.3227	1.3	1.75
11	9.1800e-01	15.507	1.2885	1.2765	0.94
12	2.1400e-01	16.8993	1.278	1.2642	1.09
13	4.0700e-02	20.2256	1.2628	1.2632	-0.03
14	2.7000e-03	32.8892	1.2612	1.2653	-0.32
15	4.6600e-04	69.3513	1.2588	1.2731	-1.12
16	1.0200e-04	113.3008	1.2742	1.2895	-1.19
Average		26.5%	62.7%	53.1%	4.9%

Table 13:

1.2 < $ \eta $ < 2.1			C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	3.8144e+06	28.3609	3.5675	2.7916	27.79
2	5.7938e+05	23.1683	2.9085	2.4185	20.26
3	1.1122e+05	17.3887	2.5163	2.1545	16.79
4	2.7245e+04	14.9045	2.2491	1.9852	13.29
5	5.9592e+03	13.5442	2.0227	1.843	9.75
6	9.6768e+02	12.2931	1.8468	1.7161	7.62
7	1.5253e+02	13.6862	1.703	1.6132	5.57
8	3.4141e+01	14.5209	1.6234	1.5673	3.58
9	9.6768e+00	15.9416	1.5819	1.542	2.59
10	2.3500e+00	16.5515	1.5497	1.5295	1.32
11	3.9100e-01	18.4577	1.524	1.5234	0.04
12	7.2500e-02	21.7	1.511	1.5193	-0.55
13	9.5100e-03	27.6168	1.4912	1.5174	-1.73
14	4.8600e-04	51.7804	1.4918	1.5283	-2.39
15	6.9300e-05	112.4636	1.5155	1.5605	-2.88
Average		26.8%	94.0%	78.7%	6.7%

Table 14:

2.1 < $ \eta $ < 2.8			C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	2.8750e+06	35.9715	4.5541	3.2556	39.89
2	4.2396e+05	30.3757	3.7209	2.868	29.74
3	8.2474e+04	20.5697	3.144	2.583	21.72
4	1.7629e+04	16.4221	2.8429	2.3997	18.47
5	3.5102e+03	13.8806	2.5544	2.2627	12.89
6	5.0816e+02	14.279	2.4053	2.175	10.59
7	5.9899e+01	16.5848	2.2699	2.1573	5.22
8	1.0101e+01	19.9705	2.2806	2.2066	3.35
9	1.8687e+00	21.4024	2.3153	2.2858	1.29
10	2.7879e-01	27.9207	2.3831	2.3874	-0.18
11	1.6600e-02	37.8399	2.5727	2.6267	-2.06
12	3.1300e-04	96.5422	3.0076	3.0838	-2.47
Average		29.31%	183.6%	52.4%	11.5%

Table 15:

2.8 < $ \eta $ < 3.6			C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	2.0323e+06	44.9498	5.699	3.771	51.13
2	2.8404e+05	41.0901	4.6826	3.3858	38.30
3	4.4737e+04	29.701	4.0645	3.1397	29.46
4	8.9271e+03	22.2178	3.7078	3.0405	21.95
5	1.3505e+03	22.0491	3.5864	3.0465	17.72
6	1.1959e+02	22.3605	3.5407	3.1776	11.43
7	5.6837e+00	33.596	3.729	3.5136	6.13
8	2.9490e-01	43.4456	4.2729	4.138	3.26
9	9.2626e-03	93.156	5.4575	5.3808	1.43
Average		39.17%	330.4%	262.1%	20.1%

Table 16:

3.6 < $ \eta $ < 4.4			C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	9.1000e+05	64.4667	7.2521	4.4631	62.49
2	9.4945e+04	67.1388	6.5818	4.3113	52.66
3	9.7033e+03	50.5717	6.1462	4.4781	37.25
4	1.0000e+03	40.8999	6.5186	4.8591	34.15
5	5.8478e+01	38.009	7.0378	5.6304	25.00
6	5.8913e-01	52.7968	7.5364	8.0077	-5.89
Average		52.31%	584.5%	429.2%	34.3%

Table 17:

### 3.2 Gluon channel

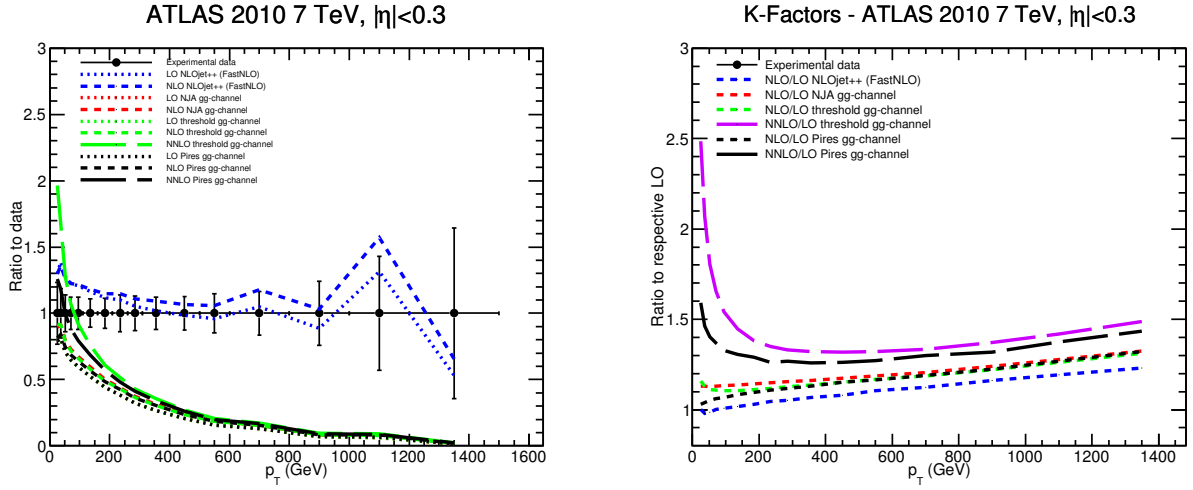


Figure 21:

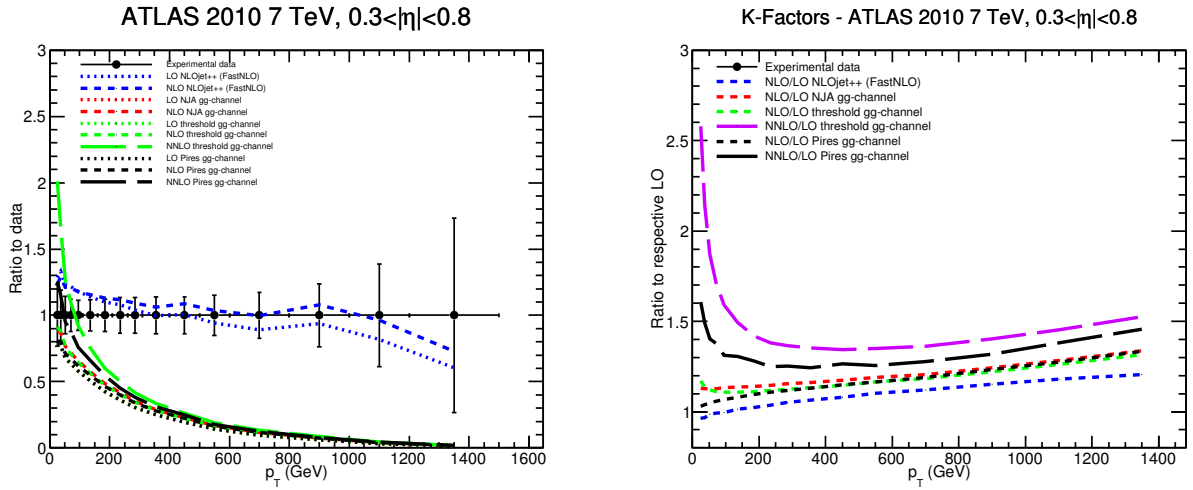


Figure 22:

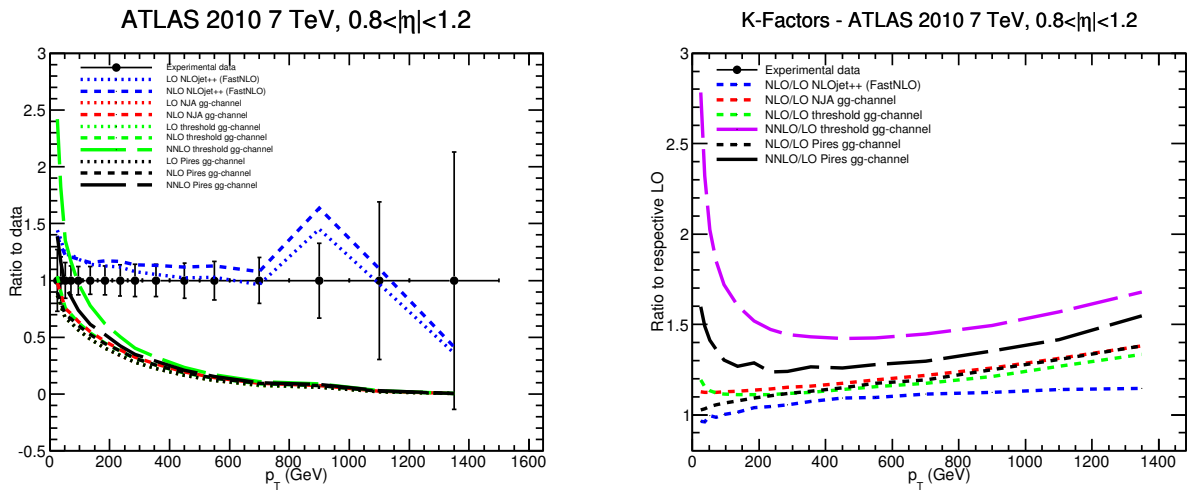


Figure 23:



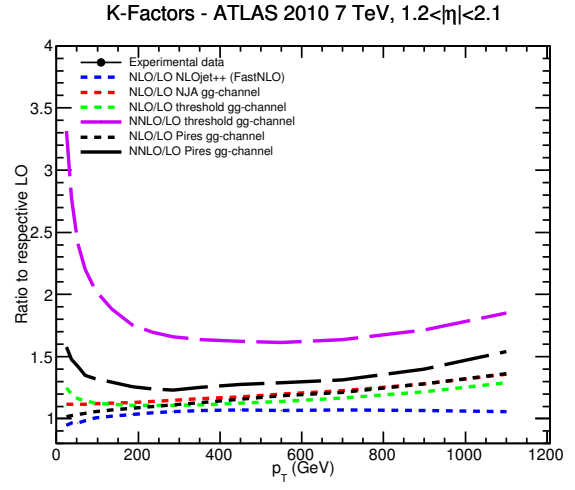
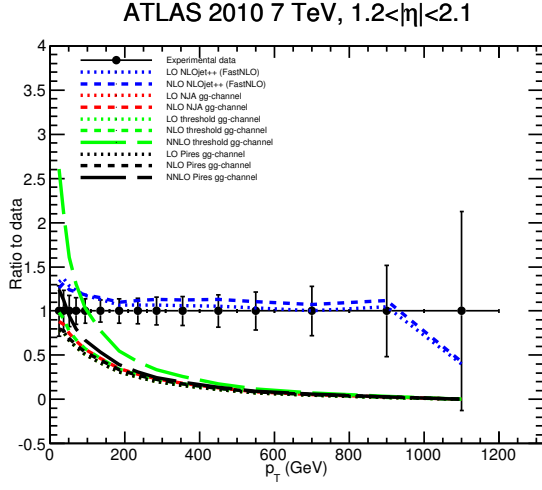


Figure 24:

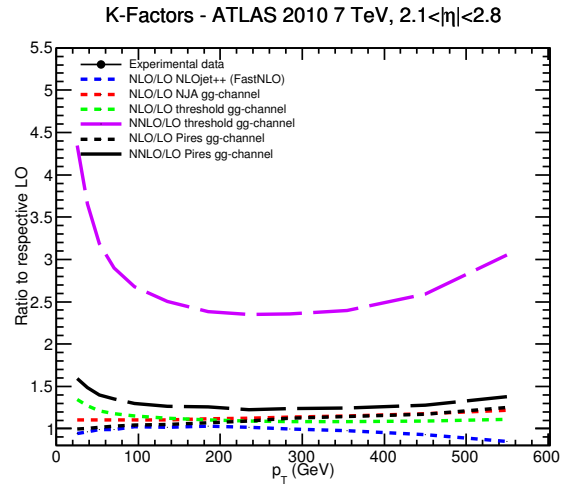
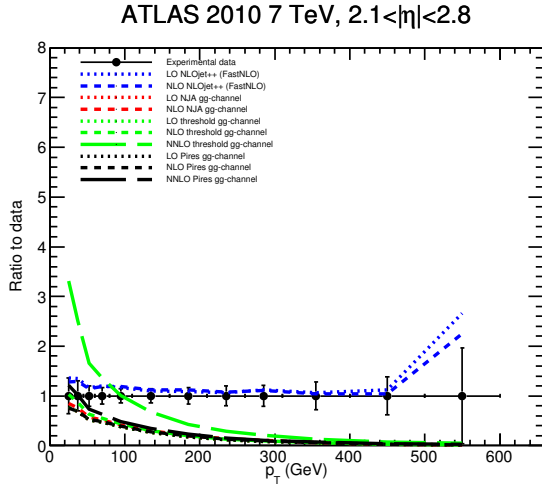


Figure 25:

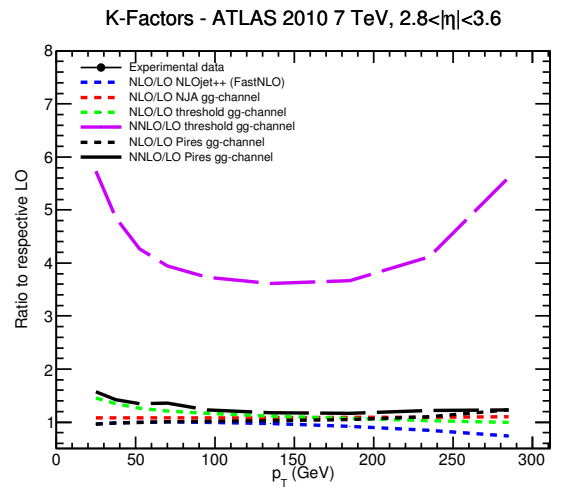
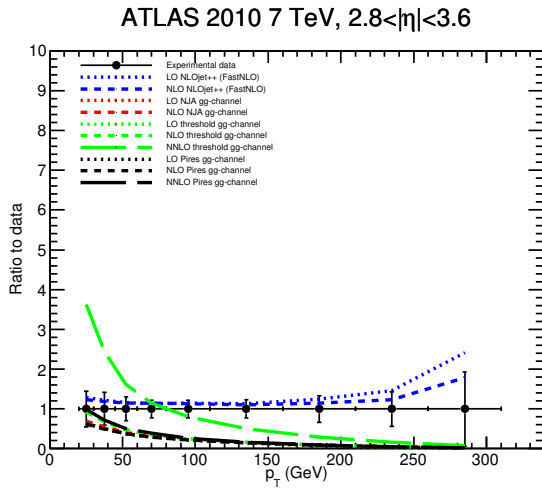


Figure 26:

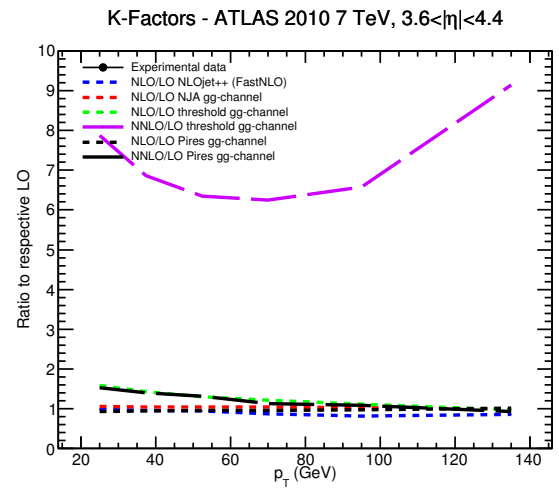
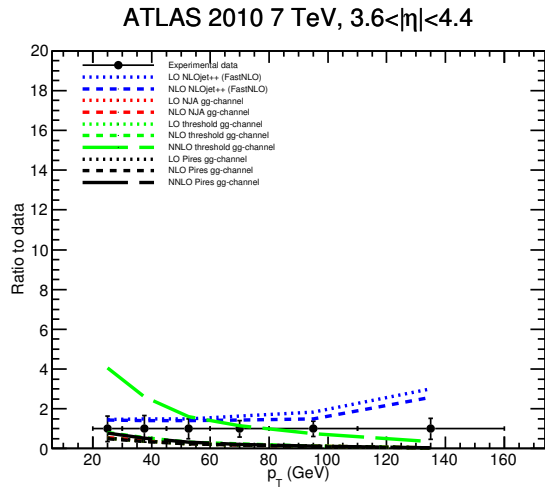
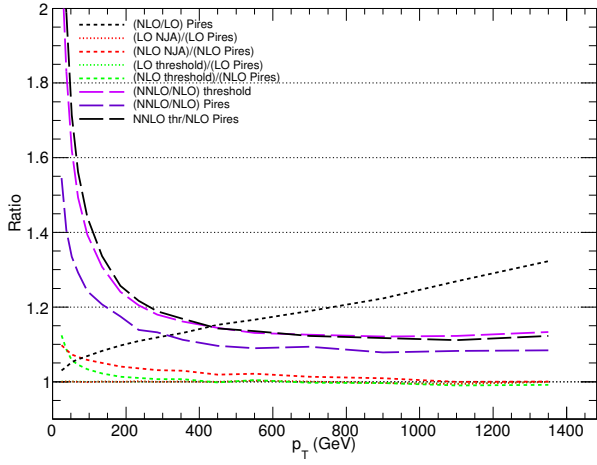


Figure 27:

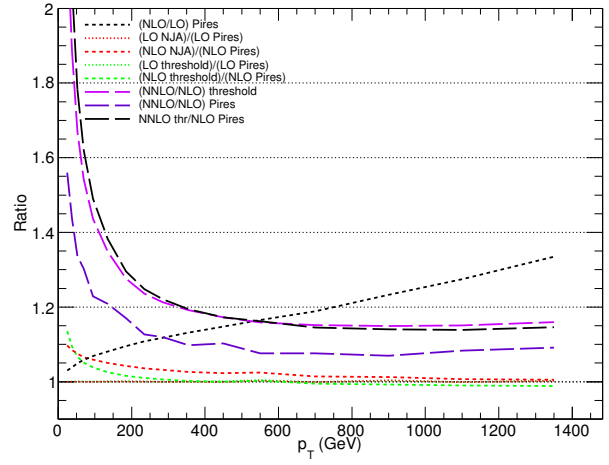


### 3.2.1 Ratio gluon channel

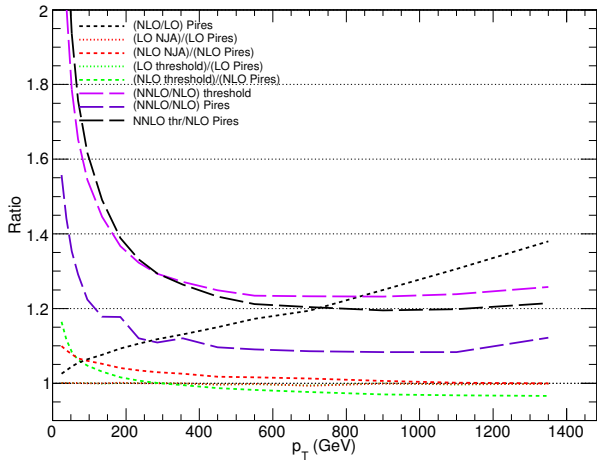
ATLAS 2010 7 TeV,  $|\eta| < 0.3$



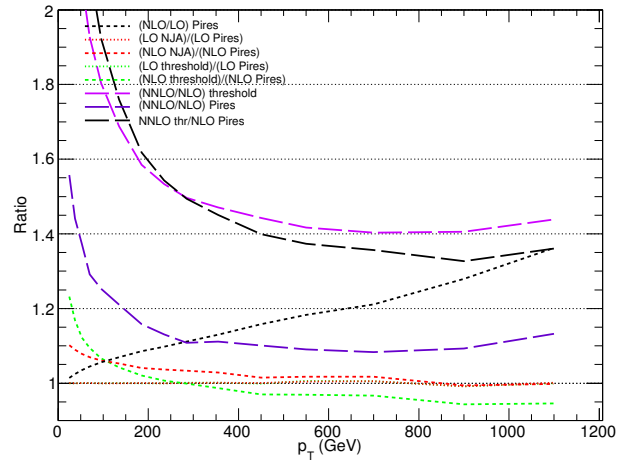
ATLAS 2010 7 TeV,  $0.3 < |\eta| < 0.8$



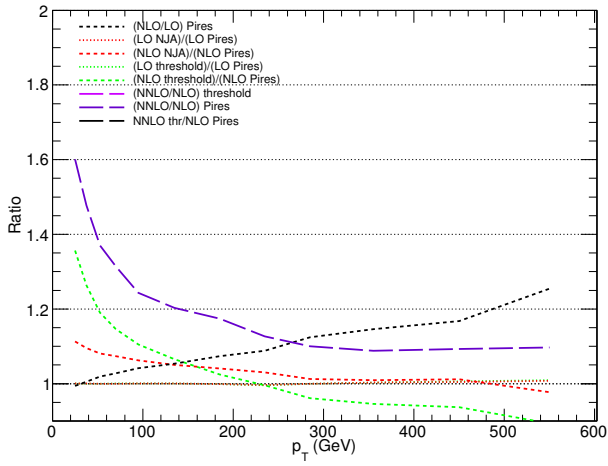
ATLAS 2010 7 TeV,  $0.8 < |\eta| < 1.2$



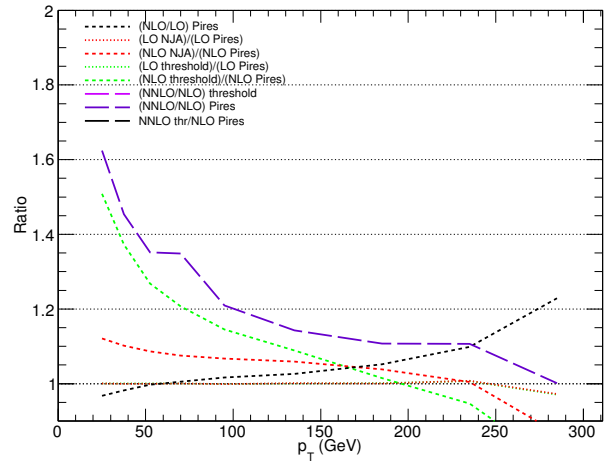
ATLAS 2010 7 TeV,  $1.2 < |\eta| < 2.1$



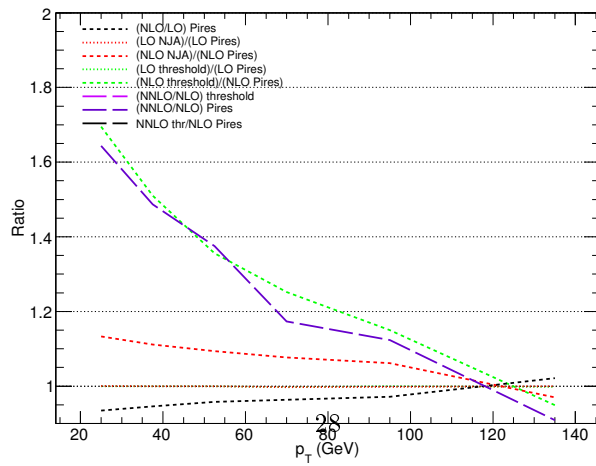
ATLAS 2010 7 TeV,  $2.1 < |\eta| < 2.8$



ATLAS 2010 7 TeV,  $2.8 < |\eta| < 3.6$



ATLAS 2010 7 TeV,  $3.6 < |\eta| < 4.4$



### 3.2.2 C-Factors gluon channel

$ \eta  < 0.3$			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	4.7475e+06	23.3268	1.5451	2.1444	-27.95	2.4115	2.1444	12.46
2	7.2424e+05	18.5066	1.4054	1.8308	-23.24	1.9884	1.8308	8.61
3	1.4949e+05	13.9274	1.3345	1.6208	-17.66	1.7142	1.6208	5.76
4	3.8485e+04	12.0152	1.2925	1.4933	-13.45	1.5614	1.4933	4.56
5	8.6061e+03	12.261	1.2422	1.3936	-10.86	1.4399	1.3936	3.32
6	1.4949e+03	10.6946	1.207	1.3075	-7.69	1.3366	1.3075	2.23
7	2.5400e+02	11.2422	1.1747	1.2411	-5.35	1.2573	1.2411	1.31
8	6.3400e+01	14.0325	1.1384	1.2048	-5.51	1.2169	1.2048	1.00
9	2.0700e+01	13.1113	1.1326	1.1798	-4.00	1.1882	1.1798	0.71
10	5.9600e+00	12.046	1.1122	1.1609	-4.20	1.1685	1.1609	0.65
11	1.3300e+00	12.7419	1.0961	1.1447	-4.25	1.1425	1.1447	-0.19
12	3.4700e-01	14.693	1.0894	1.1308	-3.66	1.1355	1.1308	0.42
13	6.4400e-02	16.3403	1.0934	1.1258	-2.88	1.123	1.1258	-0.25
14	1.0100e-02	24.3375	1.0787	1.1211	-3.78	1.1167	1.1211	-0.39
15	1.1400e-03	43.0001	1.0827	1.1227	-3.56	1.1116	1.1227	-0.99
16	4.0000e-04	64.3242	1.0838	1.1327	-4.32	1.123	1.1327	-0.86
Average		19.8%	19.4%	33.5%	-8.9%	37.7%	33.5%	3.2%

Table 18:

$0.3 <  \eta  < 0.8$			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	4.7041e+06	23.275	1.5598	2.2051	-29.26	2.5047	2.2051	13.59
2	7.3737e+05	18.9232	1.4371	1.8855	-23.78	2.0635	1.8855	9.44
3	1.5051e+05	14.1032	1.3361	1.6706	-20.02	1.7822	1.6706	6.68
4	3.7475e+04	12.0853	1.3025	1.542	-15.53	1.6206	1.542	5.10
5	8.4343e+03	11.4745	1.2284	1.436	-14.46	1.4904	1.436	3.79
6	1.4545e+03	11.7405	1.2083	1.3483	-10.38	1.382	1.3483	2.50
7	2.4343e+02	12.0632	1.1704	1.2758	-8.26	1.2954	1.2758	1.54
8	6.0600e+01	13.2759	1.127	1.2361	-8.83	1.2483	1.2361	0.99
9	1.9600e+01	13.3945	1.1192	1.2129	-7.73	1.2205	1.2129	0.63
10	5.6400e+00	14.0202	1.0976	1.1914	-7.87	1.1938	1.1914	0.20
11	1.1900e+00	14.0031	1.1024	1.1729	-6.01	1.1722	1.1729	-0.06
12	3.1600e-01	15.1863	1.0762	1.159	-7.14	1.162	1.159	0.26
13	6.6000e-02	17.3743	1.0759	1.1513	-6.55	1.145	1.1513	-0.55
14	7.8000e-03	23.7402	1.0699	1.1489	-6.88	1.1404	1.1489	-0.74
15	1.3800e-03	38.8769	1.083	1.1505	-5.87	1.1388	1.1505	-1.02
16	2.3500e-04	73.3069	1.0914	1.1595	-5.87	1.1461	1.1595	-1.16
Average		20.4%	19.2%	37.2%	-11.5%	41.9%	37.2%	3.46%

Table 19:

0.8 < $ \eta $ < 1.2			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	4.0000e+06	27.1532	1.5574	2.3304	-33.17	2.7131	2.3304	16.42
2	6.7959e+05	20.6534	1.4415	2.0116	-28.34	2.2463	2.0116	11.67
3	1.4040e+05	15.5795	1.353	1.7867	-24.27	1.9362	1.7867	8.37
4	3.4242e+04	12.8432	1.2918	1.6531	-21.86	1.7568	1.6531	6.27
5	7.6263e+03	12.4546	1.2242	1.5445	-20.74	1.6171	1.5445	4.70
6	1.2929e+03	12.3535	1.1784	1.4457	-18.49	1.4907	1.4457	3.11
7	2.0707e+02	12.6587	1.177	1.367	-13.90	1.3887	1.367	1.59
8	5.0100e+01	13.8718	1.1199	1.323	-15.35	1.3317	1.323	0.66
9	1.5900e+01	14.1359	1.1087	1.2929	-14.25	1.2939	1.2929	0.08
10	4.3800e+00	14.2512	1.12	1.2711	-11.89	1.2643	1.2711	-0.53
11	9.1800e-01	15.507	1.0962	1.2485	-12.20	1.2316	1.2485	-1.35
12	2.1400e-01	16.8993	1.0908	1.2346	-11.65	1.2123	1.2346	-1.81
13	4.0700e-02	20.2256	1.0858	1.2328	-11.92	1.2038	1.2328	-2.35
14	2.7000e-03	32.8892	1.0835	1.232	-12.05	1.1949	1.232	-3.01
15	4.6600e-04	69.3513	1.0833	1.2384	-12.52	1.1978	1.2384	-3.28
16	1.0200e-04	113.3008	1.1217	1.2575	-10.80	1.2144	1.2575	-3.43
Average		26.5%	19.6%	46.7%	-17.1%	51.8%	46.7%	3.5%

Table 20:

1.2 < $ \eta $ < 2.1			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	3.8144e+06	28.3609	1.5573	2.6535	-41.31	3.2696	2.6535	23.22
2	5.7938e+05	23.1683	1.4406	2.3145	-37.76	2.7037	2.3145	16.82
3	1.1122e+05	17.3887	1.3724	2.0782	-33.96	2.3309	2.0782	12.16
4	2.7245e+04	14.9045	1.2913	1.9272	-33.00	2.1095	1.9272	9.46
5	5.9592e+03	13.5442	1.253	1.8033	-30.52	1.9234	1.8033	6.66
6	9.6768e+02	12.2931	1.2106	1.688	-28.28	1.759	1.688	4.21
7	1.5253e+02	13.6862	1.1581	1.585	-26.93	1.6175	1.585	2.05
8	3.4141e+01	14.5209	1.1304	1.533	-26.26	1.5433	1.533	0.67
9	9.6768e+00	15.9416	1.1078	1.4963	-25.96	1.494	1.4963	-0.15
10	2.3500e+00	16.5515	1.1111	1.4705	-24.44	1.4508	1.4705	-1.34
11	3.9100e-01	18.4577	1.1012	1.4427	-23.67	1.3992	1.4427	-3.02
12	7.2500e-02	21.7	1.0909	1.4169	-23.01	1.3734	1.4169	-3.07
13	9.5100e-03	27.6168	1.0831	1.4036	-22.83	1.3566	1.4036	-3.35
14	4.8600e-04	51.7804	1.0932	1.4055	-22.22	1.3265	1.4055	-5.62
15	6.9300e-05	112.4636	1.1324	1.4388	-21.30	1.3604	1.4388	-5.45
Average		26.8%	20.9%	71.1%	-28.1%	80.1%	71.1%	5.3%

Table 21:

2.1 < $ \eta $ < 2.8			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	2.8750e+06	35.9715	1.6007	3.2222	-50.32	4.3717	3.2222	35.67
2	4.2396e+05	30.3757	1.4769	2.8748	-48.63	3.6307	2.8748	26.29
3	8.2474e+04	20.5697	1.37	2.625	-47.81	3.1239	2.625	19.01
4	1.7629e+04	16.4221	1.3143	2.463	-46.64	2.8221	2.463	14.58
5	3.5102e+03	13.8806	1.2436	2.3323	-46.68	2.5765	2.3323	10.47
6	5.0816e+02	14.279	1.2029	2.2307	-46.08	2.3766	2.2307	6.54
7	5.9899e+01	16.5848	1.1737	2.1677	-45.86	2.2201	2.1677	2.42
8	1.0101e+01	19.9705	1.1264	2.1603	-47.86	2.1516	2.1603	-0.40
9	1.8687e+00	21.4024	1.1002	2.1806	-49.55	2.0964	2.1806	-3.86
10	2.7879e-01	27.9207	1.0883	2.2199	-50.98	2.0996	2.2199	-5.42
11	1.6600e-02	37.8399	1.0927	2.3796	-54.08	2.2304	2.3796	-6.27
12	3.1300e-04	96.5422	1.0968	2.7499	-60.11	2.457	2.7499	-10.65
Average		29.3%	24.1%	146.7%	-49.6%	167.9%	146.7%	8.62

Table 22:

2.8 < $ \eta $ < 3.6			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	2.0323e+06	44.9498	1.6243	3.9296	-58.67	5.9289	3.9296	50.88
2	2.8404e+05	41.0901	1.4535	3.6019	-59.65	4.9453	3.6019	37.30
3	4.4737e+04	29.701	1.3514	3.3733	-59.94	4.2789	3.3733	26.85
4	8.9271e+03	22.2178	1.3482	3.2522	-58.54	3.9263	3.2522	20.73
5	1.3505e+03	22.0491	1.2094	3.2034	-62.25	3.6677	3.2034	14.49
6	1.1959e+02	22.3605	1.1424	3.2345	-64.68	3.5216	3.2345	8.88
7	5.6837e+00	33.596	1.1075	3.4406	-67.81	3.491	3.4406	1.46
8	2.9490e-01	43.4456	1.1065	3.9922	-72.28	3.7782	3.9922	-5.36
9	9.2626e-03	93.156	1.0011	5.659	-82.31	4.4326	5.659	-21.67
Average		39.2%	26.04%	274.3%	-65.1%	321.9%	274.3%	12.72

Table 23:

3.6 < $ \eta $ < 4.4			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	9.1000e+05	64.4667	1.6439	4.9707	-66.93	8.4253	4.9707	69.50
2	9.4945e+04	67.1388	1.4869	4.802	-69.04	7.2515	4.802	51.01
3	9.7033e+03	50.5717	1.3753	4.8858	-71.85	6.6247	4.8858	35.59
4	1.0000e+03	40.8999	1.1732	5.1638	-77.28	6.4635	5.1638	25.17
5	5.8478e+01	38.009	1.1231	5.8867	-80.92	6.7704	5.8867	15.01
6	5.8913e-01	52.7968	0.909	9.4063	-90.34	8.9294	9.4063	-5.07
Average		52.3%	28.5%	485.2%	-76.1%	641.1%	485.3%	26.6%

Table 24:

## 4 ATLAS 2.76 TeV jets

### 4.1 All channels

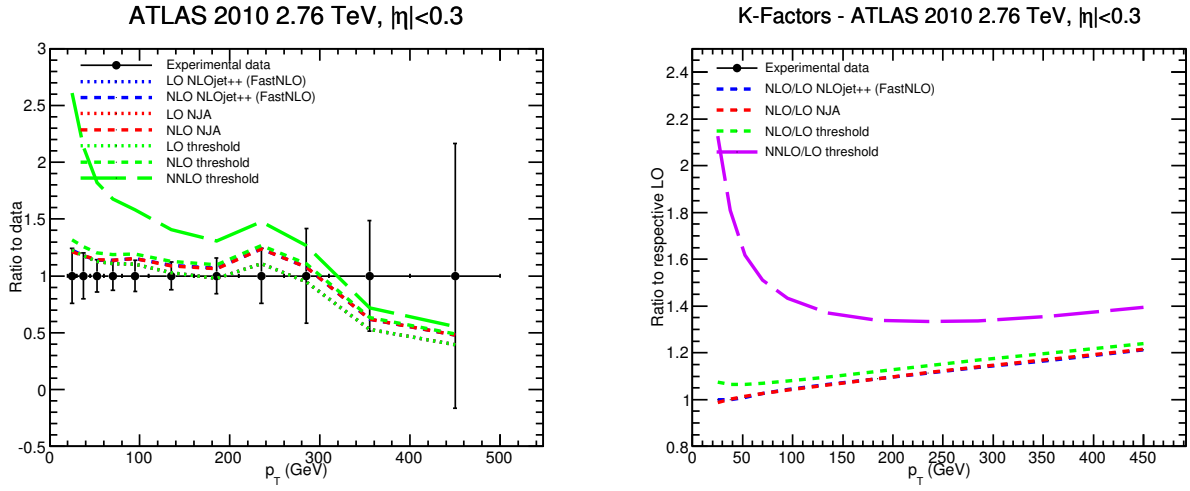


Figure 29:

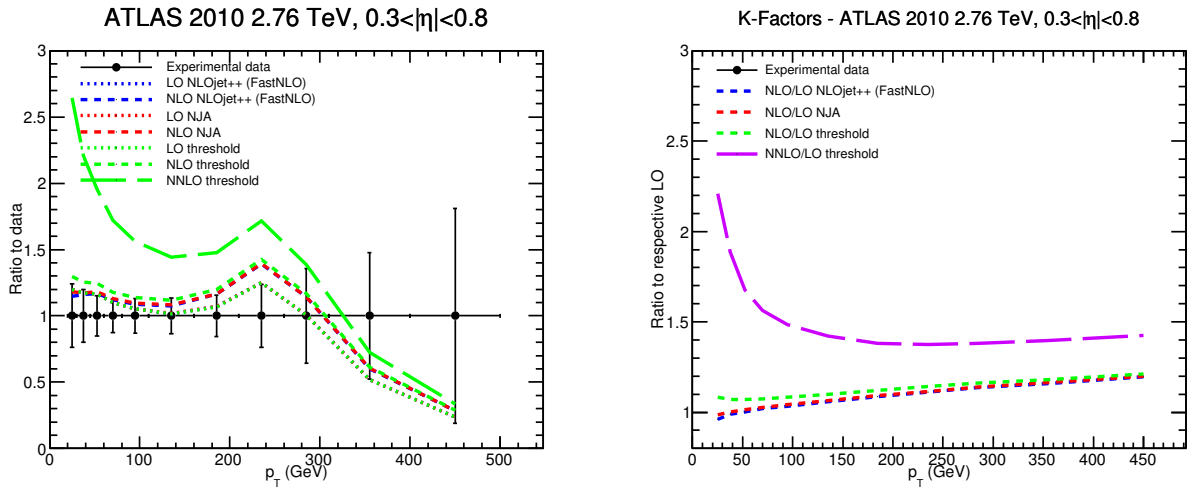


Figure 30:

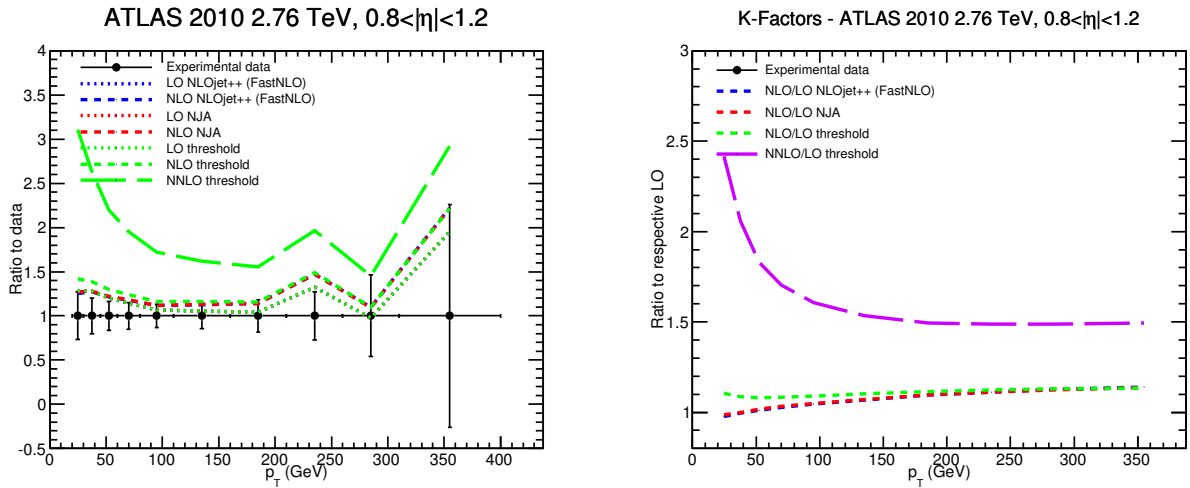


Figure 31:



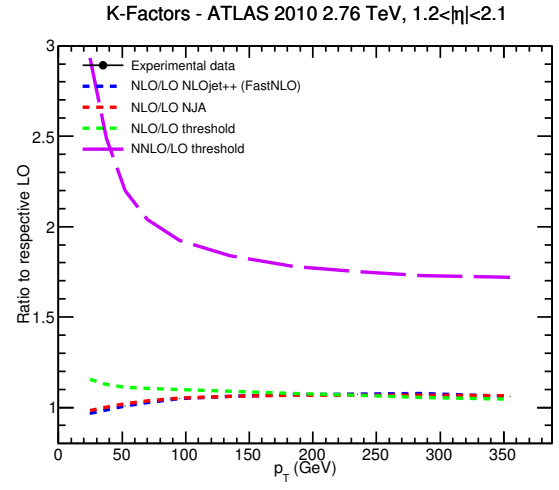
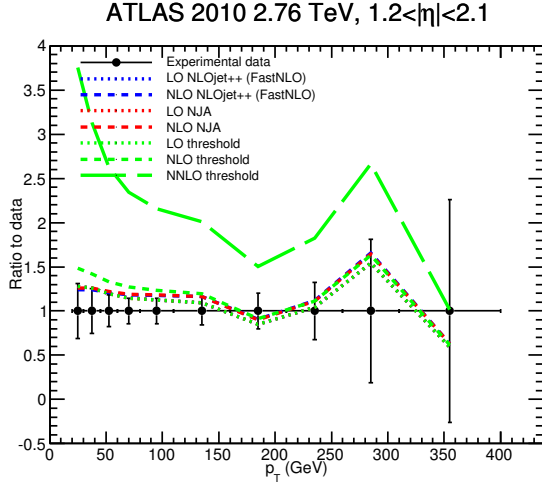


Figure 32:

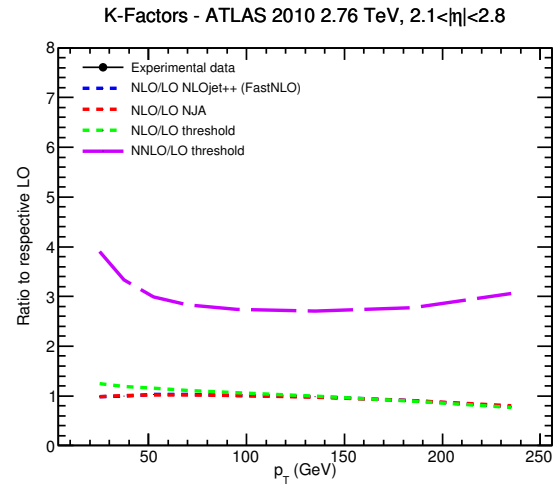
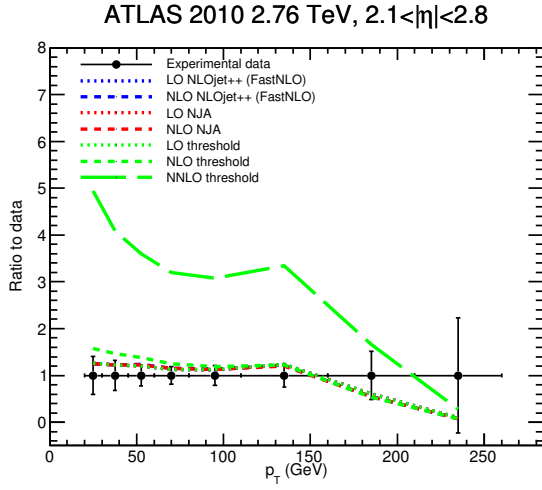


Figure 33:

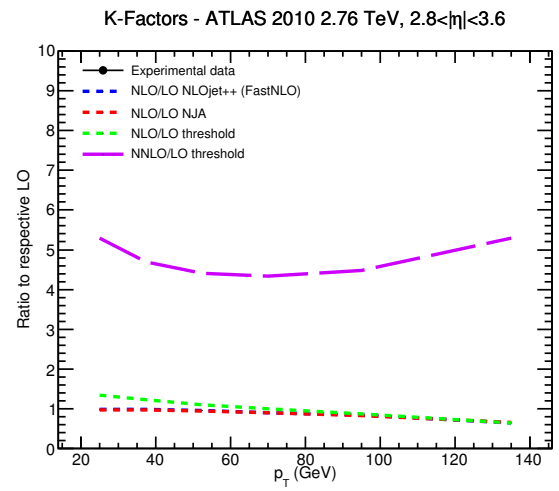
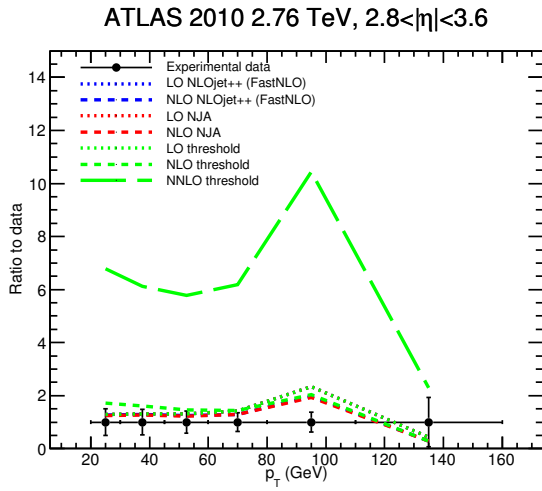


Figure 34:

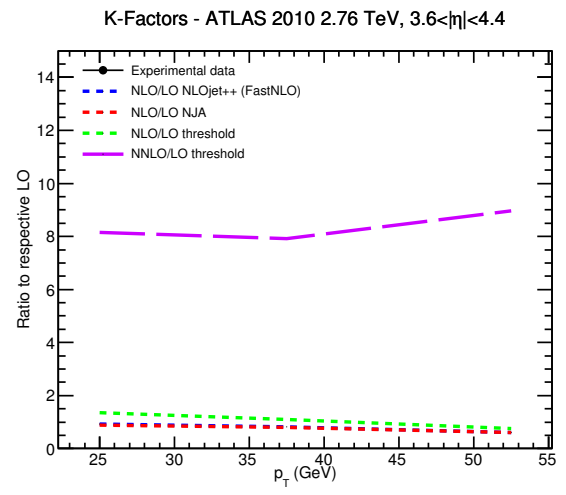
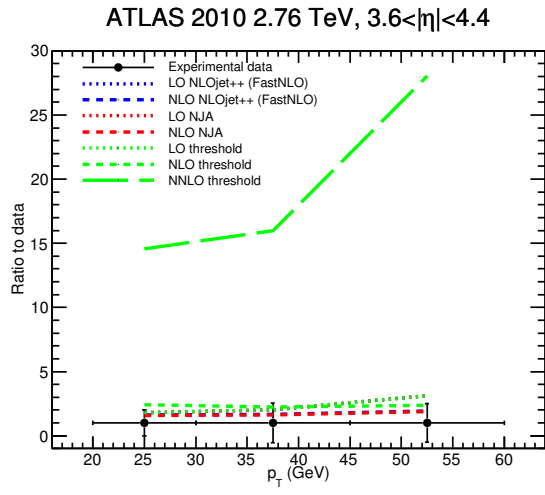
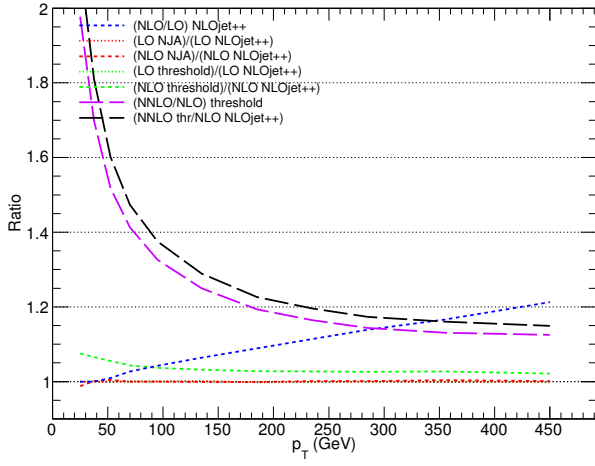


Figure 35:

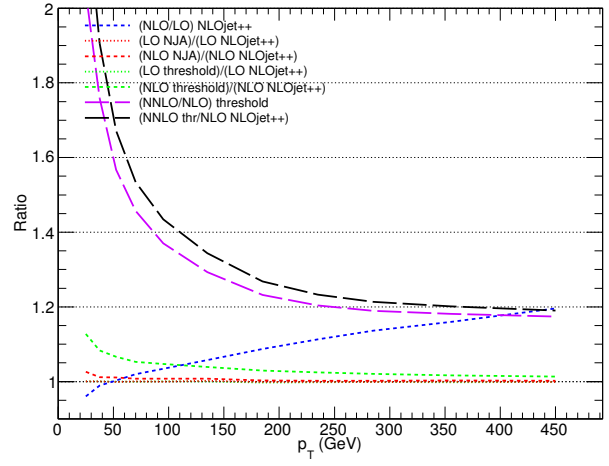


#### 4.1.1 Ratio all channels

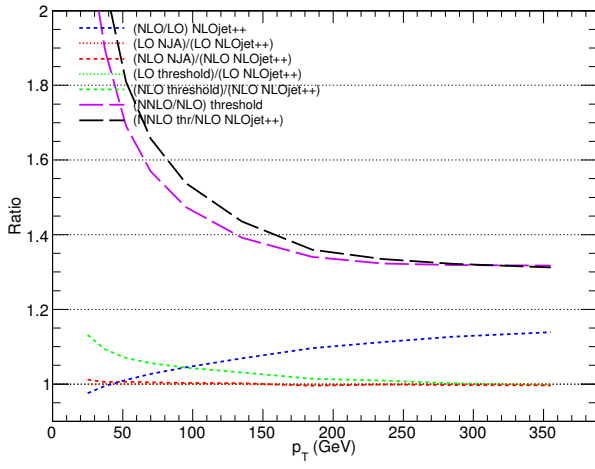
ATLAS 2010 2.76 TeV,  $|\eta| < 0.3$



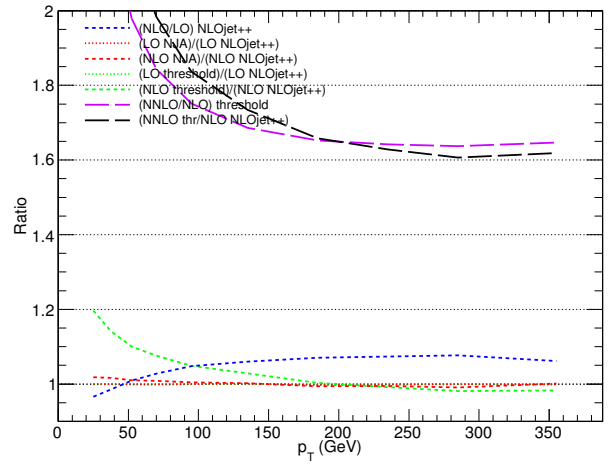
ATLAS 2010 2.76 TeV,  $0.3 < |\eta| < 0.8$



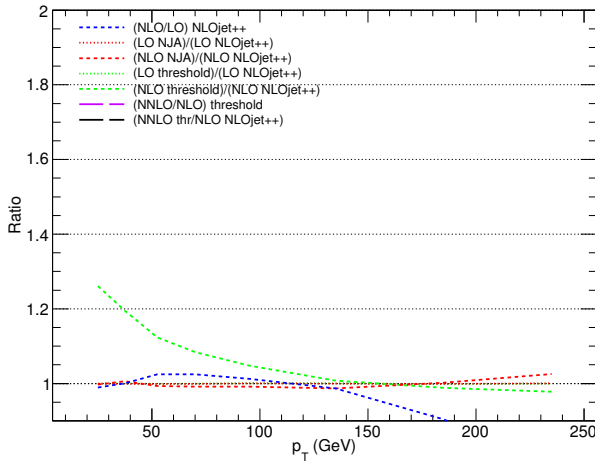
ATLAS 2010 2.76 TeV,  $0.8 < |\eta| < 1.2$



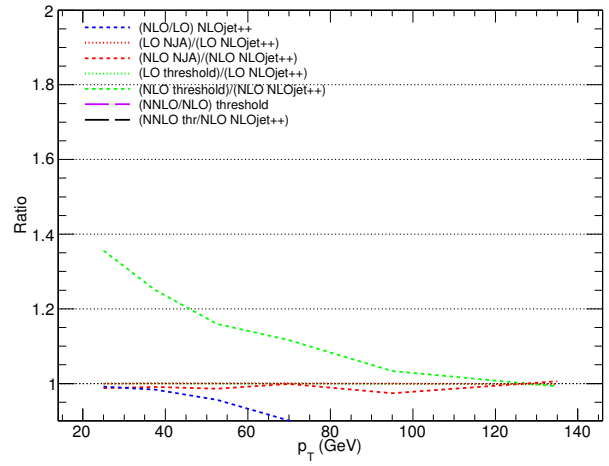
ATLAS 2010 2.76 TeV,  $1.2 < |\eta| < 2.1$



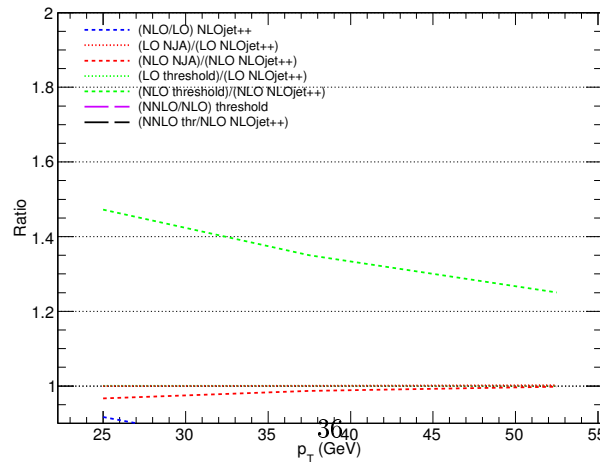
ATLAS 2010 2.76 TeV,  $2.1 < |\eta| < 2.8$



ATLAS 2010 2.76 TeV,  $2.8 < |\eta| < 3.6$



ATLAS 2010 2.76 TeV,  $3.6 < |\eta| < 4.4$



#### 4.1.2 C-Factors full prediction

$ \eta  < 0.3$			C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	1.4864e+03	24.2727	2.1261	1.9772	7.53
2	2.1374e+02	20.195	1.811	1.6992	6.58
3	3.5667e+01	14.3507	1.6013	1.5179	5.49
4	7.7000e+00	12.8376	1.4731	1.4124	4.30
5	1.4206e+00	13.8038	1.3747	1.3262	3.66
6	2.0276e-01	12.2458	1.2893	1.2497	3.17
7	2.5778e-02	15.7923	1.2264	1.1931	2.79
8	4.2737e-03	24.0877	1.1957	1.1647	2.66
9	1.2081e-03	41.7325	1.1736	1.1433	2.65
10	4.3152e-04	48.5072	1.1607	1.1306	2.66
11	7.1101e-05	116.4275	1.1491	1.1248	2.16
Average		31.3%	41.6%	35.8%	3.97%

Table 25:

$0.3 <  \eta  < 0.8$			C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	1.4818e+03	23.9425	2.3006	2.0411	12.71
2	2.0736e+02	19.9388	1.9064	1.7594	8.36
3	3.2989e+01	14.9857	1.6715	1.5675	6.63
4	7.3589e+00	12.8073	1.5344	1.4572	5.30
5	1.3990e+00	12.9025	1.4346	1.3699	4.72
6	1.8980e-01	13.5593	1.3437	1.2933	3.90
7	2.1495e-02	15.6309	1.2679	1.232	2.91
8	3.3768e-03	23.7035	1.2332	1.204	2.43
9	9.8283e-04	35.6697	1.2139	1.1894	2.06
10	3.6303e-04	47.7796	1.201	1.1812	1.68
11	8.8899e-05	81.2158	1.1903	1.1742	1.37
Average		27.5%	48.2%	40.6%	4.73%

Table 26:

$0.8 <  \eta  < 1.2$			C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	1.2854e+03	26.9324	2.4748	2.1871	13.15
2	1.7380e+02	20.4538	2.0697	1.8944	9.25
3	2.8617e+01	16.2391	1.8088	1.6906	6.99
4	6.1844e+00	14.789	1.6572	1.57	5.55
5	1.1827e+00	13.0982	1.5386	1.4742	4.37
6	1.5232e-01	14.5727	1.4353	1.3923	3.09
7	1.7313e-02	18.1585	1.3597	1.3406	1.42
8	2.3051e-03	27.3074	1.3351	1.3227	0.94
9	6.5778e-04	46.1972	1.3217	1.3186	0.24
10	5.2980e-05	126.204	1.3121	1.3171	-0.38
Average		32.4%	63.1%	55.1%	4.46%

Table 27:

1.2 < $ \eta $ < 2.1			C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	1.0631e+03	31.3513	3.0331	2.5353	19.63
2	1.3804e+02	25.4028	2.5227	2.2084	14.23
3	2.1351e+01	17.9496	2.1767	1.9788	10.00
4	4.3594e+00	14.1602	1.9836	1.8438	7.58
5	7.3959e-01	14.6909	1.8368	1.7509	4.91
6	8.3714e-02	15.7487	1.7343	1.6861	2.86
7	9.2384e-03	20.4022	1.658	1.6528	0.31
8	9.1525e-04	32.1716	1.6286	1.6419	-0.81
9	9.0354e-05	81.2976	1.607	1.6374	-1.86
10	2.4030e-05	125.8652	1.6185	1.647	-1.73
Average		37.9%	97.9%	85.8%	5.5%

Table 28:

2.1 < $ \eta $ < 2.8			C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	7.1034e+02	40.3484	3.9478	3.1308	26.10
2	8.4674e+01	32.6038	3.3385	2.7929	19.54
3	1.0968e+01	22.655	2.9191	2.5984	12.34
4	1.8989e+00	18.4278	2.7629	2.5477	8.45
5	2.2594e-01	20.7194	2.7117	2.5872	4.81
6	1.1698e-02	24.7426	2.7453	2.7237	0.79
7	5.4844e-04	51.9687	3.0625	3.0997	-1.20
8	6.5250e-05	123.3975	3.9094	3.9963	-2.17
Average		41.8%	217.5%	193.5%	8.6%

Table 29:

2.8 < $ \eta $ < 3.6			C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	3.6430e+02	50.2722	5.3374	3.9357	35.62
2	3.1697e+01	48.5635	4.7785	3.8226	25.01
3	2.4769e+00	41.0702	4.609	3.9743	15.97
4	1.9495e-01	36.0109	4.8105	4.3093	11.63
5	4.9813e-03	37.8164	5.2937	5.1219	3.35
6	1.6560e-04	92.2274	8.0784	8.1394	-0.75
Average		50.9%	448.5%	388.4%	15.1%

Table 30:

3.6 < $ \eta $ < 4.4			C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	5.9628e+01	102.8591	8.898	6.0433	47.24
2	1.7051e+00	153.8379	9.7242	7.201	35.04
3	1.1701e-02	148.6082	14.6776	11.7403	25.02
Average		135.1%			35.8%

Table 31:

## 4.2 Gluon channel

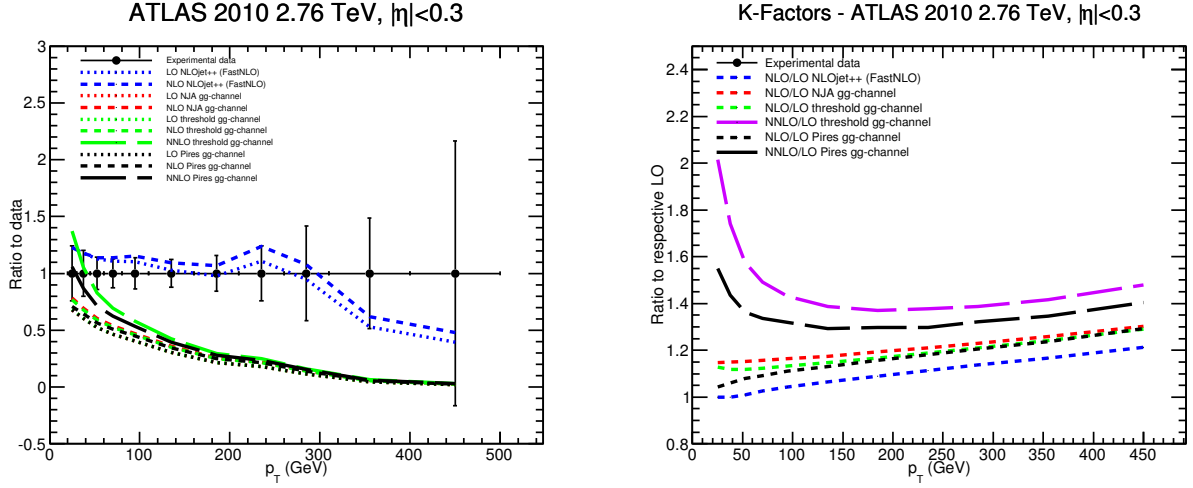


Figure 37:

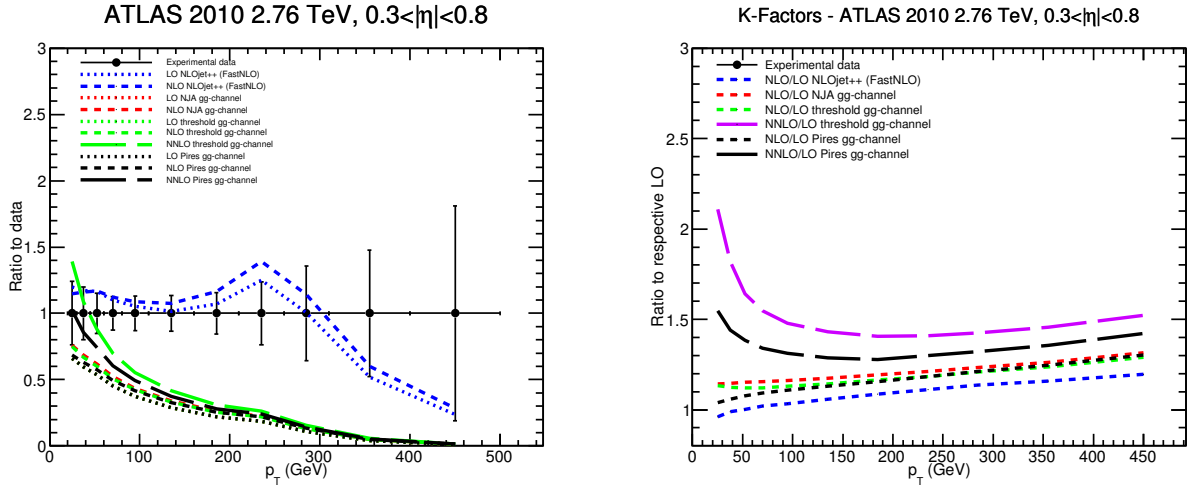


Figure 38:

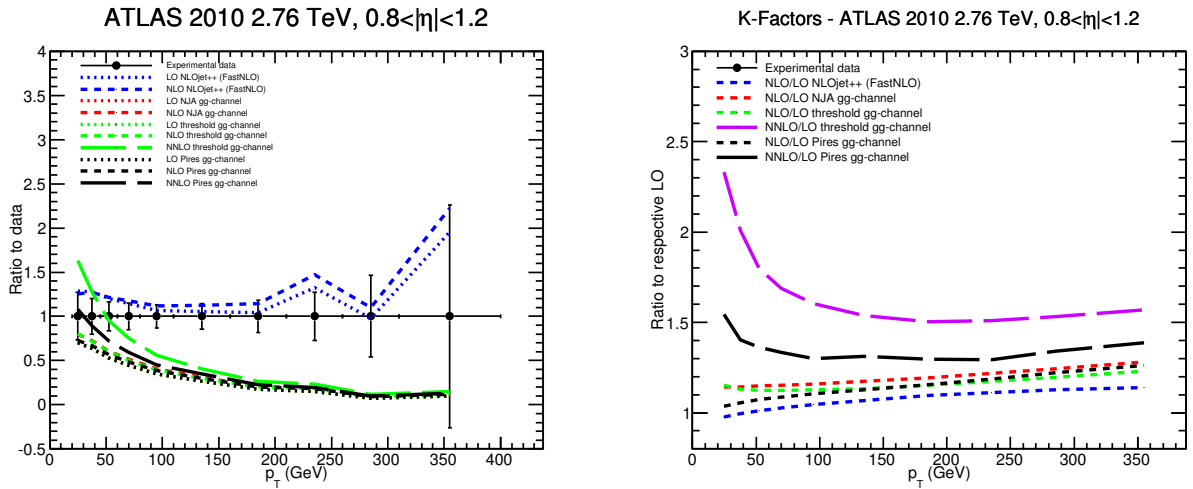


Figure 39:

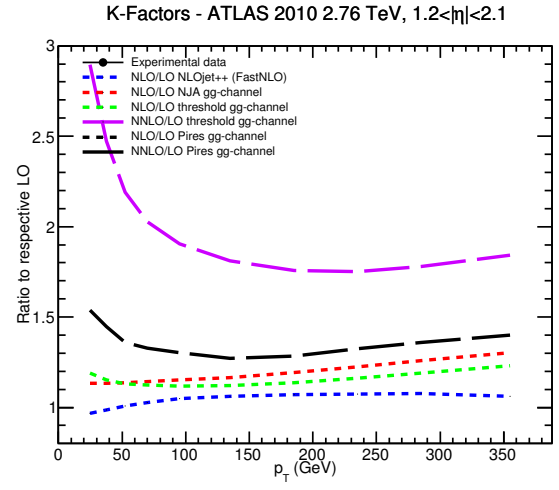
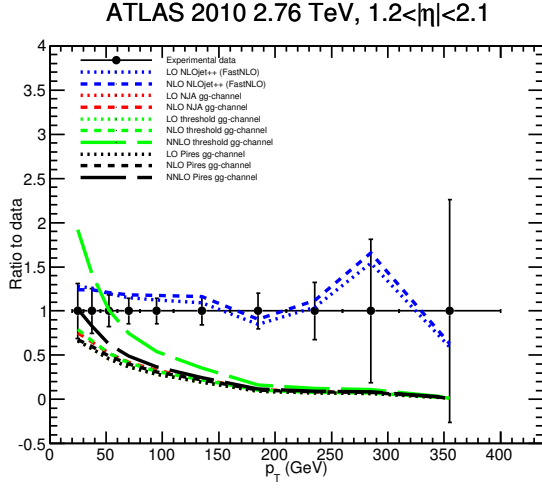


Figure 40:

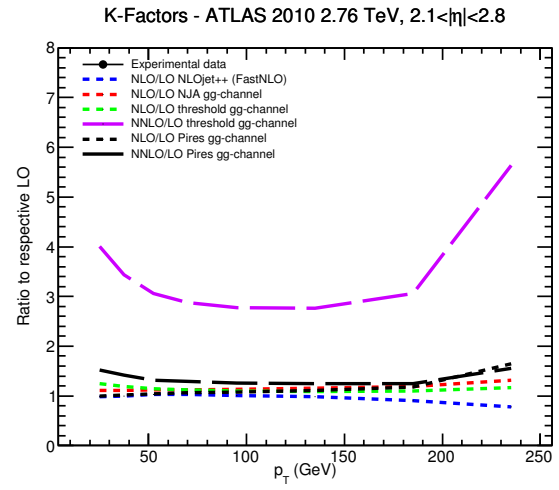
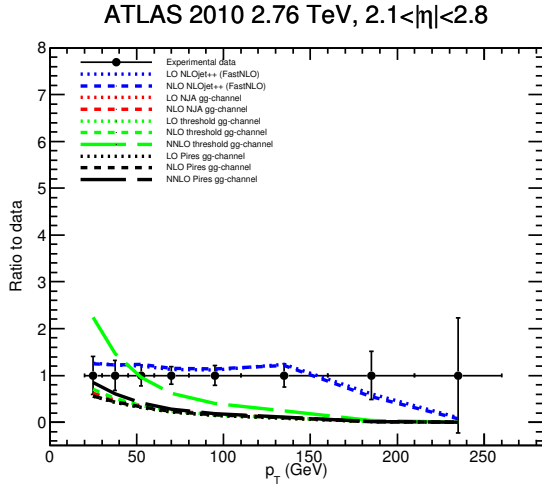


Figure 41:

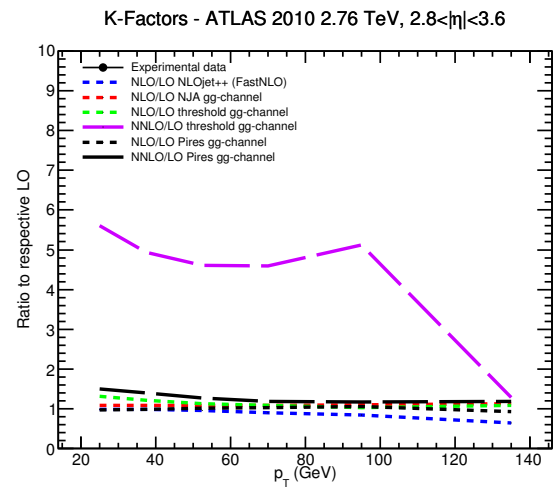
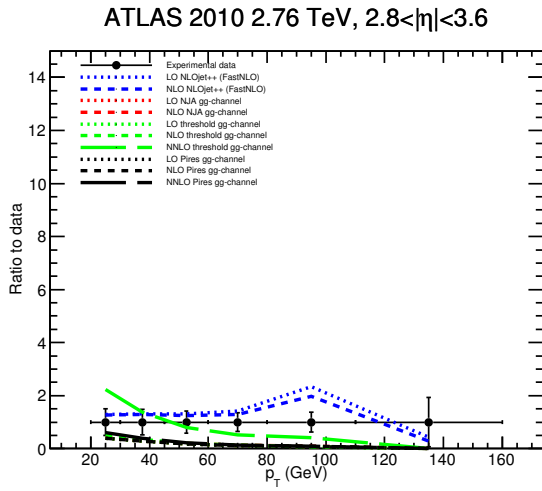


Figure 42:



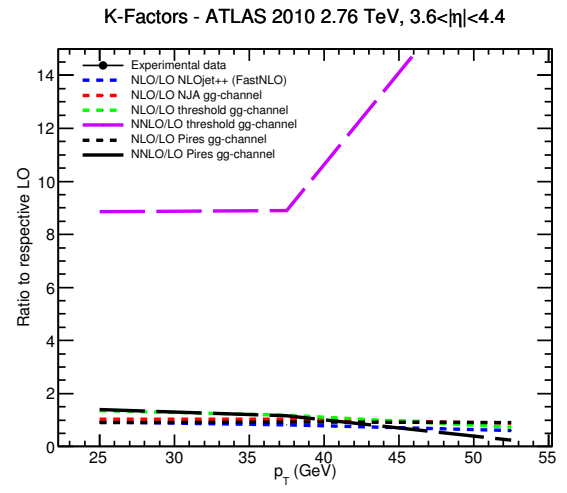
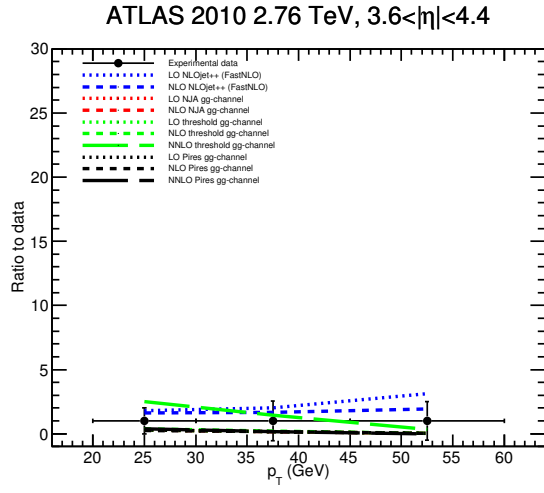
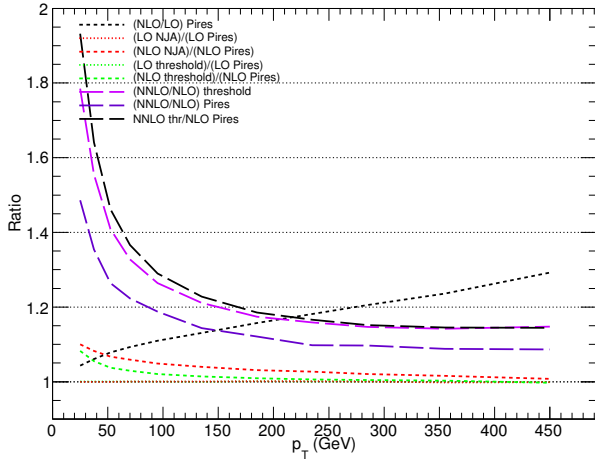


Figure 43:

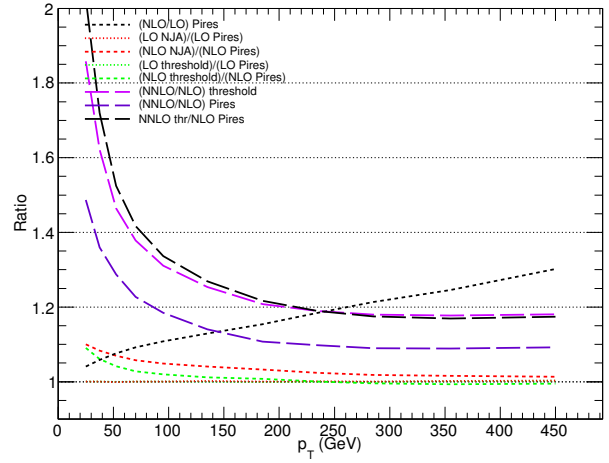


### 4.2.1 Ratio gluon channel

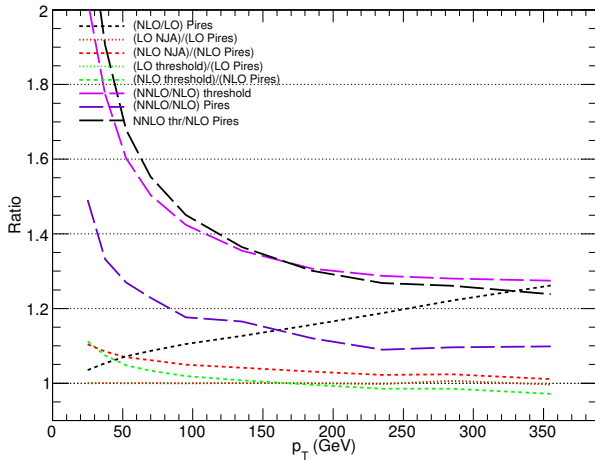
ATLAS 2010 2.76 TeV,  $|\eta| < 0.3$



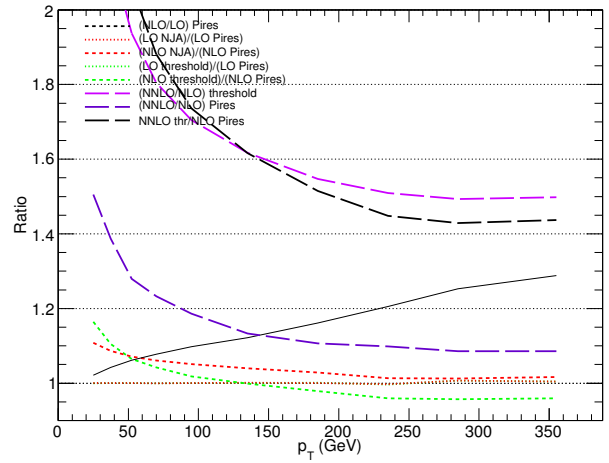
ATLAS 2010 2.76 TeV,  $0.3 < |\eta| < 0.8$



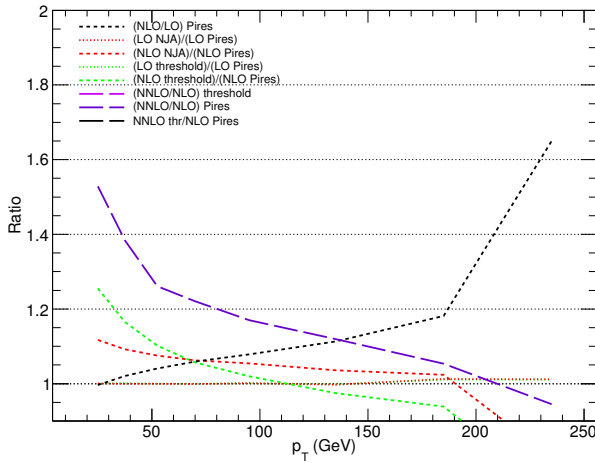
ATLAS 2010 2.76 TeV,  $0.8 < |\eta| < 1.2$



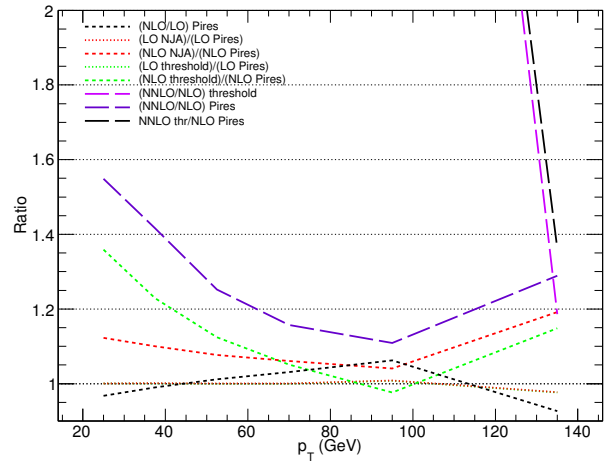
ATLAS 2010 2.76 TeV,  $1.2 < |\eta| < 2.1$



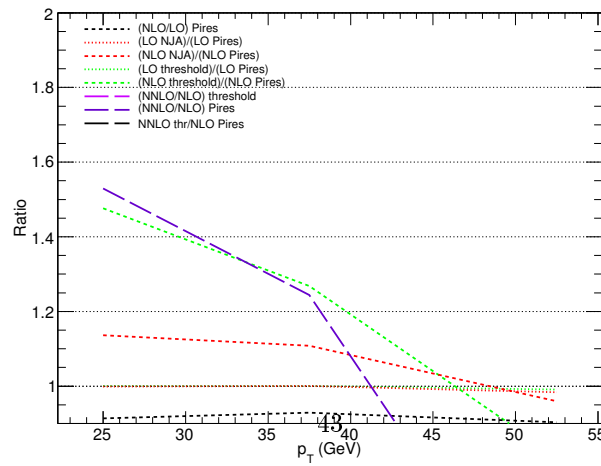
ATLAS 2010 2.76 TeV,  $2.1 < |\eta| < 2.8$



ATLAS 2010 2.76 TeV,  $2.8 < |\eta| < 3.6$



ATLAS 2010 2.76 TeV,  $3.6 < |\eta| < 4.4$



#### 4.2.2 C-Factors gluon channel

$ \eta  < 0.3$			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	1.4864e+03	24.2727	1.4862	1.7853	-16.75	1.9324	1.7853	8.24
2	2.1374e+02	20.195	1.354	1.5548	-12.91	1.641	1.5548	5.54
3	3.5667e+01	14.3507	1.2642	1.4088	-10.26	1.462	1.4088	3.78
4	7.7000e+00	12.8376	1.2232	1.3275	-7.86	1.3662	1.3275	2.92
5	1.4206e+00	13.8038	1.1879	1.2638	-6.01	1.2895	1.2638	2.03
6	2.0276e-01	12.2458	1.1438	1.2108	-5.53	1.2279	1.2108	1.41
7	2.5778e-02	15.7923	1.1213	1.174	-4.49	1.185	1.174	0.94
8	4.2737e-03	24.0877	1.0979	1.1584	-5.22	1.1658	1.1584	0.64
9	1.2081e-03	41.7325	1.0968	1.1464	-4.33	1.1516	1.1464	0.45
10	4.3152e-04	48.5072	1.0879	1.1419	-4.73	1.1451	1.1419	0.28
11	7.1101e-05	116.4275	1.0863	1.1474	-5.33	1.1441	1.1474	-0.29
Average		31.3%	19.5%	30.2%	-7.6%	33.7%	30.2%	2.36%

Table 32:

$0.3 <  \eta  < 0.8$			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	1.4818e+03	23.9425	1.4868	1.8582	-19.99	2.0257	1.8582	9.01
2	2.0736e+02	19.9388	1.36	1.6216	-16.13	1.7203	1.6216	6.09
3	3.2989e+01	14.9857	1.2872	1.464	-12.08	1.5246	1.464	4.14
4	7.3589e+00	12.8073	1.2271	1.3779	-10.94	1.4165	1.3779	2.80
5	1.3990e+00	12.9025	1.1842	1.3104	-9.63	1.3363	1.3104	1.98
6	1.8980e-01	13.5593	1.14	1.2539	-9.08	1.2689	1.2539	1.20
7	2.1495e-02	15.6309	1.1076	1.2075	-8.27	1.2165	1.2075	0.75
8	3.3768e-03	23.7035	1.0976	1.189	-7.69	1.1893	1.189	0.03
9	9.8283e-04	35.6697	1.0899	1.1799	-7.63	1.1749	1.1799	-0.42
10	3.6303e-04	47.7796	1.0889	1.1774	-7.52	1.1692	1.1774	-0.70
11	8.8899e-05	81.2158	1.0922	1.1804	-7.47	1.1739	1.1804	-0.55
Average		27.5%	19.6%	34.7%	-10.6%	38.3%	34.7%	2.21%

Table 33:

$0.8 <  \eta  < 1.2$			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	1.2854e+03	26.9324	1.4911	2.0263	-26.41	2.2532	2.0263	11.20
2	1.7380e+02	20.4538	1.3323	1.7743	-24.91	1.9061	1.7743	7.43
3	2.8617e+01	16.2391	1.2697	1.6024	-20.76	1.6787	1.6024	4.76
4	6.1844e+00	14.789	1.2289	1.5034	-18.26	1.5531	1.5034	3.31
5	1.1827e+00	13.0982	1.1763	1.4242	-17.41	1.4509	1.4242	1.87
6	1.5232e-01	14.5727	1.1656	1.3549	-13.97	1.365	1.3549	0.75
7	1.7313e-02	18.1585	1.1204	1.3066	-14.25	1.3009	1.3066	-0.44
8	2.3051e-03	27.3074	1.0897	1.2871	-15.34	1.2682	1.2871	-1.47
9	6.5778e-04	46.1972	1.0964	1.2798	-14.33	1.2612	1.2798	-1.45
10	5.2980e-05	126.204	1.0985	1.275	-13.84	1.2387	1.275	-2.85
Average		32.4%	20.7%	48.3%	-17.9%	52.8%	48.3%	2.3%

Table 34:

$1.2 <  \eta  < 2.1$			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	1.0631e+03	31.3513	1.5052	2.4321	-38.11	2.8326	2.4321	16.47
2	1.3804e+02	25.4028	1.3872	2.145	-35.33	2.3707	2.145	10.52
3	2.1351e+01	17.9496	1.2795	1.9372	-33.95	2.0623	1.9372	6.46
4	4.3594e+00	14.1602	1.2324	1.8043	-31.70	1.8803	1.8043	4.21
5	7.3959e-01	14.6909	1.1858	1.705	-30.45	1.7364	1.705	1.84
6	8.3714e-02	15.7487	1.1328	1.6173	-29.96	1.616	1.6173	-0.08
7	9.2384e-03	20.4022	1.1068	1.5472	-28.46	1.5148	1.5472	-2.09
8	9.1525e-04	32.1716	1.0988	1.5095	-27.21	1.4481	1.5095	-4.07
9	9.0354e-05	81.2976	1.0855	1.4933	-27.31	1.429	1.4933	-4.31
10	2.4030e-05	125.8652	1.0853	1.4978	-27.54	1.4366	1.4978	-4.09
Average		37.9%	20.9%	76.9%	-31%	83.3%	76.8%	2.5%

Table 35:

$2.1 <  \eta  < 2.8$			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	7.1034e+02	40.3484	1.5285	3.2055	-52.32	4.0247	3.2055	25.56
2	8.4674e+01	32.6038	1.3843	2.8889	-52.08	3.3667	2.8889	16.54
3	1.0968e+01	22.655	1.2611	2.6712	-52.79	2.942	2.6712	10.14
4	1.8989e+00	18.4278	1.2206	2.5724	-52.55	2.718	2.5724	5.66
5	2.2594e-01	20.7194	1.17	2.5309	-53.77	2.5811	2.5309	1.98
6	1.1698e-02	24.7426	1.1193	2.5444	-56.01	2.4797	2.5444	-2.54
7	5.4844e-04	51.9687	1.0532	2.7866	-62.20	2.6145	2.7866	-6.18
8	6.5250e-05	123.3975	0.9451	4.8469	-80.50	3.4522	4.8469	-28.78
Average		41.8%	21.%	200%	-57.8%	200%	200%	2.80%

Table 36:

$2.8 <  \eta  < 3.6$			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	3.6430e+02	50.2722	1.5483	4.2642	-63.69	5.795	4.2642	35.90
2	3.1697e+01	48.5635	1.4164	4.0624	-65.13	4.9907	4.0624	22.85
3	2.4769e+00	41.0702	1.2519	4.0504	-69.09	4.5523	4.0504	12.39
4	1.9495e-01	36.0109	1.1568	4.2394	-72.71	4.4561	4.2394	5.11
5	4.9813e-03	37.8164	1.1089	4.9744	-77.71	4.858	4.9744	-2.34
6	1.6560e-04	92.2274	1.289	1.1865	8.64	1.3624	1.1865	14.83
Average		50.9%	29.5%	279%	-56.6%	333%	279%	14.8%

Table 37:

$3.6 <  \eta  < 4.4$			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	5.9628e+01	102.8591	1.5297	6.5656	-76.70	9.6911	6.5656	47.60
2	1.7051e+00	153.8379	1.2438	7.567	-83.56	9.5968	7.567	26.82
3	1.1701e-02	148.6082	0.2609	26.0327	-99.00	21.1487	26.0327	-18.76
Average		135.1%	1.1%	13.4%	-86.4%	1200%	1238.8%	18.6%

Table 38:

## 5 CDF jets

### 5.1 All channels

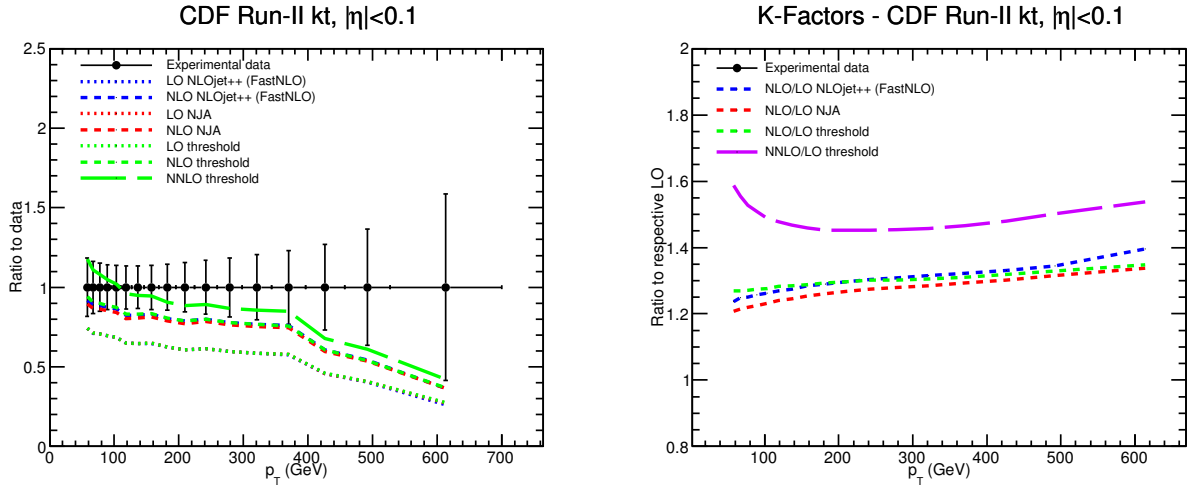


Figure 45:

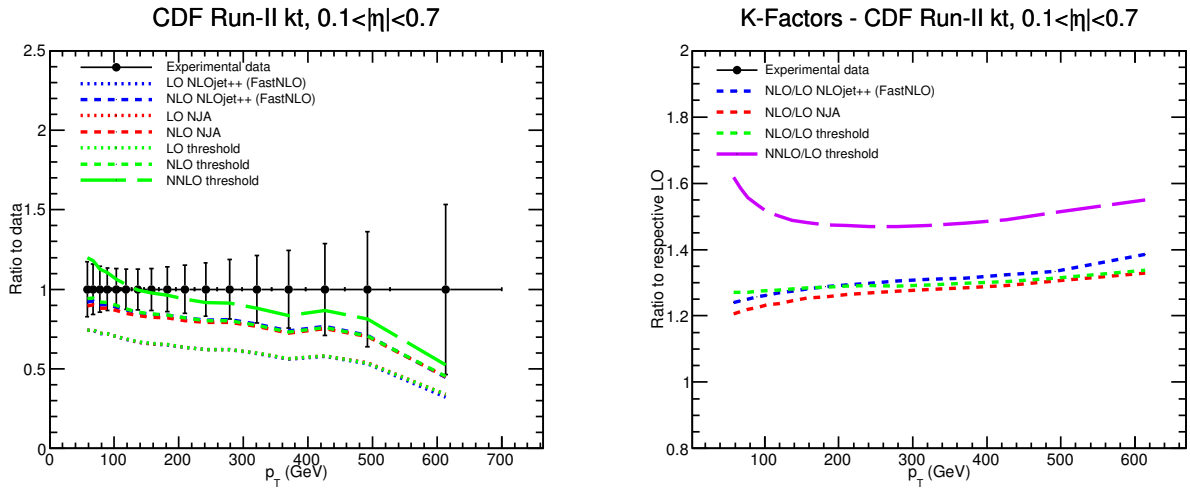


Figure 46:

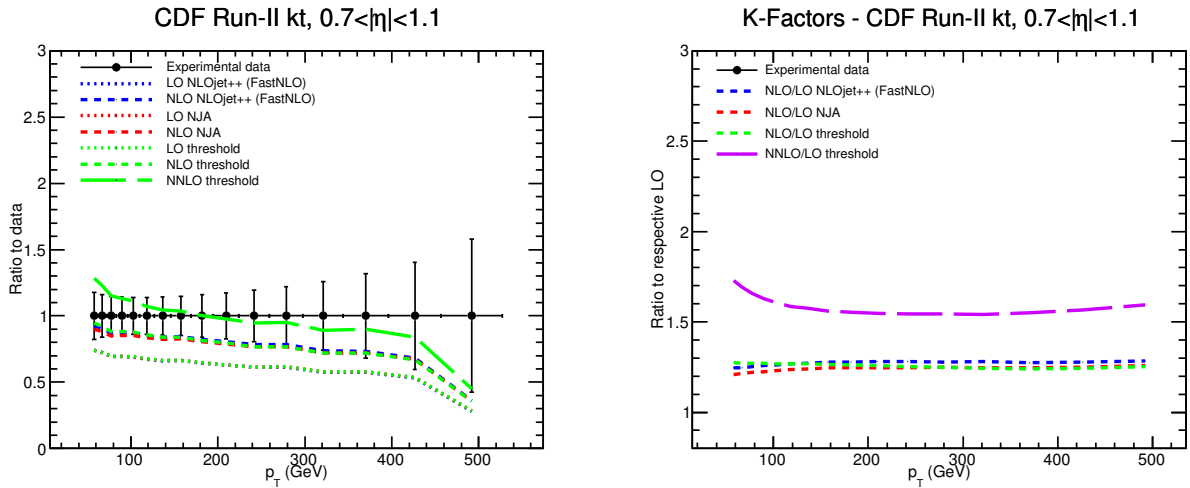


Figure 47:

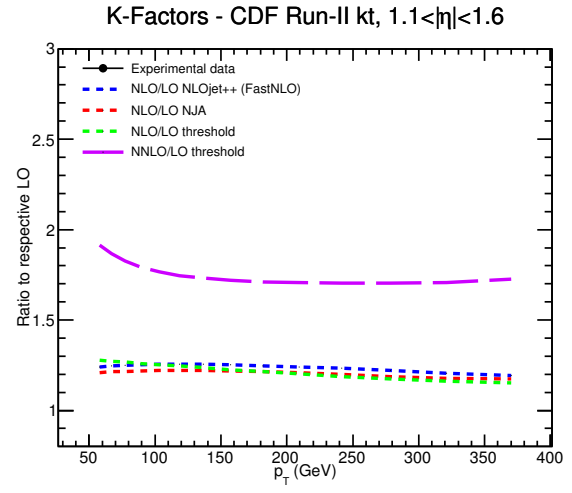
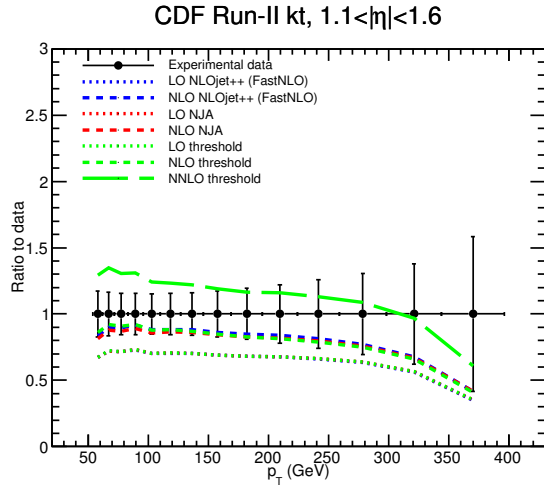


Figure 48:

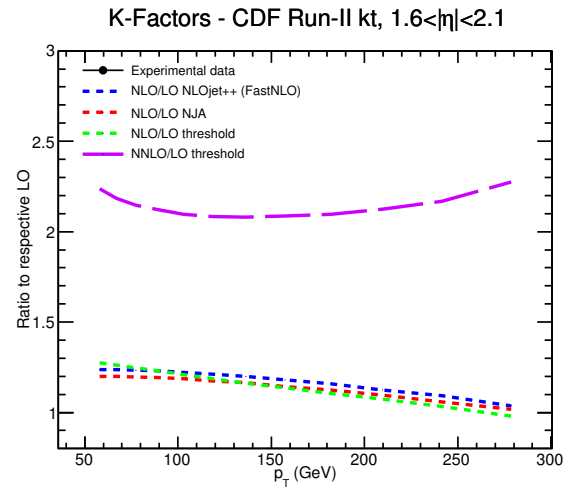
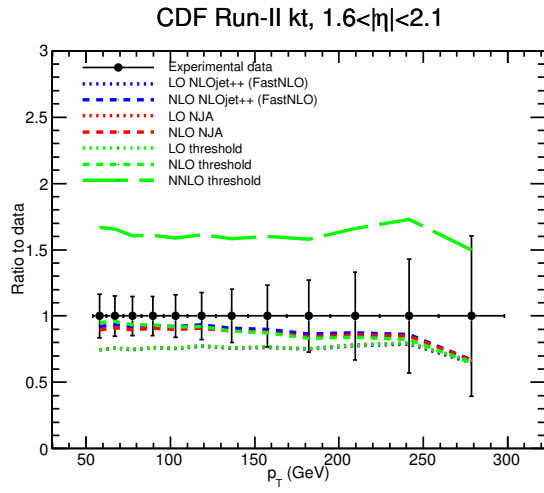


Figure 49:

### 5.1.1 Ratio all channels

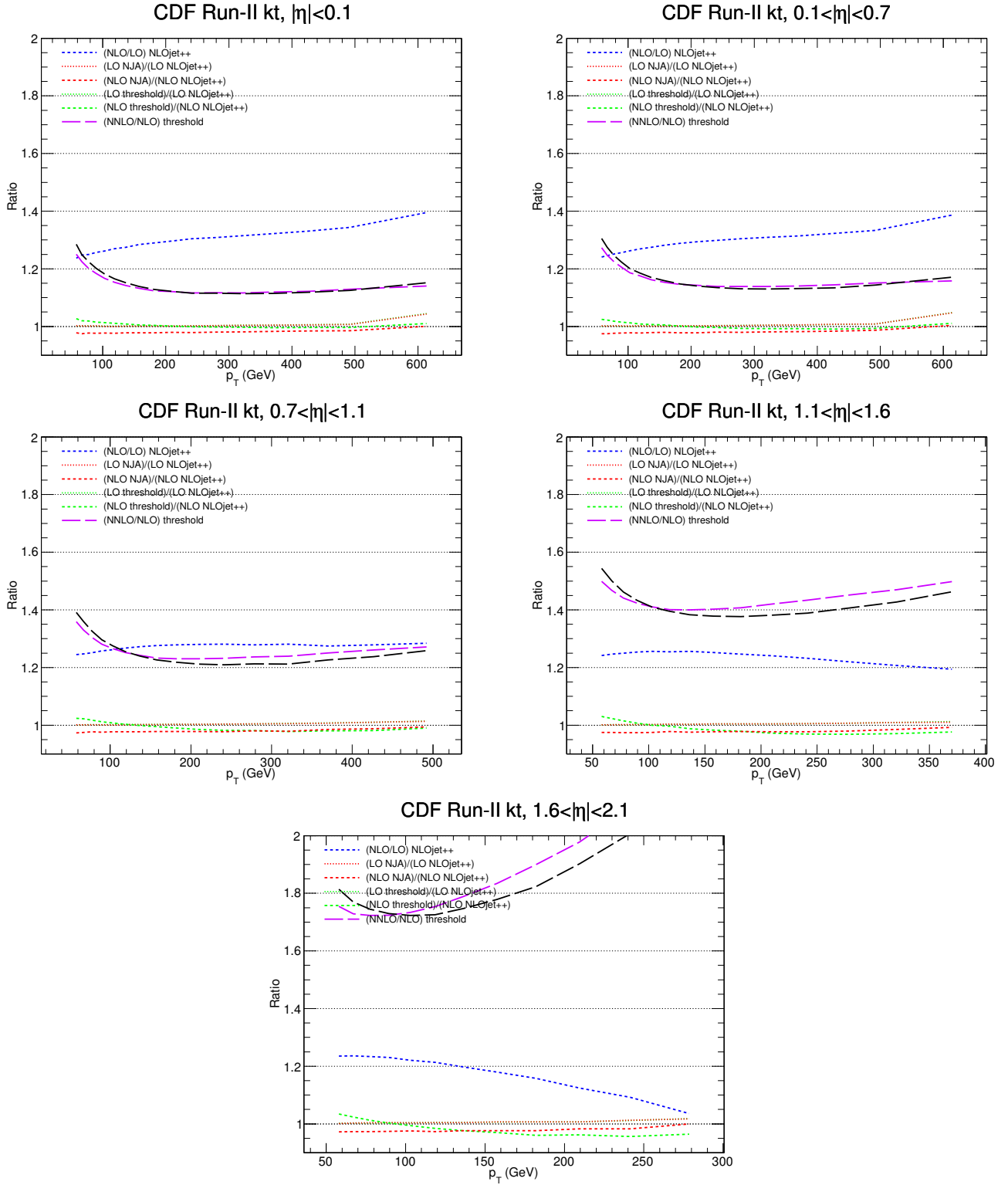


Figure 50:



### 5.1.2 C-Factors full prediction

$ \eta  < 0.1$			C-Factor, NNLO <sup>thr</sup> /		$\delta\%$
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	
1	1.4514e+01	18.3447	1.2846	1.2507	2.71
2	6.6800e+00	16.3363	1.2488	1.2249	1.95
3	2.8700e+00	15.1286	1.2244	1.2016	1.90
4	1.2400e+00	14.1836	1.2013	1.1837	1.49
5	5.3127e-01	13.6802	1.1818	1.1665	1.31
6	2.3347e-01	13.5437	1.1654	1.153	1.08
7	9.3974e-02	13.4586	1.1517	1.1415	0.89
8	3.6427e-02	13.8317	1.1387	1.1327	0.53
9	1.3990e-02	14.4361	1.1281	1.1237	0.39
10	5.2539e-03	15.5616	1.1218	1.1206	0.11
11	1.8034e-03	16.953	1.1155	1.1164	-0.08
12	5.9703e-04	18.58	1.1151	1.1171	-0.18
13	1.7996e-04	20.4884	1.1135	1.1162	-0.24
14	4.7549e-05	23.1129	1.1145	1.1193	-0.43
15	1.3190e-05	27.0039	1.1184	1.1221	-0.33
16	2.5342e-06	36.4214	1.125	1.1291	-0.36
17	2.2503e-07	58.6463	1.1514	1.1401	0.99
Average		20.6%	15.9%	15.1%	0.7%

Table 39:

$0.1 <  \eta  < 0.7$			C-Factor, NNLO <sup>thr</sup> /		$\delta\%$
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	
1	1.3986e+01	17.3309	1.3051	1.2733	2.50
2	6.1431e+00	15.7537	1.2745	1.2472	2.19
3	2.6927e+00	14.375	1.2468	1.2245	1.82
4	1.1417e+00	13.4666	1.2231	1.2051	1.49
5	4.9123e-01	12.9087	1.2003	1.1858	1.22
6	2.0862e-01	12.6869	1.1853	1.1753	0.85
7	8.5398e-02	12.7669	1.17	1.162	0.69
8	3.3417e-02	13.1506	1.1592	1.1535	0.49
9	1.2349e-02	14.0111	1.1472	1.1462	0.09
10	4.5527e-03	15.1797	1.1402	1.1423	-0.18
11	1.5786e-03	16.7691	1.135	1.1387	-0.32
12	4.9114e-04	18.7902	1.1303	1.1384	-0.71
13	1.4457e-04	21.2221	1.1298	1.1387	-0.78
14	3.7564e-05	24.4097	1.1317	1.1407	-0.79
15	7.3739e-06	28.8382	1.1339	1.1443	-0.91
16	1.2076e-06	36.0876	1.1433	1.1511	-0.68
17	9.5261e-08	53.4882	1.1706	1.1582	1.07
Average		20.1%	17.8%	17.2%	0.5%

Table 40:

0.7 < $ \eta $ < 1.1			C-Factor, NNLO <sup>thr</sup> /		$\delta\%$
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	
1	1.2263e+01	17.5576	1.3911	1.3588	2.38
2	5.4800e+00	16.2211	1.3594	1.33	2.21
3	2.4048e+00	14.8956	1.3262	1.304	1.70
4	1.0030e+00	14.2023	1.2962	1.2807	1.21
5	4.1645e-01	13.8172	1.2751	1.2654	0.77
6	1.7378e-01	13.8845	1.2554	1.2522	0.26
7	6.8641e-02	14.1844	1.2403	1.2421	-0.14
8	2.5339e-02	14.8484	1.2263	1.2326	-0.51
9	9.0082e-03	15.8953	1.2181	1.2306	-1.02
10	3.0643e-03	17.3788	1.212	1.23	-1.46
11	9.6152e-04	19.3332	1.2093	1.2316	-1.81
12	2.5591e-04	22.1375	1.2127	1.2364	-1.92
13	6.2727e-05	26.0269	1.2116	1.2394	-2.24
14	1.1394e-05	31.8232	1.226	1.2502	-1.94
15	1.6180e-06	40.2833	1.2373	1.2607	-1.86
16	2.3946e-07	57.7304	1.2583	1.271	-1.00
Average		21.9%	25.9%	26.3%	-0.34%

Table 41:

1.1 < $ \eta $ < 1.6			C-Factor, NNLO <sup>thr</sup> /		$\delta\%$
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	
1	1.0879e+01	17.4829	1.5441	1.4988	3.02
2	4.3494e+00	16.4669	1.5005	1.4673	2.26
3	1.7982e+00	15.6789	1.4622	1.4408	1.49
4	7.1298e-01	15.764	1.4331	1.4231	0.70
5	2.9442e-01	14.9935	1.4095	1.4102	-0.05
6	1.1252e-01	15.4667	1.3953	1.4007	-0.39
7	4.0467e-02	16.014	1.3828	1.3997	-1.21
8	1.3733e-02	17.3512	1.3783	1.4025	-1.73
9	4.1481e-03	19.2511	1.377	1.4073	-2.15
10	1.1431e-03	22.068	1.3815	1.4203	-2.73
11	2.7436e-04	25.8205	1.389	1.4337	-3.12
12	5.3199e-05	30.4573	1.4061	1.4516	-3.13
13	8.4774e-06	37.7877	1.4269	1.4699	-2.93
14	1.2254e-06	58.2323	1.463	1.498	-2.34
Average		23.1%	42.5%	43.7%	-0.88

Table 42:

1.6 < $ \eta $ < 2.1			C-Factor, NNLO <sup>thr</sup> /		$\delta\%$
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	
1	6.7267e+00	16.3059	1.8143	1.7541	3.43
2	2.6894e+00	15.1148	1.7696	1.729	2.35
3	1.0426e+00	14.659	1.7451	1.723	1.28
4	3.7794e-01	14.9126	1.7292	1.7242	0.29
5	1.3259e-01	15.9119	1.7232	1.7332	-0.58
6	4.2155e-02	17.6115	1.7259	1.7536	-1.58
7	1.2245e-02	20.0832	1.7474	1.7894	-2.35
8	2.9711e-03	23.1154	1.7786	1.8343	-3.04
9	5.9122e-04	27.0941	1.823	1.8988	-3.99
10	8.8678e-05	33.0822	1.902	1.9783	-3.86
11	9.2512e-06	42.8557	2.0079	2.0999	-4.38
12	5.9025e-07	60.5582	2.2366	2.3194	-3.57
Average		25.1%	83.3%	86.1%	-1.33%

Table 43:

## 5.2 Gluon channel

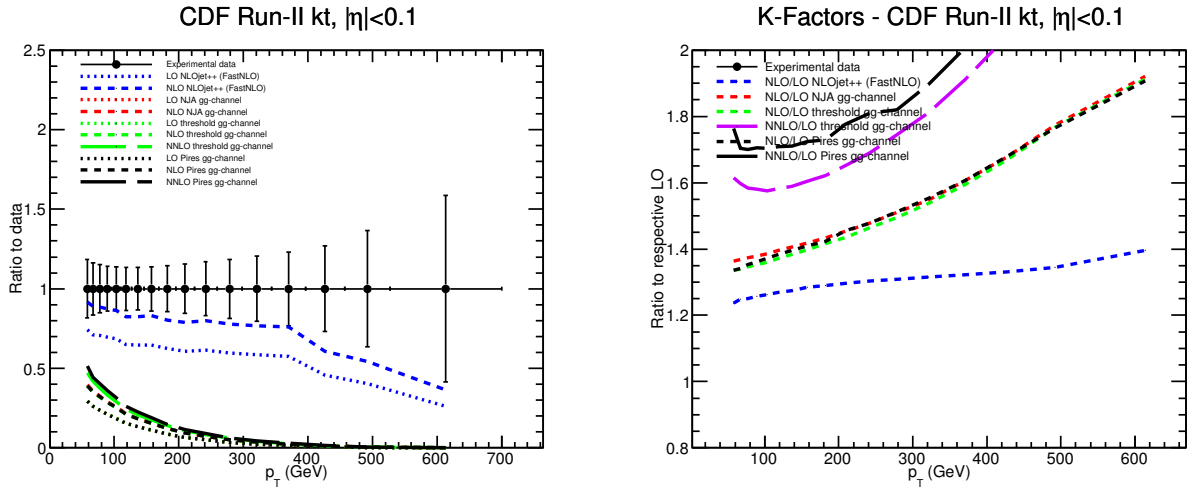


Figure 51:

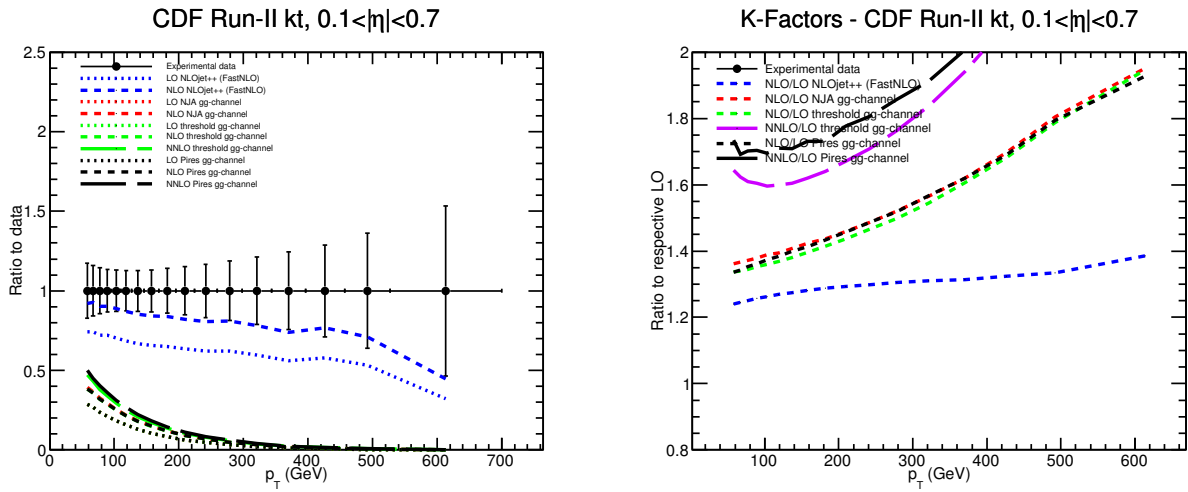


Figure 52:

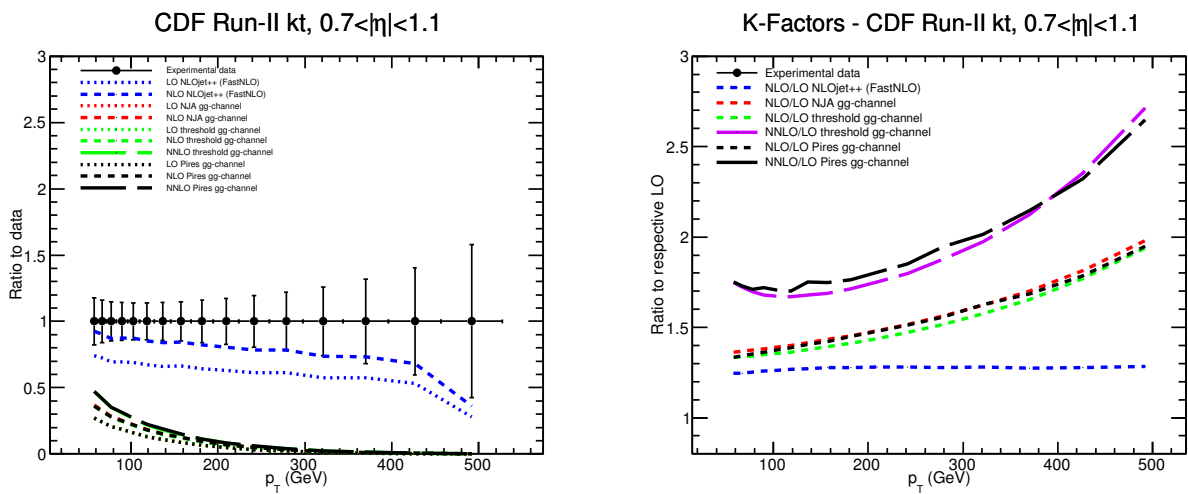


Figure 53:

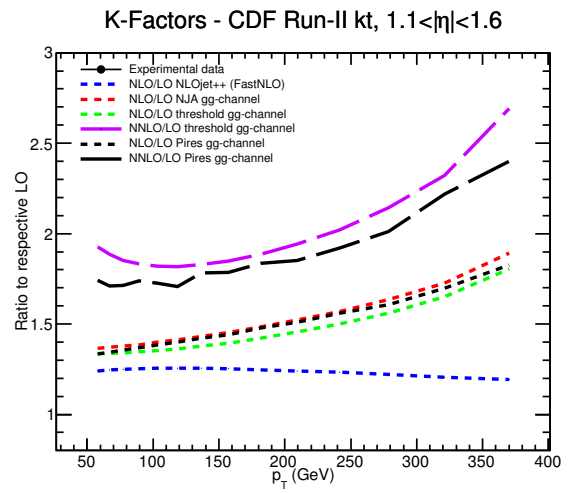


Figure 55:

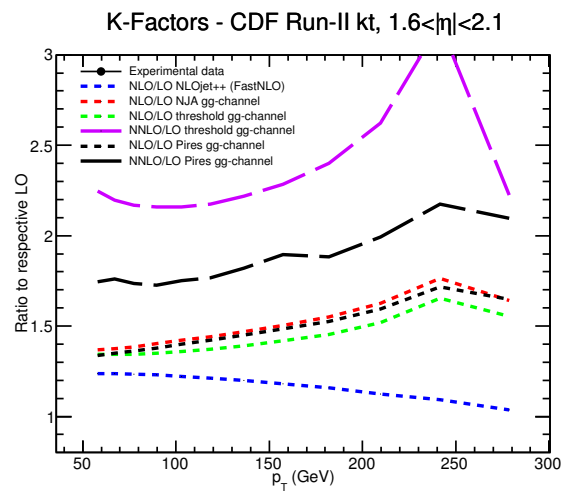


Figure 55:

### 5.2.1 Ratio gluon channel

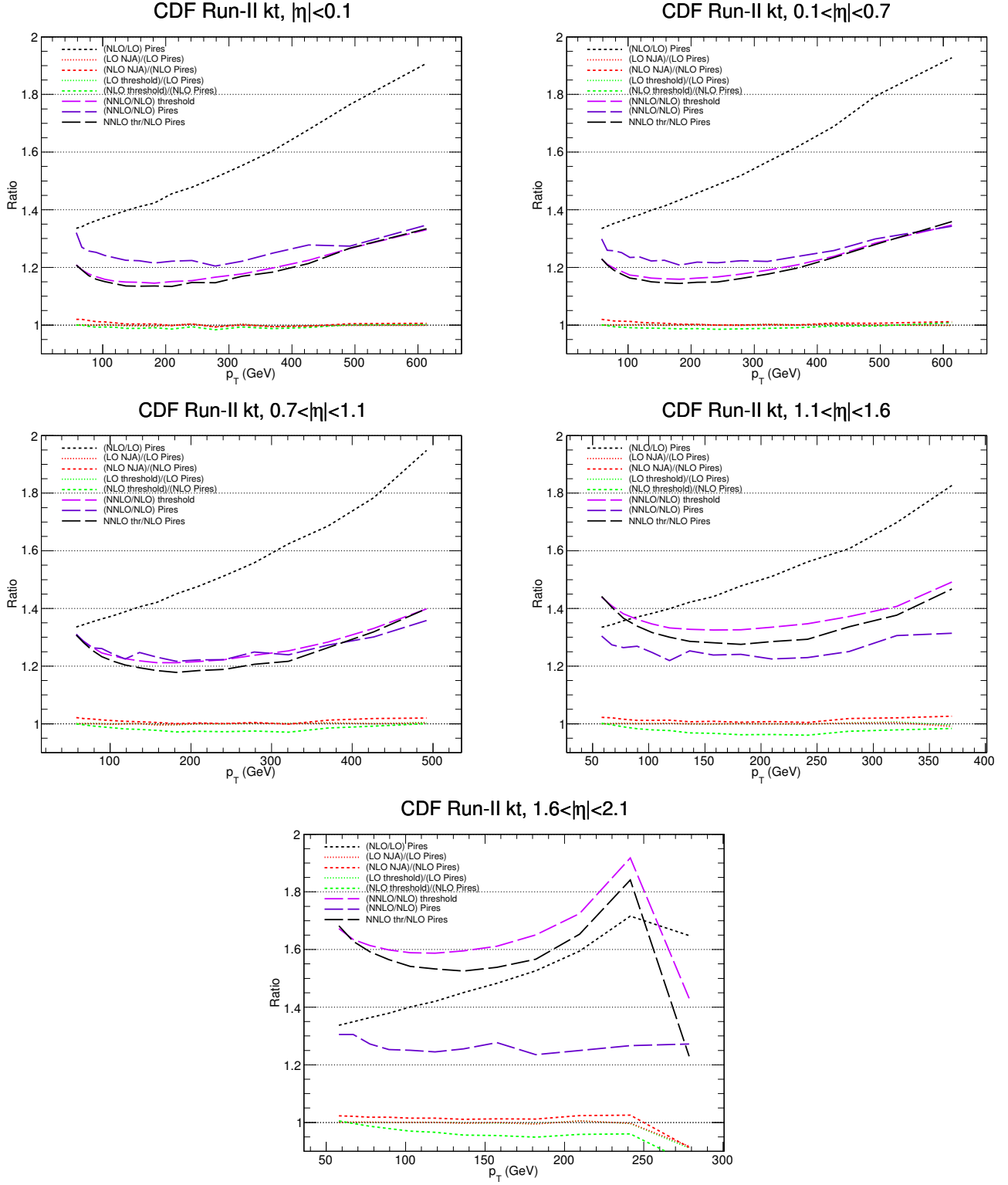


Figure 56:

### 5.2.2 C-Factors gluon channel

$ \eta  < 0.1$			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	1.4514e+01	18.3447	1.3205	1.2089	9.23	1.208	1.2089	-0.07
2	6.6800e+00	16.3363	1.2698	1.1919	6.54	1.191	1.1919	-0.08
3	2.8700e+00	15.1286	1.2569	1.1771	6.78	1.1716	1.1771	-0.47
4	1.2400e+00	14.1836	1.2518	1.1679	7.18	1.159	1.1679	-0.76
5	5.3127e-01	13.6802	1.2419	1.1587	7.18	1.1507	1.1587	-0.69
6	2.3347e-01	13.5437	1.2339	1.1527	7.04	1.1435	1.1527	-0.80
7	9.3974e-02	13.4586	1.2247	1.1489	6.60	1.1352	1.1489	-1.19
8	3.6427e-02	13.8317	1.2231	1.148	6.54	1.1349	1.148	-1.14
9	1.3990e-02	14.4361	1.2153	1.1453	6.11	1.1351	1.1453	-0.89
10	5.2539e-03	15.5616	1.2217	1.1504	6.20	1.1342	1.1504	-1.41
11	1.8034e-03	16.953	1.2237	1.1543	6.01	1.1474	1.1543	-0.60
12	5.9703e-04	18.58	1.2042	1.166	3.28	1.1468	1.166	-1.65
13	1.7996e-04	20.4884	1.2213	1.1773	3.74	1.169	1.1773	-0.71
14	4.7549e-05	23.1129	1.2496	1.1985	4.26	1.1838	1.1985	-1.23
15	1.3190e-05	27.0039	1.2778	1.2243	4.37	1.2138	1.2243	-0.86
16	2.5342e-06	36.4214	1.2741	1.2655	0.68	1.2666	1.2655	0.09
17	2.2503e-07	58.6463	1.3468	1.3305	1.23	1.334	1.3305	0.26
Average		20.6%	25%	18.6%	5.5%	17.8%	18.6%	-0.72%

Table 44:

$0.1 <  \eta  < 0.7$			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	1.3986e+01	17.3309	1.2988	1.2291	5.67	1.2298	1.2291	0.06
2	6.1431e+00	15.7537	1.2591	1.2111	3.96	1.2084	1.2111	-0.22
3	2.6927e+00	14.375	1.2581	1.1974	5.07	1.1905	1.1974	-0.58
4	1.1417e+00	13.4666	1.2511	1.1861	5.48	1.1768	1.1861	-0.78
5	4.9123e-01	12.9087	1.2347	1.1733	5.23	1.1627	1.1733	-0.90
6	2.0862e-01	12.6869	1.2362	1.1693	5.72	1.1578	1.1693	-0.98
7	8.5398e-02	12.7669	1.2225	1.1627	5.14	1.15	1.1627	-1.09
8	3.3417e-02	13.1506	1.2249	1.1608	5.52	1.147	1.1608	-1.19
9	1.2349e-02	14.0111	1.2076	1.1591	4.18	1.144	1.1591	-1.30
10	4.5527e-03	15.1797	1.2185	1.1627	4.80	1.1481	1.1627	-1.26
11	1.5786e-03	16.7691	1.2155	1.1665	4.20	1.1492	1.1665	-1.48
12	4.9114e-04	18.7902	1.2229	1.1767	3.93	1.1611	1.1767	-1.33
13	1.4457e-04	21.2221	1.221	1.1898	2.62	1.1762	1.1898	-1.14
14	3.7564e-05	24.4097	1.2382	1.2092	2.40	1.1982	1.2092	-0.91
15	7.3739e-06	28.8382	1.2585	1.2386	1.61	1.2342	1.2386	-0.36
16	1.2076e-06	36.0876	1.2987	1.2838	1.16	1.2797	1.2838	-0.32
17	9.5261e-08	53.4882	1.3427	1.3473	-0.34	1.3589	1.3473	0.86
Average		20.1%	24.8%	20.1%	3.9%	19.3%	20.1%	-0.76%

Table 45:

0.7 < $ \eta $ < 1.1			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	1.2263e+01	17.5576	1.3111	1.308	0.24	1.3075	1.308	-0.04
2	5.4800e+00	16.2211	1.2858	1.2863	-0.04	1.2816	1.2863	-0.37
3	2.4048e+00	14.8956	1.2633	1.2656	-0.18	1.2556	1.2656	-0.79
4	1.0030e+00	14.2023	1.2613	1.2457	1.25	1.2325	1.2457	-1.06
5	4.1645e-01	13.8172	1.2425	1.2356	0.56	1.2179	1.2356	-1.43
6	1.7378e-01	13.8845	1.2251	1.2254	-0.02	1.2036	1.2254	-1.78
7	6.8641e-02	14.1844	1.247	1.2187	2.32	1.1945	1.2187	-1.99
8	2.5339e-02	14.8484	1.2312	1.2118	1.60	1.1843	1.2118	-2.27
9	9.0082e-03	15.8953	1.2167	1.2121	0.38	1.1779	1.2121	-2.82
10	3.0643e-03	17.3788	1.2213	1.2161	0.43	1.1847	1.2161	-2.58
11	9.6152e-04	19.3332	1.2226	1.2221	0.04	1.1887	1.2221	-2.73
12	2.5591e-04	22.1375	1.2488	1.2373	0.93	1.2059	1.2373	-2.54
13	6.2727e-05	26.0269	1.2394	1.2529	-1.08	1.2164	1.2529	-2.91
14	1.1394e-05	31.8232	1.2729	1.2838	-0.85	1.2644	1.2838	-1.51
15	1.6180e-06	40.2833	1.3008	1.3305	-2.23	1.3189	1.3305	-0.87
16	2.3946e-07	57.7304	1.3582	1.3985	-2.88	1.3995	1.3985	0.07
Average		21.9%	25.9%	25.9%	0.03%	23.9%	25.9%	-1.6%

Table 46:

1.1 < $ \eta $ < 1.6			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	1.0879e+01	17.4829	1.3046	1.4397	-9.38	1.442	1.4397	0.16
2	4.3494e+00	16.4669	1.274	1.4086	-9.56	1.4041	1.4086	-0.32
3	1.7982e+00	15.6789	1.2638	1.3816	-8.53	1.3662	1.3816	-1.11
4	7.1298e-01	15.764	1.2692	1.3624	-6.84	1.3388	1.3624	-1.73
5	2.9442e-01	14.9935	1.247	1.3457	-7.33	1.3166	1.3457	-2.16
6	1.1252e-01	15.4667	1.2192	1.3325	-8.50	1.3005	1.3325	-2.40
7	4.0467e-02	16.014	1.253	1.3278	-5.63	1.2856	1.3278	-3.18
8	1.3733e-02	17.3512	1.2387	1.3254	-6.54	1.2814	1.3254	-3.32
9	4.1481e-03	19.2511	1.2408	1.3257	-6.40	1.2755	1.3257	-3.79
10	1.1431e-03	22.068	1.2248	1.3346	-8.23	1.2853	1.3346	-3.69
11	2.7436e-04	25.8205	1.2297	1.3472	-8.72	1.2934	1.3472	-3.99
12	5.3199e-05	30.4573	1.2503	1.372	-8.87	1.3362	1.372	-2.61
13	8.4774e-06	37.7877	1.3058	1.4069	-7.19	1.3765	1.4069	-2.16
14	1.2254e-06	58.2323	1.3141	1.4916	-11.90	1.4674	1.4916	-1.62
Average		23.1%	25.9%	37.2%	-8.1%	34.1%	37.2%	-2.3%

Table 47:

1.6 < $ \eta $ < 2.1			gg C-Factor			gg C-Factor, NNLO <sup>thr</sup> /		
$p_T$ bin	$\sigma_{\text{Exp}}$	$\sigma_{\text{Exp}}^{\text{error}} (\%)$	Exact	Thr	$\delta\%$	NLO <sup>exact</sup>	NLO <sup>thr</sup>	$\delta\%$
1	6.7267e+00	16.3059	1.3054	1.6725	-21.95	1.6819	1.6725	0.56
2	2.6894e+00	15.1148	1.3054	1.6347	-20.14	1.6284	1.6347	-0.39
3	1.0426e+00	14.659	1.2718	1.6136	-21.18	1.5922	1.6136	-1.33
4	3.7794e-01	14.9126	1.2526	1.5986	-21.64	1.5647	1.5986	-2.12
5	1.3259e-01	15.9119	1.2501	1.589	-21.33	1.5412	1.589	-3.01
6	4.2155e-02	17.6115	1.2448	1.587	-21.56	1.5325	1.587	-3.43
7	1.2245e-02	20.0832	1.255	1.5956	-21.35	1.5253	1.5956	-4.41
8	2.9711e-03	23.1154	1.2773	1.6111	-20.72	1.5384	1.6111	-4.51
9	5.9122e-04	27.0941	1.2349	1.6507	-25.19	1.5665	1.6507	-5.10
10	8.8678e-05	33.0822	1.2493	1.7251	-27.58	1.6532	1.7251	-4.17
11	9.2512e-06	42.8557	1.2665	1.9175	-33.95	1.8415	1.9175	-3.96
12	5.9025e-07	60.5582	1.2722	1.4305	-11.07	1.2293	1.4305	-14.07
Average		25.1%	26.5%	63.5%	-22.31%	57.5%	63.5%	-3.83%

Table 48:

## 6 D0 jets

### 6.1 All channels

### 6.2 Gluon channel

### 6.3 Ratios



## 7 MEKS vs NLOjet++

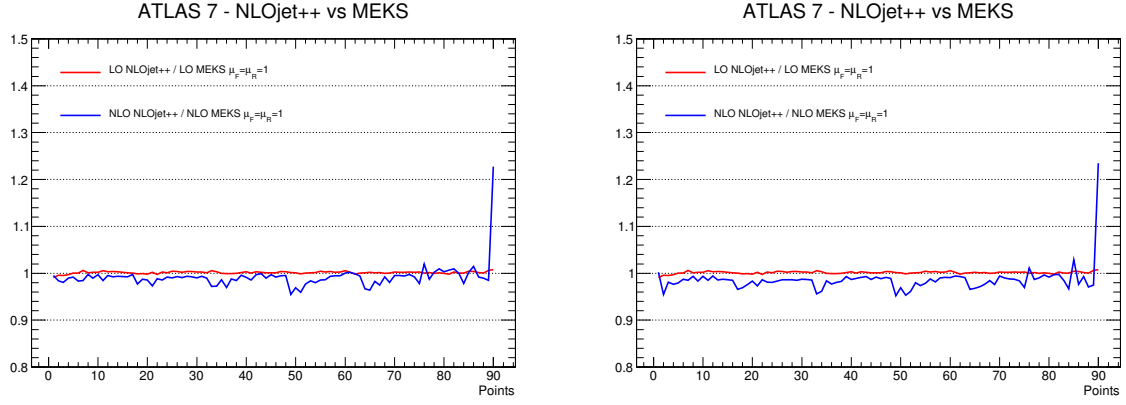


Figure 57: MEKS using 4D recombination algorithm vs  $E_T$ .

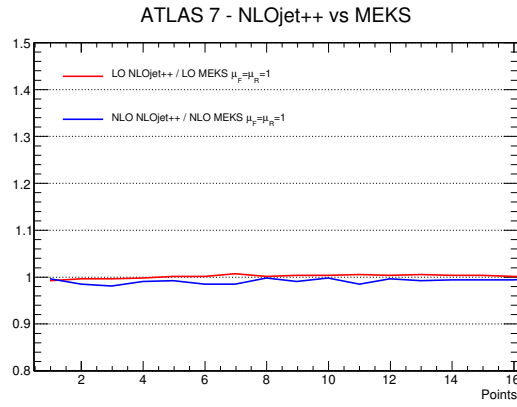


Figure 58: NLOjet++ vs MEKS (4D recombination) for the first ATLAS7 bin.

## 8 Channel by channel comparison

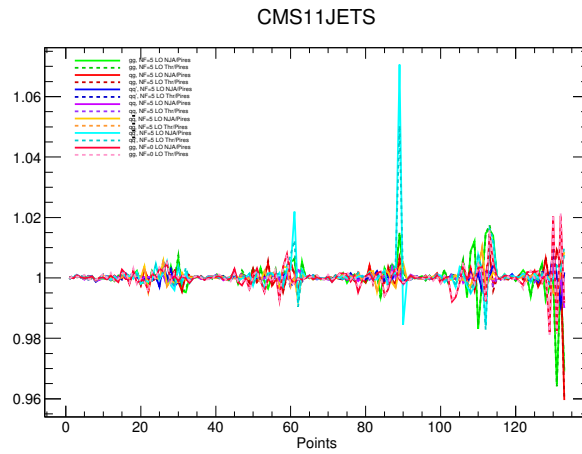


Figure 59: Agreement @ LO.