

7000 GeV pp

Jets

Gap fraction

Gap fraction vs Δy (LJ) ($240 < p_T < 270$)

- ATLAS
- - □ Herwig 7.2.1 default
- - ▲ Pythia 8.308 default

2

1.5

1

0.5

0

Rivet 3.1.10, $\geq 100k$ events

mcplots.cern.ch [arXiv:1306.3436]

ATLAS_2011_S9126244

Ratio to ATLAS

2

1

0.5

2

0.5

0

2

4

6

$|\Delta y|$

The figure displays two panels related to the gap fraction in 7000 GeV pp collisions. The top panel shows the gap fraction as a function of the absolute rapidity difference $|\Delta y|$ (ranging from 0 to 6). The data points are from ATLAS (black squares), Herwig 7.2.1 default (green dashed line with squares), and Pythia 8.308 default (blue solid line with triangles). The gap fraction decreases from approximately 0.95 at $|\Delta y| = 0.5$ to about 0.35 at $|\Delta y| = 5.5$. The bottom panel shows the ratio of the gap fraction to the ATLAS data. The ratio is close to 1.0 for $|\Delta y| < 3$, but deviates significantly for larger $|\Delta y|$, with Herwig (green) and Pythia (yellow) models showing ratios up to 2.0 at $|\Delta y| = 5$.

$ \Delta y $	ATLAS Gap Fraction	Herwig 7.2.1 default Gap Fraction	Pythia 8.308 default Gap Fraction	Herwig Ratio to ATLAS	Pythia Ratio to ATLAS
0.5	0.95	0.95	0.95	1.0	1.0
1.0	0.80	0.80	0.80	1.0	1.0
1.5	0.65	0.65	0.65	1.0	1.0
2.0	0.55	0.55	0.55	1.0	1.0
2.5	0.45	0.50	0.45	1.1	1.0
3.0	0.40	0.45	0.40	1.1	1.0
3.5	0.35	0.30	0.40	0.8	1.2
4.0	0.32	0.30	0.32	0.9	1.0
4.5	0.33	0.15	0.33	0.4	1.0
5.0	0.35	-	0.50	1.5	1.5
5.5	0.00	-	-	-	-