

Gap fraction

Gap fraction vs Δy (LJ) ($120 < p_T < 150$)

- ATLAS
- ▲ Pythia 8.201 default
- ◆ Sherpa 2.2.8 default

2

1.8

1.6

1.4

1.2

1.0

0.8

0.6

0.4

0.2

0

ATLAS_2011_S9126244

Rivet 3.1.0, $\geq 100k$ events

mcplots.cern.ch [arXiv:1306.3436]

Ratio to ATLAS

2

1

0.5

2

1

0.5

0

2

4

6

$|\Delta y|$

The figure consists of two vertically stacked panels sharing a common x-axis representing the rapidity difference $|\Delta y|$ from 0 to 6. The top panel shows the 'Gap fraction' on the left y-axis (0 to 2) and the 'Rivet 3.1.0, $\geq 100k$ events' on the right y-axis. The bottom panel shows the 'Ratio to ATLAS' on the left y-axis (0.5 to 2) and the 'mcplots.cern.ch [arXiv:1306.3436]' on the right y-axis. Three data series are plotted: ATLAS (black squares), Pythia 8.201 default (blue triangles), and Sherpa 2.2.8 default (red diamonds). In the top panel, the gap fraction decreases from approximately 0.95 at $|\Delta y| = 0.2$ to about 0.15 at $|\Delta y| = 5.8$. In the bottom panel, the ratio to ATLAS is mostly around 1.0, with a significant dip to ~0.55 at $|\Delta y| \approx 5.2$ and a peak to ~2.1 at $|\Delta y| \approx 5.8$. Shaded regions in the bottom panel indicate uncertainty bands: yellow for Pythia 8.201 and green for Sherpa 2.2.8.

$ \Delta y $	ATLAS Gap Fraction	Pythia 8.201 Gap Fraction	Sherpa 2.2.8 Gap Fraction	Pythia 8.201 Ratio to ATLAS	Sherpa 2.2.8 Ratio to ATLAS
0.2	0.95	0.95	0.95	1.0	1.0
0.7	0.85	0.85	0.85	1.0	1.0
1.2	0.75	0.75	0.75	1.0	1.0
1.7	0.65	0.65	0.65	1.0	1.0
2.2	0.55	0.55	0.60	0.9	1.1
2.7	0.50	0.45	0.55	0.85	1.1
3.2	0.45	0.45	0.55	1.0	1.3
3.7	0.38	0.38	0.45	1.1	1.3
4.2	0.30	0.25	0.45	0.85	1.6
4.7	0.28	0.30	0.40	1.2	1.6
5.2	0.30	0.18	0.25	0.55	0.85
5.8	0.18	0.35	-	2.1	-