

Gap fraction

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

- ATLAS
- - □ Herwig 7.2.0 default
- · · ◆ Sherpa 2.2.8 default

2

1.5

1

0.5

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

0.5

0 2 4 6

$|\Delta y|$

The figure consists of two vertically stacked panels sharing a common x-axis representing the absolute rapidity difference $|\Delta y|$ from 0 to 6. The top panel shows the 'Gap fraction' on the y-axis (0 to 2). It features three data series: ATLAS experimental data (black squares), Herwig 7.2.0 default (green dashed line with open squares), and Sherpa 2.2.8 default (red dotted line with red diamonds). All series show a general downward trend from $|\Delta y| \approx 0.5$ to $|\Delta y| \approx 4.5$, followed by a sharp increase at $|\Delta y| \approx 4.8$. The bottom panel shows the 'Ratio to ATLAS' on the y-axis (0.5 to 2). It displays the same three series as the top panel, but with shaded regions (green for Herwig, yellow for Sherpa) representing uncertainty bands. A horizontal line is drawn at a ratio of 1.0. The ratio for the models generally stays near 1.0 until $|\Delta y| \approx 4.5$, where it deviates significantly, with Sherpa reaching a ratio of approximately 1.5 and Herwig reaching approximately 1.4 at $|\Delta y| \approx 4.8$.

$ \Delta y $	ATLAS Gap Fraction	Herwig 7.2.0 Gap Fraction	Sherpa 2.2.8 Gap Fraction	Herwig Ratio to ATLAS	Sherpa 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	0.60	1.0	0.9
2.0	0.55	0.55	0.50	1.0	0.9
2.5	0.45	0.45	0.35	1.0	0.85
3.0	0.38	0.38	0.30	0.95	0.85
3.5	0.32	0.32	0.25	0.9	0.8
4.0	0.28	0.28	0.20	0.9	0.65
4.5	0.32	0.20	0.18	0.55	0.55
4.8	0.35	0.35	0.50	1.5	1.5
5.8	0.0	-	-	-	-