

Gap fraction

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

- ATLAS
- - □ Herwig 7.2.0 default
- - ▲ Pythia 8.150 default
- - ◆ Sherpa 1.2.2p 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

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 displays the 'Gap fraction' on the y-axis, ranging from 0 to 2. It compares ATLAS experimental data (black squares) with three Monte Carlo models: Herwig 7.2.0 (green dashed line with squares), Pythia 8.150 (blue solid line with triangles), and Sherpa 1.2.2p (red dotted line with diamonds). All models show a decreasing trend in gap fraction as $|\Delta y|$ increases. The bottom panel shows the 'Ratio to ATLAS' on the y-axis, ranging from 0.5 to 2. A horizontal line is drawn at a ratio of 1.0. The Herwig model is represented by a green shaded histogram, and the Pythia model by a yellow shaded histogram. The ATLAS data points are also plotted in this panel for comparison.

$ \Delta y $	ATLAS	Herwig 7.2.0	Pythia 8.150	Sherpa 1.2.2p
0.3	0.95	0.95	0.95	0.95
0.8	0.80	0.80	0.80	0.80
1.3	0.68	0.68	0.68	0.68
1.8	0.55	0.55	0.55	0.55
2.3	0.48	0.48	0.48	0.48
2.8	0.40	0.40	0.40	0.40
3.3	0.35	0.35	0.35	0.35
3.8	0.30	0.30	0.30	0.30
4.3	0.32	0.20	0.20	0.40
4.8	0.35	-	-	-
5.8	0.00	-	-	-