

Gap fraction

Gap fraction vs Δy (FB) ($210 < p_T < 240$ ($Q_0 = \bar{p}_T$))

- ATLAS
- - □ Herwig 7.2.0 default
- - ◆ Sherpa 1.4.5 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 absolute rapidity difference $|\Delta y|$ from 0 to 6. The top panel shows the 'Gap fraction' on the y-axis (0 to 2). It displays ATLAS data points (black squares) and two Monte Carlo models: Herwig 7.2.0 (green dashed line with open squares) and Sherpa 1.4.5 (red dotted line with filled diamonds). Both models show a decreasing trend in gap fraction as $|\Delta y|$ increases. The bottom panel shows the 'Ratio to ATLAS' on the y-axis (0.5 to 2). It features the same data points and models, along with a horizontal line at 1.0. The Herwig model (green) stays near 1.0, while the Sherpa model (red) shows a slight increase in ratio at larger $|\Delta y|$. A yellow and green shaded region is overlaid on the bottom panel, representing the uncertainty or spread of the models. The text 'ATLAS_2011_S9126244' is centered in the top panel, and 'Rivet 3.1.0, $\geq 100k$ events' and 'mcplots.cern.ch [arXiv:1306.3436]' are on the right side.

$ \Delta y $	ATLAS Gap Fraction	Herwig 7.2.0 Gap Fraction	Sherpa 1.4.5 Gap Fraction	Ratio to ATLAS (Herwig)	Ratio to ATLAS (Sherpa)
0.5	1.0	1.0	1.0	1.0	1.0
1.0	0.98	0.98	0.98	1.0	1.0
1.5	0.95	0.95	0.95	1.0	1.0
2.0	0.92	0.85	0.92	0.92	1.0
2.5	0.88	0.88	0.88	1.0	1.0
3.0	0.82	0.75	0.82	0.9	1.0
3.5	0.80	0.62	0.80	0.8	1.0
4.0	0.70	0.68	0.75	0.95	1.1
4.5	0.48	0.42	0.68	0.88	1.5
5.0	0.35	-	-	-	-
5.5	0.0	-	-	-	-