

Gap fraction

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

- ATLAS
- - □ Herwig 7.2.0 default
- · · · ◆ Sherpa 2.2.1 default

2

1.5

1

0.5

0

Rivet 3.1.0, ≥ 100 k 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 sharing a common x-axis representing the absolute rapidity difference $|\Delta y|$ from 0 to 6. The top panel shows the gap fraction, with ATLAS data points (black squares) and theoretical predictions from Herwig 7.2.0 (green dashed line with squares) and Sherpa 2.2.1 (red dotted line with diamonds). The bottom panel shows the ratio of the theoretical predictions to the ATLAS data, with a shaded uncertainty band. The ATLAS data points in the top panel show a decreasing trend from approximately 1.0 at $|\Delta y| \approx 0.5$ to 0.3 at $|\Delta y| \approx 5.5$. The theoretical models generally follow this trend but show significant uncertainty at larger $|\Delta y|$.

$ \Delta y $	ATLAS Gap Fraction	Herwig 7.2.0 Ratio	Sherpa 2.2.1 Ratio
0.5	1.0	1.0	1.0
1.0	0.95	1.0	1.0
1.5	0.9	0.95	0.95
2.0	0.85	0.85	0.9
2.5	0.8	0.85	0.85
3.0	0.75	0.75	0.7
3.5	0.7	0.65	0.75
4.0	0.65	0.65	0.55
4.5	0.45	0.4	-
5.0	0.35	-	-
5.5	0.0	-	-