

Gap fraction

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

- ATLAS
- - □ Herwig 7.1.3 default
- - ▲ Pythia 8.170 default
- - ◆ Sherpa 1.4.0 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 displays two panels comparing ATLAS experimental data with three Monte Carlo (MC) models for gap fraction and their ratio to ATLAS. The x-axis represents the absolute rapidity difference $|\Delta y|$ from 0 to 6. The top panel shows the gap fraction, which starts at 1.0 for $|\Delta y| = 0$ and generally decreases as $|\Delta y|$ increases. The bottom panel shows the ratio of the MC models to the ATLAS data, with a horizontal line at 1.0. Shaded regions in the bottom panel indicate the uncertainty bands for the MC models: yellow for Herwig 7.1.3, green for Pythia 8.170, and blue for Sherpa 1.4.0. The ATLAS data points are shown as black squares with error bars.

$ \Delta y $	ATLAS Gap Fraction	Herwig 7.1.3 Ratio	Pythia 8.170 Ratio	Sherpa 1.4.0 Ratio
0.2	1.0	1.0	1.0	1.0
0.8	0.95	0.9	1.0	1.0
1.4	0.9	0.9	0.9	1.0
2.0	0.9	1.0	0.9	1.0
2.6	0.85	1.0	0.9	1.0
3.2	0.8	1.0	0.9	1.1
3.8	0.75	0.5	0.8	0.9
4.4	0.7	1.1	1.2	1.0
5.0	0.5	1.1	0.8	-
5.6	0.3	-	-	-
6.2	0.0	-	-	-