

7000 GeV pp

Jets

Gap fraction

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

- ATLAS
- - □ Herwig 7.2.0 default
- - ▲ Pythia 8.209 default
- - ◆ Sherpa 1.2.2p default

2.5

2

1.5

1

0.5

0

Rivet 3.1.0, $\geq 100k$ 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 comparing ATLAS experimental data with Monte Carlo (MC) models for gap fractions in 7000 GeV pp collisions. The top panel shows the gap fraction as a function of the rapidity separation $|\Delta y|$ (ranging from 0 to 6). The bottom panel shows the ratio of the gap fraction to the ATLAS data, with a horizontal line at 1.0. The ATLAS data points (black squares) are compared against three MC models: Herwig 7.2.0 (green squares), Pythia 8.209 (blue triangles), and Sherpa 1.2.2p (red diamonds). Error bars are shown for all data points. A shaded region in the bottom panel represents the uncertainty of the ATLAS data.

$ \Delta y $	ATLAS Gap Fraction	Herwig 7.2.0 Gap Fraction	Pythia 8.209 Gap Fraction	Sherpa 1.2.2p Gap Fraction
0.3	1.0	1.0	1.0	1.0
0.8	0.95	1.0	0.95	0.95
1.3	0.95	0.95	0.95	0.95
1.8	0.95	0.95	0.85	0.95
2.3	0.9	0.85	0.85	0.95
2.8	0.85	0.85	0.85	0.95
3.3	0.8	0.75	0.75	0.85
3.8	0.8	0.65	0.7	0.7
4.3	0.7	0.65	0.65	0.85
4.8	0.45	0.4	1.0	0.5
5.3	0.3	-	1.0	-
5.8	0.0	-	-	-