

Gap fraction

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

- ATLAS
- ▲ Pythia 8.209 default
- ◆ Sherpa 2.2.8 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 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 left y-axis (0 to 2) and the number of events on the right y-axis (0 to 100k). It displays ATLAS data points (black squares) and two Monte Carlo models: Pythia 8.209 default (blue triangles) and Sherpa 2.2.8 default (red diamonds). All series show a decreasing trend as $|\Delta y|$ increases. The bottom panel shows the 'Ratio to ATLAS' on the left y-axis (0.5 to 2) and the same event count on the right y-axis. It features the same data points and models, with shaded regions in yellow and green representing uncertainty bands. A horizontal line is drawn at a ratio of 1.0. The ATLAS data point at $|\Delta y| \approx 5.7$ is significantly lower than the models, with a ratio near 0.0.

$ \Delta y $	ATLAS Gap Fraction	Pythia 8.209 Gap Fraction	Sherpa 2.2.8 Gap Fraction	ATLAS Ratio to ATLAS	Pythia 8.209 Ratio to ATLAS	Sherpa 2.2.8 Ratio to ATLAS
0.3	0.95	0.95	0.95	1.0	1.0	1.0
0.8	0.75	0.75	0.75	1.0	1.0	1.0
1.3	0.60	0.60	0.55	0.85	1.0	0.85
1.8	0.50	0.50	0.45	0.95	0.95	0.95
2.3	0.40	0.40	0.35	0.85	1.05	0.85
2.8	0.30	0.30	0.30	1.0	1.0	1.0
3.3	0.20	0.20	0.20	0.85	0.85	0.85
3.8	0.15	0.15	0.15	0.85	1.1	0.85
4.3	0.15	0.15	0.15	1.1	1.1	1.1
4.8	0.15	-	0.20	1.6	-	1.6
5.7	0.0	-	-	0.0	-	-