

Gap fraction

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

- ATLAS
- ▲ Pythia 8.170 default
- -▲ Pythia 8.170 default-CD
- ⋯▲ Pythia 8.170 default-MBR

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 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, with data points from ATLAS (black squares) and three Pythia 8.170 models: default (blue solid line with triangles), default-CD (red dashed line with triangles), and default-MBR (black dotted line with triangles). The gap fraction decreases from approximately 0.95 at $|\Delta y| \approx 0.5$ to about 0.1 at $|\Delta y| \approx 5.8$. The bottom panel shows the ratio of the gap fraction to the ATLAS data, with a horizontal line at 1.0. The ratio is mostly between 0.8 and 1.2, with a significant dip below 0.5 at $|\Delta y| \approx 4.2$. The background of the bottom panel is a histogram with yellow and green bins.

$ \Delta y $	ATLAS Gap Fraction	Pythia 8.170 default	Pythia 8.170 default-CD	Pythia 8.170 default-MBR	Ratio to ATLAS
0.5	0.95	0.95	0.95	0.95	1.0
1.0	0.75	0.80	0.85	0.80	1.0
1.5	0.60	0.60	0.60	0.60	1.0
2.0	0.50	0.50	0.50	0.50	1.0
2.5	0.40	0.40	0.40	0.40	1.0
3.0	0.30	0.25	0.25	0.25	0.8
3.5	0.30	0.30	0.30	0.30	1.2
4.0	0.20	0.15	0.20	0.20	0.9
4.2	0.15	0.05	0.10	0.10	0.5
4.5	0.15	-	-	-	1.0
5.0	0.15	-	-	-	1.0
5.8	0.0	-	-	-	1.0