

Gap fraction

Gap fraction vs  $\Delta y$  (LJ) ( $150 < p_T < 180$ )

- ATLAS
- Pythia 6.428 345
- △- Pythia 6.428 370
- △- Pythia 6.428 ambt1
- Pythia 6.428 z2

2.5

2

1.5

1

0.5

0

2

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

0 2 4 6  $|\Delta y|$

The figure displays two panels sharing a common x-axis representing the rapidity difference  $|\Delta y|$  from 0 to 6. The top panel shows the gap fraction, which starts at approximately 0.95 for  $|\Delta y| = 0.5$  and generally decreases to about 0.35 at  $|\Delta y| = 5.5$ . 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 0.5 and 1.5, with a significant peak for the Pythia 6.428 ambt1 model at  $|\Delta y| \approx 4.8$ . A shaded region in the bottom panel, colored green and yellow, highlights the area where the ratio deviates significantly from 1.0 for  $|\Delta y| > 4.5$ .

$ \Delta y $	ATLAS (Gap Fraction)	Pythia 6.428 345 (Ratio)	Pythia 6.428 370 (Ratio)	Pythia 6.428 ambt1 (Ratio)	Pythia 6.428 z2 (Ratio)
0.5	0.95	1.00	0.95	0.95	0.95
1.0	0.85	0.75	0.80	0.70	0.90
1.5	0.70	0.60	0.65	0.60	0.65
2.0	0.60	0.55	0.55	0.55	0.60
2.5	0.50	0.40	0.40	0.45	0.65
3.0	0.45	0.25	0.40	0.40	0.40
3.5	0.38	0.35	0.50	0.40	0.15
4.0	0.35	0.15	0.25	0.10	0.40
4.5	0.30	0.20	0.30	0.25	1.40
5.0	0.25	0.20	0.30	1.00	0.85
5.5	0.15	-	-	-	0.35