

Gap fraction

Gap fraction vs  $\Delta y$  (LJ) ( $90 < p_T < 120$ )

- ATLAS
- - ■ Pythia 6.423 default
- - ▲ Pythia 8.301 default

2

1.8

1.6

1.4

1.2

1.0

0.8

0.6

0.4

0.2

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

1

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 compares ATLAS data (black squares) with two Pythia models: Pythia 6.423 default (orange dashed line with squares) and Pythia 8.301 default (blue solid line with triangles). All data points include vertical error bars. The bottom panel shows the 'Ratio to ATLAS' on the left y-axis (0.5 to 2) and the number of events on the right y-axis (0.5 to 2). It uses the same color scheme as the top panel. A horizontal green line is drawn at a ratio of 1.0. Two shaded regions, one yellow and one green, are overlaid on the bottom panel, representing uncertainty bands. The text 'ATLAS\_2011\_S9126244' is present in the top panel, and 'Rivet 3.1.0,  $\geq 100k$  events' and 'mcplots.cern.ch [arXiv:1306.3436]' are on the right side.

$ \Delta y $	ATLAS Gap Fraction	Pythia 6.423 Gap Fraction	Pythia 8.301 Gap Fraction	ATLAS Ratio	Pythia 6.423 Ratio	Pythia 8.301 Ratio
0.3	0.95	0.95	0.95	1.0	1.0	1.0
0.8	0.85	0.85	0.90	1.0	1.0	1.05
1.3	0.75	0.75	0.75	1.0	1.0	1.0
1.8	0.70	0.70	0.65	1.0	1.05	0.95
2.3	0.65	0.65	0.58	1.0	1.05	0.95
2.8	0.58	0.65	0.58	1.0	1.25	1.05
3.3	0.50	0.50	0.48	1.0	1.0	1.0
3.8	0.45	0.50	0.45	1.2	1.25	1.15
4.3	0.40	0.48	0.35	0.9	1.35	0.9
4.8	0.35	0.42	0.18	0.5	1.25	0.5
5.3	0.35	0.38	0.35	0.9	1.05	0.9
5.8	0.25	-	0.35	1.4	-	1.4