

Gap fraction

Gap fraction vs  $\Delta y$  (FB) ( $70 < p_T < 90$ )

- ATLAS
- ▲ Pythia 8.176 default
- ▲ Pythia 8.176 default-noCR

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

$|\Delta y|$

The figure consists of two vertically stacked panels sharing a common x-axis representing the rapidity difference  $|\Delta y|$  from 0 to 6. The top panel plots the 'Gap fraction' on the left y-axis (0 to 2) against  $|\Delta y|$ . It features three data series: ATLAS (black squares), Pythia 8.176 default (blue triangles), and Pythia 8.176 default-noCR (grey triangles). All series show a decreasing trend from approximately 0.95 at  $|\Delta y| = 0.5$  to about 0.15 at  $|\Delta y| = 5.5$ . The bottom panel plots the 'Ratio to ATLAS' on the left y-axis (0.5 to 2) against  $|\Delta y|$ . It shows the same three data series, with the Pythia models generally staying near a ratio of 1.0, though with significant fluctuations and error bars. Shaded regions in yellow and green represent uncertainty bands around the ratio of 1.0. A horizontal line is drawn at a ratio of 1.0. 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 8.176 default (Gap fraction)	Pythia 8.176 default-noCR (Gap fraction)
0.5	0.95	0.95	0.95
1.0	0.85	0.85	0.85
1.5	0.75	0.70	0.75
2.0	0.65	0.60	0.65
2.5	0.55	0.55	0.55
3.0	0.48	0.38	0.48
3.5	0.42	0.35	0.35
4.0	0.32	0.25	0.25
4.5	0.25	0.25	0.12
5.0	0.15	0.15	0.12
5.5	0.15	0.20	0.10