

Gap fraction vs  $\Delta y$  (FB) ( $210 < p_T < 240$  ( $Q_0 = \bar{p}_T$ ))

Gap fraction

- ATLAS
- - □ Herwig 7.2.0 default
- - ◆ Sherpa 1.4.0 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

1

0.5

0 2 4 6

$|\Delta y|$

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 shows the gap fraction, with data points from ATLAS (black squares) and theoretical models Herwig 7.2.0 (green dashed line with squares) and Sherpa 1.4.0 (red dotted line with diamonds). The bottom panel shows the ratio of the gap fraction to the ATLAS data, with the same theoretical models overlaid. A horizontal line is drawn at a ratio of 1.0. A yellow and green shaded region in the bottom panel indicates the uncertainty or spread of the models. The ATLAS data points in the top panel show a general decrease in gap fraction as  $|\Delta y|$  increases, with some scatter at larger  $|\Delta y|$ .

$ \Delta y $	ATLAS Gap Fraction	Herwig 7.2.0 Gap Fraction	Sherpa 1.4.0 Gap Fraction	Ratio to ATLAS (Herwig)	Ratio to ATLAS (Sherpa)
0.4	1.0	1.0	1.0	1.0	1.0
0.8	0.95	0.95	1.0	1.0	1.05
1.2	0.9	0.9	0.95	1.0	1.05
1.6	0.9	0.85	0.95	0.95	1.05
2.2	0.85	0.8	0.9	0.95	1.05
2.8	0.8	0.8	0.85	1.0	1.05
3.2	0.8	0.75	0.85	0.95	1.05
3.6	0.75	0.65	0.75	0.85	0.95
4.2	0.7	0.7	0.7	1.0	1.0
4.8	0.45	0.4	-	0.9	-
5.2	0.3	-	-	-	-
5.8	0.0	-	-	-	-