

7000 GeV pp

Jets

Gap fraction

Gap fraction vs  $\Delta y$  (FB) ( $120 < p_T < 150$  ( $Q_0 = \bar{p}_T$ ))

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

2

1.8

1.6

1.4

1.2

1.0

0.8

0.6

0.4

0.2

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 displays two panels comparing ATLAS experimental data with Herwig 7.2.0 and Sherpa 1.4.0 Monte Carlo models for gap fractions in 7000 GeV pp collisions. The top panel shows the gap fraction, and the bottom panel shows the ratio of the simulation results to the ATLAS data. The x-axis represents the rapidity difference  $|\Delta y|$  from 0 to 6. The top y-axis is the gap fraction (0 to 2), and the bottom y-axis is the ratio to ATLAS (0.5 to 2). The ATLAS data points are black squares, Herwig 7.2.0 is green squares, and Sherpa 1.4.0 is red diamonds. The plot includes error bars and shaded regions for the simulation models.

$ \Delta y $	ATLAS (Gap Fraction)	Herwig 7.2.0 (Gap Fraction)	Sherpa 1.4.0 (Gap Fraction)
0.4	1.0	1.0	1.0
0.8	0.96	0.96	0.98
1.2	0.94	0.94	0.96
1.6	0.91	0.91	0.92
2.2	0.88	0.88	0.89
2.8	0.85	0.78	0.87
3.2	0.81	0.74	0.86
3.6	0.77	0.82	0.76
4.2	0.72	0.78	0.77
4.8	0.65	0.73	0.71
5.2	0.57	0.65	0.57
5.6	0.53	0.33	0.84