

Gap fraction

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

- ATLAS
- - □ Herwig 7.2.0 default
- - ▲ Pythia 8.165 default
- - ◆ Sherpa 1.4.5 default

2.5

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 displays two 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 2.5) and the number of events on the right y-axis (0 to 100k). 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). Both panels include data points with error bars for ATLAS (black squares) and three Monte Carlo models: Herwig 7.2.0 (green dashed line with squares), Pythia 8.165 (blue solid line with triangles), and Sherpa 1.4.5 (red dotted line with diamonds). A horizontal line is drawn at a ratio of 1.0. A shaded region in the bottom panel, colored yellow and green, highlights the area where the ratio to ATLAS is between 0.5 and 2.0 for $|\Delta y| > 4$. The ATLAS data shows a significant drop in gap fraction and a corresponding increase in the ratio to ATLAS at $|\Delta y| \approx 5.5$.