

Gap fraction

Gap fraction vs Δy (LJ) ($240 < p_T < 270$)

- ATLAS
- Herwig 7.2.0 default
- ▲ Pythia 8.210 default
- ◆ Sherpa 1.4.2 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 absolute rapidity difference $|\Delta y|$ from 0 to 6. The top panel displays the 'Gap fraction' on the y-axis (0 to 2). It shows ATLAS data points (black squares) and three Monte Carlo model predictions: Herwig 7.2.0 (green dashed line with squares), Pythia 8.210 (blue solid line with triangles), and Sherpa 1.4.2 (red dotted line with diamonds). All models show a decreasing trend in gap fraction as $|\Delta y|$ increases, starting near 1.0 at $|\Delta y| \approx 0.5$ and reaching approximately 0.3-0.4 at $|\Delta y| \approx 4.8$. The bottom panel displays the 'Ratio to ATLAS' on the y-axis (0.5 to 2.0). It shows the same three Monte Carlo models as a ratio to the ATLAS data. The Herwig model (green) is mostly below 1.0, while the Pythia (blue) and Sherpa (red) models are mostly above 1.0. Shaded regions in the bottom panel indicate the uncertainty bands for the Herwig (green) and Pythia (yellow) models. A horizontal line is drawn at a ratio of 1.0.