

Gap fraction

Gap fraction vs Δy (LJ) ($180 < p_T < 210$)

- ATLAS
- - □ Herwig 7.0.1 default
- - ▲ Pythia 8.165 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' on the y-axis (0 to 2). It displays ATLAS data points (black squares) and three Monte Carlo model predictions: Herwig 7.0.1 (green dashed line with open squares), Pythia 8.165 (blue solid line with solid triangles), and Sherpa 1.4.0 (red dotted line with solid diamonds). All models show a decreasing trend in gap fraction as $|\Delta y|$ increases. The bottom panel shows the 'Ratio to ATLAS' on the y-axis (0.5 to 2). It uses the same data and model points as the top panel. A horizontal line is drawn at a ratio of 1.0. The background of the bottom panel features a color-coded histogram: green for ratios between 0.5 and 1.0, and yellow for ratios between 1.0 and 2.0. The ATLAS data points in the bottom panel are mostly within the green region, while the Monte Carlo models show a significant over-prediction (yellow region) for $|\Delta y| > 4$.