

Gap fraction

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

- ATLAS
- - □ Herwig 7.2.0 default
- - △ Pythia 6.428 370
- - ▲ Pythia 8.170 default
- - ◆ Sherpa 2.2.8 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

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), comparing ATLAS experimental data (black squares) with four Monte Carlo models: Herwig 7.2.0 (green dashed line with squares), Pythia 6.428 (red solid line with triangles), Pythia 8.170 (blue solid line with triangles), and Sherpa 2.2.8 (red dotted line with diamonds). All models show a gap fraction near 1.0 for $|\Delta y| < 4$, which then decreases towards 0.5 as $|\Delta y|$ increases. The bottom panel shows the 'Ratio to ATLAS' on the y-axis (0.5 to 2), where the same models are plotted. A horizontal line is drawn at a ratio of 1.0. The bottom panel also features a 2D histogram in the background, with yellow and green shaded regions indicating the distribution of the ratio to ATLAS across different $|\Delta y|$ bins.