

Gap fraction

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

- ATLAS
- Herwig 7.2.0 default
- △ Pythia 6.428 370
- ▲ Pythia 8.150 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 rapidity difference $|\Delta y|$ from 0 to 6. The top panel shows the 'Gap fraction' on the y-axis, ranging from 0 to 2. It displays data points with error bars for ATLAS (black squares) and four Monte Carlo models: Herwig 7.2.0 default (green dashed line with squares), Pythia 6.428 370 (red solid line with triangles), Pythia 8.150 default (blue solid line with triangles), and Sherpa 2.2.8 default (red dotted line with diamonds). The gap fraction generally decreases as $|\Delta y|$ increases, starting near 1.0 at $|\Delta y| \approx 0.5$ and reaching approximately 0.3-0.5 at $|\Delta y| \approx 4.5$. The bottom panel shows the 'Ratio to ATLAS' on the y-axis, ranging from 0.5 to 2.0. It uses the same data points and lines as the top panel. A horizontal line is drawn at a ratio of 1.0. The plot includes shaded regions: yellow for $|\Delta y| > 3.5$ and green for $|\Delta y| > 4.5$. The ratio to ATLAS is mostly close to 1.0, with some deviations, particularly for the Sherpa model at larger $|\Delta y|$.