

Gap fraction

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

- ATLAS
- Herwig 7.2.0 default
- ▲ Pythia 8.176 default
- ◆ Sherpa 2.1.1 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 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 three Monte Carlo models: Herwig 7.2.0 (green dashed line with squares), Pythia 8.176 (blue solid line with triangles), and Sherpa 2.1.1 (red dotted line with 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, ranging from 0.5 to 2. It uses the same data points and error bars as the top panel. A horizontal line is drawn at a ratio of 1.0. The background of the bottom panel is filled with a color gradient: yellow for ratios between 0.5 and 1.0, and green for ratios between 1.0 and 2.0. The ATLAS data point at $|\Delta y| \approx 5.7$ is significantly below the ratio of 1.0.

| $ \Delta y $ | ATLAS Gap Fraction | Herwig 7.2.0 Ratio | Pythia 8.176 Ratio | Sherpa 2.1.1 Ratio |
|--------------|--------------------|--------------------|--------------------|--------------------|
| 0.3 | 0.95 | 1.0 | 1.0 | 1.0 |
| 0.8 | 0.75 | 0.8 | 0.8 | 0.75 |
| 1.3 | 0.6 | 0.7 | 0.65 | 0.6 |
| 1.8 | 0.55 | 0.55 | 0.5 | 0.5 |
| 2.3 | 0.45 | 0.45 | 0.45 | 0.45 |
| 2.8 | 0.35 | 0.35 | 0.35 | 0.35 |
| 3.3 | 0.3 | 0.3 | 0.25 | 0.3 |
| 3.8 | 0.3 | 0.25 | 0.35 | 0.25 |
| 4.3 | 0.3 | 0.2 | 0.3 | 0.2 |
| 4.8 | 0.35 | 0.25 | 0.4 | 0.25 |
| 5.7 | 0.0 | - | - | - |