

Gap fraction

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

- ATLAS
- Herwig++ 2.6.1a default
- Herwig 7.2.0 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 displays the 'Gap fraction' on the y-axis, ranging from 0 to 2. It compares ATLAS experimental data (black solid squares) with two Monte Carlo models: Herwig++ 2.6.1a default (red dashed line with open circles) and Herwig 7.2.0 default (green dashed line with open squares). Both 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 0.2 at $|\Delta y| \approx 4.5$. The ATLAS data points are generally consistent with the models but show some deviation at larger $|\Delta y|$. The bottom panel shows the 'Ratio to ATLAS' on the y-axis, ranging from 0.5 to 2. A horizontal line is drawn at a ratio of 1.0. The Herwig++ model (red circles) stays near 1.0 until $|\Delta y| \approx 3.5$ before dropping to ~0.6. The Herwig 7.2.0 model (green squares) stays near 1.0 until $|\Delta y| \approx 3.5$ before dropping to ~0.5. A yellow shaded region is present between $|\Delta y| \approx 2.5$ and 4.5 , and a green shaded region is present between $|\Delta y| \approx 3.5$ and 5.5 .