

Gap fraction

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

- ATLAS
- - □ Herwig 7.2.0 default
- - ◆ Sherpa 1.4.5 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 absolute 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 two Monte Carlo models: Herwig 7.2.0 (green dashed line with open squares) and Sherpa 1.4.5 (red dotted line with filled diamonds). Both models show a decreasing trend in gap fraction as $|\Delta y|$ increases, starting near 1.0 and dropping to approximately 0.4-0.5 at $|\Delta y| = 5$. The ATLAS data points are consistent with the models but show larger error bars at higher $|\Delta y|$. The bottom panel shows the 'Ratio to ATLAS' on the y-axis (0.5 to 2). It uses the same data and model series as the top panel. A horizontal line is drawn at a ratio of 1.0. The Herwig model (green) stays near 1.0 until $|\Delta y| \approx 4$, then drops below 1.0. The Sherpa model (red) stays near 1.0 until $|\Delta y| \approx 4.5$, then rises above 1.0. A 2D histogram in the bottom right corner shows the distribution of the ratio to ATLAS, with yellow and green regions indicating the spread of the models relative to the data.