

Gap fraction

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

- ATLAS
- △ Pythia 6.427 370
- -■ Pythia 6.427 default
- ▲ Pythia 8.301 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). It compares ATLAS experimental data (black squares) with three Monte Carlo models: Pythia 6.427 370 (red triangles), Pythia 6.427 default (orange squares), and Pythia 8.301 default (blue triangles). All 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 0.2-0.4 at $|\Delta y| \approx 4.5$. The bottom panel shows the 'Ratio to ATLAS' on the y-axis (0.5 to 2.0). The same four data series are plotted. A horizontal line is drawn at a ratio of 1.0. A shaded region, colored yellow and green, is overlaid on the plot, primarily between $|\Delta y| = 3$ and 5 , and a ratio of 0.5 and 2.0. The ATLAS data point at $|\Delta y| \approx 5.8$ is significantly below the ratio of 1.0.