

Gap fraction

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

- ATLAS
- - □ Herwig 7.2.0 default
- - ▲ Pythia 8.170 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 (0 to 2). It features three data series: ATLAS experimental data (black squares with error bars), Herwig 7.2.0 default (green dashed line with open squares), and Pythia 8.170 default (blue solid line with solid triangles). The gap fraction starts at approximately 1.0 for  $|\Delta y| < 1$  and generally decreases as  $|\Delta y|$  increases, with a notable drop after  $|\Delta y| = 4.5$ . The bottom panel shows the 'Ratio to ATLAS' on the y-axis (0.5 to 2). It uses the same data series as the top panel. A horizontal line is drawn at a ratio of 1.0. The Herwig and Pythia models are shown to be in good agreement with the ATLAS data, with ratios mostly between 0.8 and 1.2. A shaded region in the bottom panel, colored in light green and yellow, highlights the area around the ratio of 1.0 for  $|\Delta y| > 4.5$ .