

Gap fraction

Gap fraction vs  $\Delta y$  (LJ) ( $240 < p_T < 270$ )

- ATLAS
- Herwig 7.2.0 default
- ◇ Sherpa 2.2.6 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 shows the 'Gap fraction' on the y-axis (0 to 2). It features three data series: ATLAS experimental data (black squares), Herwig 7.2.0 default (green dashed line with open squares), and Sherpa 2.2.6 default (red dotted line with open diamonds). The gap fraction generally decreases from  $|\Delta y| \approx 0.5$  to  $|\Delta y| \approx 4.5$ , with a notable spike in the Sherpa model at  $|\Delta y| \approx 4.8$ . The bottom panel shows the 'Ratio to ATLAS' on the y-axis (0.5 to 2). It displays the same three series, with shaded regions (yellow for Sherpa, green for Herwig) representing uncertainty bands. A horizontal line is drawn at a ratio of 1.0. The ratio is mostly close to 1.0, but shows significant deviations at higher  $|\Delta y|$ , particularly for the Sherpa model which reaches a ratio of approximately 2.1 at  $|\Delta y| \approx 4.8$ .