

7000 GeV pp

Jets

Gap fraction

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

- ATLAS
- - □ Herwig 7.0.3 default
- - ▲ Pythia 8.301 default
- - ◆ Sherpa 2.2.6 default

2

1.5

1

0.5

0

Rivet 3.1.0,  $\geq 100k$  events

mcplots.cern.ch [arXiv:1306.3436]

ATLAS\_2011\_S9126244

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). The bottom panel shows the 'Ratio to ATLAS' on the y-axis (0.5 to 2). Both panels include data points for ATLAS (black squares) and three Monte Carlo models: Herwig 7.0.3 (green dashed line with squares), Pythia 8.301 (blue solid line with triangles), and Sherpa 2.2.6 (red dotted line with diamonds). The bottom panel also features shaded regions: a yellow region for  $|\Delta y| < 4.5$  and a green region for  $|\Delta y| > 4.5$ . A horizontal line is drawn at a ratio of 1.0. The ATLAS data points in the top panel show a general decrease in gap fraction as  $|\Delta y|$  increases, with some fluctuations. The models generally follow this trend but show varying degrees of agreement with the ATLAS data, particularly at larger  $|\Delta y|$ .