

Gap fraction

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

- ATLAS
- - □ Herwig 7.2.0 default
- - ▲ Pythia 8.212 default
- - ◆ Sherpa 2.2.6 default

2

1.5

1

0.5

0

ATLAS_2011_S9126244

Rivet 3.1.0, ≥ 100 k 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 displays two panels. The top panel shows the gap fraction as a function of the absolute rapidity difference $|\Delta y|$ for 7000 GeV pp collisions. The y-axis ranges from 0 to 2. The data points are shown for ATLAS (black squares) and three Monte Carlo models: Herwig 7.2.0 (green squares), Pythia 8.212 (blue triangles), and Sherpa 2.2.6 (red diamonds). The gap fraction starts at approximately 1.0 for $|\Delta y| = 0.5$ and generally decreases as $|\Delta y|$ increases, reaching about 0.3 at $|\Delta y| = 5.5$. The bottom panel shows the ratio of the gap fraction to the ATLAS data as a function of $|\Delta y|$. The y-axis ranges from 0.5 to 2. The data points are shown for the same models as in the top panel. The ratio is generally close to 1.0, indicating that the Monte Carlo models are in good agreement with the ATLAS data. A yellow and green shaded region is present in the bottom panel for $|\Delta y| > 4$, indicating a region of high uncertainty or a specific model prediction.