

7000 GeV pp

Jets

Gap fraction

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

- ATLAS
- - □ Herwig 7.2.0 default
- - ◆ Sherpa 2.1.0 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.

Top Panel: Gap fraction vs Δy (LJ) ($240 < p_T < 270$)

- Y-axis:** Gap fraction, ranging from 0 to 2.0.
- Data Series:**
 - ATLAS:** Black solid squares with vertical error bars.
 - Herwig 7.2.0 default:** Green dashed line with open square markers and vertical error bars.
 - Sherpa 2.1.0 default:** Red dotted line with solid diamond markers and vertical error bars.
- Trend:** The gap fraction decreases from approximately 0.95 at $|\Delta y| \approx 0.3$ to about 0.35 at $|\Delta y| \approx 4.8$. The ATLAS data points are generally consistent with the Herwig model but show some deviation at larger $|\Delta y|$.

Bottom Panel: Ratio to ATLAS vs $|\Delta y|$

- Y-axis:** Ratio to ATLAS, ranging from 0.5 to 2.0.
- Reference Line:** A horizontal solid black line is drawn at a ratio of 1.0.
- Model Ratios:**
 - Herwig 7.2.0:** Represented by a green shaded region around the green dashed line.
 - Sherpa 2.1.0:** Represented by a yellow shaded region around the red dotted line.
- Trend:** Both models are close to a ratio of 1.0 for $|\Delta y| < 3$. For $|\Delta y| > 3$, the Sherpa model's ratio drops significantly below 1.0, reaching approximately 0.4 at $|\Delta y| \approx 4.2$, while the Herwig model's ratio remains closer to 1.0, around 0.9 at $|\Delta y| \approx 3.8$.