

Gap fraction

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

- ATLAS
- Herwig++ 2.6.0 default
- Herwig 7.2.0 default
- ▼- Herwig 7.2.0 softTune

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 displays two panels related to the gap fraction of jets in 7000 GeV pp collisions. The top panel shows the gap fraction as a function of the longitudinal separation $|\Delta y|$ between the leading and next-to-leading jets (LJ), for $240 < p_T < 270$ GeV. The data points are from ATLAS (black squares) and compared against three Herwig models: Herwig++ 2.6.0 default (orange dashed line with circles), Herwig 7.2.0 default (green dashed line with squares), and Herwig 7.2.0 softTune (blue solid line with triangles). The gap fraction decreases from approximately 0.95 at $|\Delta y| = 0.5$ to about 0.35 at $|\Delta y| = 4.5$. The bottom panel shows the ratio of the gap fraction to the ATLAS data, with a horizontal line at 1.0. Shaded regions represent uncertainty bands: yellow for Herwig++ and green for Herwig 7.2.0. The ratio is generally close to 1.0, indicating good agreement with ATLAS data, though it deviates at larger $|\Delta y|$.

$ \Delta y $	ATLAS	Herwig++ 2.6.0 default	Herwig 7.2.0 default	Herwig 7.2.0 softTune
0.5	0.95	0.95	0.95	0.95
1.0	0.80	0.80	0.80	0.80
1.5	0.68	0.68	0.68	0.68
2.0	0.58	0.58	0.58	0.58
2.5	0.48	0.48	0.48	0.48
3.0	0.40	0.45	0.40	0.40
3.5	0.35	0.25	0.35	0.35
4.0	0.32	0.22	0.32	0.32
4.5	0.35	0.20	0.20	0.30