

7000 GeV pp

Jets

Gap fraction vs $|\Delta y|$ for $120 < \overline{P}_T < 150$, Fwd/Bwd $Q_0 = \overline{P}_T$

- ATLAS
- Herwig++ 2.7.1 default
- Herwig 7.2.1 default

Gap fraction

2

1.8

1.6

1.4

1.2

1

0.8

0.6

0.4

0.2

0

(ATLAS_2011_I917526)

Rivet 4.1.0, $\geq 100k$ events

mcplots.cern.ch [arXiv:2401.10621]

Ratio to ATLAS

2

1

0.5

2

1

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 data points are from ATLAS (black squares) and two Herwig models: Herwig++ 2.7.1 (orange circles) and Herwig 7.2.1 (green squares). The gap fraction starts at approximately 1.0 for $|\Delta y| = 0.5$ and generally decreases as $|\Delta y|$ increases, reaching about 0.5 at $|\Delta y| = 5.7$. The bottom panel shows the ratio of the gap fraction to the ATLAS data. The ratio is mostly close to 1.0, with some deviations, particularly for the Herwig++ model at larger $|\Delta y|$. A shaded region in the bottom panel indicates the distribution of the ratio, with yellow and green colors representing different levels of agreement.

$ \Delta y $	ATLAS Gap Fraction	Herwig++ 2.7.1 Gap Fraction	Herwig 7.2.1 Gap Fraction	Ratio to ATLAS (Herwig++)	Ratio to ATLAS (Herwig 7.2.1)
0.5	1.00	1.00	1.00	1.00	1.00
1.0	0.98	0.98	0.98	1.00	1.00
1.5	0.95	0.95	0.95	1.00	1.00
2.0	0.92	0.92	0.92	1.00	1.00
2.5	0.88	0.88	0.88	1.00	1.00
3.0	0.85	0.85	0.85	1.00	1.00
3.5	0.82	0.82	0.82	1.00	1.00
4.0	0.78	0.78	0.78	1.00	1.00
4.5	0.75	0.75	0.75	1.00	1.00
5.0	0.72	0.72	0.72	1.00	1.00
5.5	0.68	0.68	0.68	1.00	1.00
5.7	0.55	0.55	0.55	1.00	1.00