

Gap fraction

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

- ATLAS
- Herwig++ 2.5.2 default
- Herwig 7.2.0 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 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 absolute rapidity difference $|\Delta y|$ (ranging from 0 to 6). The data points (black squares) represent ATLAS measurements, while the dashed lines with markers represent Herwig++ 2.5.2 (orange circles) and Herwig 7.2.0 (green squares) Monte Carlo models. The gap fraction starts at approximately 1.0 for $|\Delta y| = 0$ and decreases to about 0.15 at $|\Delta y| = 6$. The bottom panel shows the ratio of the gap fraction to the ATLAS data. The Herwig++ 2.5.2 model (orange) and Herwig 7.2.0 model (green) are shown as shaded regions, indicating the uncertainty or spread of the models. The Herwig++ 2.5.2 model shows a significant over-prediction of the gap fraction at larger $|\Delta y|$, reaching a ratio of nearly 2.0 at $|\Delta y| \approx 4.8$. The Herwig 7.2.0 model shows a more moderate over-prediction, reaching a ratio of about 1.8 at $|\Delta y| \approx 4.8$. A horizontal line at a ratio of 1.0 indicates where the models perfectly match the ATLAS data.