

Z+Jet

Top Panel: Differential event rate $\frac{dN}{d\ln(p_{TD2})}$ vs. groomed p_{TD2} . The y-axis is logarithmic, ranging from 1000 to 10000. The x-axis is groomed p_{TD2} , ranging from 0 to 1. The legend indicates: CMS (black squares), Herwig++ 2.6.1a default (orange dashed line with open circles), Herwig 7.2.1 default (green dashed line with open squares), and Herwig 7.2.1 softTune (blue solid line with solid triangles). The Herwig 7.2.1 softTune model shows the best agreement with the CMS data, peaking at a ratio of 1.0. The Herwig++ 2.6.1a default model shows a significant deficit at low p_{TD2} values, with a ratio of approximately 0.5. The Herwig 7.2.1 default model shows a slight excess at low p_{TD2} values, with a ratio of approximately 1.2.

Bottom Panel: Ratio of the models to the CMS data vs. groomed p_{TD2} . The y-axis is linear, ranging from 0.5 to 2.0. The x-axis is groomed p_{TD2} , ranging from 0 to 1. The ratio is shown as a horizontal line with a yellow shaded band representing the uncertainty. The ratio is approximately 1.0 across the entire range of groomed p_{TD2} .

Reference: CMS_2021_11920187

Rivet 3.1.10, $\geq 200\text{k}$ events

mcplots.cern.ch [arXiv:1306.3436]

2

0.5

groomed pTD2