

Z+Jet

Rivet 3.1.10, $\geq 100k$ events

mcplots.cern.ch [arXiv:1306.3436]

2

0.5

pTD2

 $\mathbf{d}^N$

Ratio to CMS

Figure 1 consists of two panels. The top panel is a plot of the ratio of the differential cross-section to the total cross-section, $\frac{1}{\sigma} \frac{dN}{dp_T}$, as a function of the transverse momentum of the leading b-jet, $p_{T,1}^b$ (GeV). The x-axis ranges from 0 to 1.0 GeV, and the y-axis ranges from 0 to 1000. The plot shows CMS data points (black squares) and three Herwig++ model predictions: 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 CMS data points are clustered around $p_{T,1}^b \approx 0.1$ GeV, with a peak value of approximately 1000. The Herwig++ models show a similar peak, with the softTune model providing the best fit to the CMS data. The bottom panel is a plot of the ratio of the differential cross-section to the total cross-section, $\frac{1}{\sigma} \frac{dN}{dp_T}$, as a function of $p_{T,1}^b$ (GeV). The x-axis ranges from 0 to 1.0 GeV, and the y-axis ranges from 0.5 to 2.0. The plot shows the ratio of the Herwig++ models to the CMS data. The ratio is mostly between 0.8 and 1.2, indicating a good agreement between the models and the CMS data. The Herwig 7.2.1 softTune model shows the best agreement, with a ratio close to 1.0 across the entire range of $p_{T,1}^b$.