

Jets

Rivet 3.1.10, $\geq 2.7\text{M}$ events

mcplots.cern.ch [arXiv:1306.3436]

2

1

0.5

pTD2

 $\mathbf{d}^N$

Ratio to CMS

Top Panel: Differential event rate $\frac{dN}{dp_T^D \lambda_0^2}$ vs p_{TD2} . The y-axis is logarithmic, ranging from 1000 to 10000. The x-axis is p_{TD2} , ranging from 0 to 1.0. The legend indicates three data series: CMS (black squares), Pythia 6.428 370 (red line with open triangles), and Pythia 6.428 default (orange dashed line with open squares). The Pythia models show a sharp peak around $p_{TD2} \approx 0.1$, while the CMS data is relatively flat. The ratio plot shows that the Pythia models overpredict the rate by a factor of 1.5 to 2.0 in the peak region.

Bottom Panel: Ratio of the models to the CMS data vs p_{TD2} . The y-axis is linear, ranging from 0.5 to 2.0. The x-axis is p_{TD2} , ranging from 0 to 1.0. The ratio is shown as a yellow shaded band, indicating the uncertainty of the Pythia models relative to the CMS data. The ratio is generally between 1.0 and 2.0, with a peak around $p_{TD2} \approx 0.1$.