

The figure displays two panels related to dijet production in the forward region at CMS, 13 TeV, using AK8 jets.

Top Panel: Shows the differential cross-section $\frac{1}{\sigma} \frac{dN}{dp_T} \frac{d\lambda}{d\lambda}$ on a logarithmic scale (y-axis, ranging from 10^{-2} to 10^2) versus p_{TD2} (charged-only) on a linear scale (x-axis, ranging from 0 to 1). The data points are from CMS (black squares), Herwig 7.2.1 default (green dashed line with open squares), and Pythia 8.165 default (blue solid line with filled triangles). The CMS data shows a peak around $p_{TD2} \approx 0.1$ and then decreases. The Herwig and Pythia models follow the general trend but show some deviations at higher p_{TD2} .

Bottom Panel: Shows the ratio of the cross-section to the CMS data, Ratio to CMS , on a linear scale (y-axis, ranging from 0.5 to 2) versus p_{TD2} (charged-only) on a linear scale (x-axis, ranging from 0 to 1). The ratio is plotted for the same three data series. The Herwig 7.2.1 default model (green dashed line with open squares) shows a significant dip below the ratio of 1.0 around $p_{TD2} \approx 0.4$. The Pythia 8.165 default model (blue solid line with filled triangles) remains closer to the ratio of 1.0. Shaded regions (yellow and green) indicate the uncertainty bands for the ratio.

Text in the top panel: CMS, 13 TeV, AK8 jets, forward dijet region, $481 < p_{T}^{\text{jets}} < 614$ GeV

Text in the bottom panel: (CMS_2021_I1920187)

Text on the right side: Rivet 4.1.0, $\geq 100k$ events
mcplots.cern.ch [arXiv:2401.10621]

(CMS_2021_I1920187)

Rivet 4.1.0, $\geq 100k$ events

mcplots.cern.ch [arXiv:2401.10621]

2

1

0.5

pTD2 (charged-only)