

The figure displays two panels related to the charged-particle multiplicity distribution in the central dijet region of CMS, 13 TeV, AK4 jets, with $186 < p_T^{\text{jets}} < 254$ GeV.

Top Panel: The y-axis represents the multiplicity distribution $\frac{1}{\lambda} \frac{dN}{dp_T d\lambda}$ on a logarithmic scale from 10^{-3} to 10^2 . The x-axis represents the width (charged-only) from 0 to 1. The plot shows data from CMS (black squares) and three Pythia 8.301 models: default (blue triangles), default-noFsr (purple triangles), and default-noRap (cyan triangles). The CMS data and the Pythia models show a peak around width 0.1 and then decrease. The default-noFsr model shows a significant deviation from the other models at higher widths, dropping sharply after width 0.4.

Bottom Panel: The y-axis represents the ratio of the multiplicity distribution to the CMS data, Ratio to CMS , on a linear scale from 0.5 to 2. The x-axis represents the width (charged-only) from 0 to 1. The plot shows the ratio of the Pythia models to the CMS data. The default and default-noRap models are close to 1.0, while the default-noFsr model is significantly higher at low widths and drops sharply after width 0.2. Shaded regions (yellow and green) indicate the uncertainty bands for the ratio.

Legend for the top panel:

- CMS
- ▲ Pythia 8.301 default
- ▲ Pythia 8.301 default-noFsr
- ▲ Pythia 8.301 default-noRap

Text in the top panel: (CMS_2021_I1920187)

Text in the bottom panel: Ratio to CMS

Text in the top right corner: CMS, 13 TeV, AK4 jets, central dijet region, $186 < p_T^{\text{jets}} < 254$ GeV

Text in the bottom right corner: width (charged-only)

Text in the top right corner: Rivet 4.1.0, $\geq 100k$ events

Text in the bottom right corner: mcplots.cern.ch [arXiv:1306.3436]

(CMS_2021_I1920187)

mcplots.cern.ch [arXiv:1306.3436]

2

1

0.5

width (charged-only)