

The figure displays two panels related to the dijet invariant mass distribution in the central region ($614 < p_T^{\text{jets}} < 800$ GeV) from CMS data at 13 TeV, using AK4 jets.

Top Panel: Shows the differential event rate $\frac{1}{\#} \frac{dN}{dp_T} \frac{d\lambda}{d\lambda}$ on a logarithmic scale (from 10^{-3} to 10^2) versus the width of the distribution. The data points (black squares) are compared with two Monte Carlo models: Herwig++ 2.7.1 default (dashed orange line with open circles) and Pythia 8.315 default (solid blue line with filled triangles). The Pythia model shows a significantly better fit to the data at higher widths compared to Herwig++.

Bottom Panel: Shows the ratio of the Monte Carlo models to the CMS data, Ratio to CMS , on a linear scale (from 0.5 to 2.0) versus the width. The ratio for Pythia (blue triangles) is generally closer to 1.0 than the ratio for Herwig++ (orange circles). Shaded regions (yellow and green) indicate the uncertainty bands for the ratio.

Source: CMS_2021_I1920187

(CMS_2021_I1920187)

mcplots.cern.ch [arXiv:1306.3436]

2

0.5

width