

The figure displays two panels related to the groomed multiplicity distribution in the central dijet region of CMS, 13 TeV, AK4 jets, with $1000 < p_{T}^{\text{dijet}} < 4000$ GeV.

Top Panel: Shows the distribution $\frac{1}{N} \frac{dN}{d\lambda} \frac{d\lambda}{dp_T}$ on a logarithmic scale (y-axis, ranging from 10^{-5} to 10^{-1}) versus groomed multiplicity (x-axis, ranging from 0 to 100). The data points (black squares) represent CMS results. Theoretical models are shown as lines with markers: Herwig++ 2.7.1 default (orange dashed line with circles), Herwig 7.1.3 default (green dashed line with squares), Pythia 8.315 default (blue solid line with triangles), Pythia 8.315 vincia-default (cyan dashed line with triangles), and Sherpa 2.2.9 default (red dotted line with diamonds). The distribution peaks at low multiplicity and decreases rapidly as multiplicity increases.

Bottom Panel: Shows the ratio of the groomed multiplicity distribution to the CMS data, Ratio to CMS , on a linear scale (y-axis, ranging from 0.5 to 2.0) versus groomed multiplicity (x-axis, ranging from 0 to 100). The ratio is plotted for the same theoretical models as in the top panel. The ratio is generally close to 1.0 for low multiplicities and increases significantly for higher multiplicities, reaching values above 2.0 for some models. Shaded regions (yellow and green) indicate the uncertainty bands for the ratio.

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mcplots.cern.ch [arXiv:1306.3436]

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