

The figure consists of two panels sharing a common x-axis labeled "groomed multiplicity (charged-only)" ranging from 0 to 100.

Top Panel: Shows the differential distribution $\frac{1}{N} \frac{dN}{d\lambda} \frac{d\lambda}{dp_T}$ on a logarithmic y-axis from 10^{-5} to 10^{-1} . The data points are from CMS (black squares) and are compared with two Herwig++ models: the 2.7.1 default (orange dashed line with open circles) and the 2.7.1 UE-EE-5 (red solid line with open circles). The 7.2.1 default model (green dashed line with open squares) is also shown for comparison. The distribution peaks at low multiplicity and decreases as multiplicity increases.

Bottom Panel: Shows the ratio of the groomed multiplicity distribution to the CMS data, Ratio to CMS , on a linear y-axis from 0.5 to 2.5. The ratio is plotted for the same models as the top panel. The 2.7.1 default model (orange dashed line) shows a significant overprediction (ratio > 2) for multiplicities above 50. The 2.7.1 UE-EE-5 (red solid line) and 7.2.1 default (green dashed line) models show ratios closer to 1.0. Shaded regions in yellow and green indicate the uncertainty bands for the models.

Text in the top panel: "CMS, 13 TeV, AK4 jets, central dijet region, $800 < p_T^{\text{dijet}} < 1000$ GeV".

Text in the bottom panel: "(CMS_2021_I1920187)".

Vertical text on the right side: "Rivet 4.1.0, ≥ 100k events" and "mcplots.cern.ch [arXiv:2401.10621]".

mcplots.cern.ch [arXiv:2401.10621] Rivet 4.1.0, $\geq 100k$ events

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