

Jets

Rivet 3.1.10, 2.6M events

mcplots.cern.ch [arXiv:1306.3436]

2

0.5

thrust

The figure displays the distribution of Thrust λ_2^1 (CMS jet substructure) for CMS data and Pythia 8.308 default. The top panel shows the distribution $\frac{dN}{d\ln \lambda_2^1}$ versus $\ln \lambda_2^1$ (ranging from 0 to 1). The bottom panel shows the ratio of the two distributions, $\frac{dN_{\text{Pythia}}}{dN_{\text{CMS}}}$, versus $\ln \lambda_2^1$.

Top Panel: Distribution $\frac{dN}{d\ln \lambda_2^1}$ vs $\ln \lambda_2^1$

- Legend:**
 - $\blacksquare$ CMS
 - $\blacktriangle$ Pythia 8.308 default
- Y-axis:** $\frac{dN}{d\ln \lambda_2^1}$ (ranging from 0 to 10000).
- X-axis:** $\ln \lambda_2^1$ (ranging from 0 to 1).
- Pythia 8.308 default (Blue line with triangles):** Shows a sharp peak at $\ln \lambda_2^1 \approx 0.05$ with a value of approximately 10000, followed by a rapid decay.
- CMS (Black squares):** Shows a much flatter distribution, with values around 1000 across the range of $\ln \lambda_2^1$.

Bottom Panel: Ratio to CMS vs $\ln \lambda_2^1$

- Y-axis:** Ratio to CMS (ranging from 0.5 to 2.0).
- X-axis:** $\ln \lambda_2^1$ (ranging from 0 to 1).
- Ratio (Green line with error bars):** The ratio is consistently near 1.0, indicating that the Pythia 8.308 default distribution is well-matched to the CMS data.

Text in Plot: "Thrust λ_2^1 (CMS jet substructure)" is written at the top. "CMS_2021_I1920187" is written in the middle of the top panel.