

Jets

Rivet 3.1.10, $\geq 2.7\text{M}$ 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 models. 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 distributions to the CMS data, $\frac{dN/d\ln\lambda_2^1}{dN_{CMS}/d\ln\lambda_2^1}$, versus $\ln\lambda_2^1$.

The legend indicates three data series:

- CMS (Black squares)
- Pythia 8.308 default (Blue triangles)
- Pythia 8.308 default-noCR (Grey triangles)

The top panel shows that the Pythia 8.308 default model (blue triangles) has a significantly higher distribution at low $\ln\lambda_2^1$ values compared to the CMS data (black squares) and the Pythia 8.308 default-noCR model (grey triangles). The Pythia 8.308 default-noCR model (grey triangles) shows a much better agreement with the CMS data (black squares) at low $\ln\lambda_2^1$ values.

The bottom panel shows that the ratio of the distributions to the CMS data is close to 1 for the Pythia 8.308 default-noCR model (grey triangles), indicating a good agreement with the CMS data. The ratio for the Pythia 8.308 default model (blue triangles) is significantly higher than 1 at low $\ln\lambda_2^1$ values, indicating a poor agreement with the CMS data.

Source: CMS_2021_I1920187, mcplots.cern.ch [arXiv:1306.3436], Rivet 3.1.10, ≥ 2.7 M events