

Jets

Rivet 3.1.10, $\geq 400k$ events

mcplots.cern.ch [arXiv:1306.3436]

2

0.5

pTD2

 $\mathbb{N}$

Ratio to CMS

The figure displays two panels comparing CMS data with Herwig++ 2.6.3 and Herwig 7.2.1 models for the observable $(p_T^D)^2 \lambda_0^2$ (CMS jet substructure).

Top Panel: Shows the distribution of events. The x-axis is $(p_T^D)^2 \lambda_0^2$ (CMS jet substructure) ranging from 0 to 1. The y-axis is $\frac{1}{N} \frac{dN}{dp_T^D}$ ranging from 0 to 1000. The legend indicates:

- CMS:** Black solid line with square markers.
- Herwig++ 2.6.3 default:** Orange dashed line with open circle markers.
- Herwig 7.2.1 default:** Green dashed line with open square markers.

The CMS data shows a sharp peak around $x \approx 0.1$. The Herwig++ model also peaks around $x \approx 0.1$ but with a lower peak. The Herwig 7.2.1 model peaks at a lower x value, around $x \approx 0.05$.

Bottom Panel: Shows the ratio of the models to the CMS data. The y-axis is "Ratio to CMS" ranging from 0.5 to 2. The x-axis is p_{TD2} ranging from 0 to 1. The legend indicates:

- Herwig++ 2.6.3 default:** Orange shaded band.
- Herwig 7.2.1 default:** Green shaded band.

The Herwig++ ratio is generally higher than 1, peaking around 1.5 at $p_{TD2} \approx 0.1$. The Herwig 7.2.1 ratio is generally closer to 1, peaking around 1.2 at $p_{TD2} \approx 0.1$.