

Z+Jet

The figure displays the multiplicity distribution of CMS jets, comparing experimental data with theoretical models.

Top Panel: Multiplicity λ_0^0 (CMS jet substructure)

The y-axis represents the normalized differential event rate, $\frac{1}{N} \frac{dN}{d\lambda_0^0}$, ranging from 0 to 240. The x-axis represents the multiplicity λ_0^0 , ranging from 0 to 100. The plot shows the following data series:

- CMS:** Black squares representing experimental data points.
- Herwig++ 2.7.1 default:** Orange dashed line with open circles.
- Herwig 7.2.1 default:** Green dashed line with open squares.
- Herwig 7.2.1 softTune:** Blue solid line with filled downward-pointing triangles.

The CMS data shows a sharp peak at low multiplicity (around 10) and a long tail extending to high multiplicities. The theoretical models (Herwig++) generally predict a higher peak at low multiplicity and a faster decay towards high multiplicities.

Bottom Panel: Ratio to CMS

The y-axis represents the ratio of the model to the CMS data, ranging from 0.5 to 2. The x-axis represents the multiplicity λ_0^0 , ranging from 0 to 100. The plot shows the ratio of the theoretical models to the CMS data, with a horizontal line at 1.0 indicating perfect agreement. The ratio is generally above 1.0 for low multiplicities and below 1.0 for high multiplicities.

Legend:

- CMS
- Herwig++ 2.7.1 default
- Herwig 7.2.1 default
- ▼— Herwig 7.2.1 softTune

Text in plot:

CMS_2020-11-19-20187

Metadata:

mcplots.cern.ch [arXiv:1306.3436]
Rivet 3.1.10, ≥ 1.9M events