

13000 GeV pp

Jets

Width λ_{1^1} (CMS jet substructure)Rivet 4.1.0, $\geq 100k$ events

mcplots.cern.ch [arXiv:1306.3436]

(CMS_2021_I1920187)

Ratio to CMS

- CMS
- Pythia 6.428 346
- △ Pythia 6.428 347
- ◇ Pythia 6.428 348
- + Pythia 6.428 349
- △ Pythia 6.428 370

10

1

10^{-1}

10^{-2}

2

1

0.5

2

0 0.5 1

The figure consists of two vertically stacked panels sharing a common x-axis representing the width λ_{1^1} (CMS jet substructure) from 0 to 1. The top panel is a log-linear plot of the width values, ranging from 10^{-2} to 10. It shows data points for CMS (black squares) and five Pythia models (Pythia 6.428 346, 347, 348, 349, and 370) with their respective error bars. The Pythia models generally follow a similar trend, peaking around $\lambda_{1^1} \approx 0.2$ and then decreasing. The bottom panel shows the ratio of the width to the CMS value, ranging from 0.5 to 2. This panel includes the same data points as the top panel, along with shaded regions (yellow and green) representing uncertainty bands. The ratios for the Pythia models are mostly within the shaded regions, indicating they are consistent with the CMS data within uncertainties.

Width λ_{1^1}	CMS Width	Pythia 6.428 346 Width	Pythia 6.428 347 Width	Pythia 6.428 348 Width	Pythia 6.428 349 Width	Pythia 6.428 370 Width	Ratio to CMS (approx.)
0.1	1.0	0.8	1.2	1.0	1.0	1.2	0.8 - 1.2
0.2	4.0	3.5	4.5	4.0	4.0	4.5	0.8 - 1.2
0.3	3.0	3.5	3.5	3.5	3.5	3.0	0.8 - 1.2
0.4	1.5	1.8	1.8	1.8	1.8	1.5	0.8 - 1.2
0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.8 - 1.2
0.8	0.04	0.05	0.05	0.05	0.05	0.04	0.8 - 1.2