

# Jets

Figure 1 consists of two panels. The top panel is a plot of the differential event rate  $\frac{dN}{d\ln \lambda_1^1}$  versus the width of the first jet substructure. The x-axis is labeled 'width' and ranges from 0 to 1. The y-axis is labeled ' $\frac{dN}{d\ln \lambda_1^1}$ ' and ranges from 0 to 1000. The plot shows three data series: CMS data (black squares), Herwig 7.0.4 default (green dashed line with open squares), and Pythia 8.308 default (blue solid line with solid triangles). The CMS data points are clustered around a value of 1000 for width values between 0.1 and 0.5. The Herwig and Pythia models show a sharp drop in the event rate as the width increases, starting from around 1000 at width 0.1 and falling to near zero by width 0.5. The bottom panel is a plot of the ratio of the Monte Carlo models to the CMS data, labeled 'Ratio to CMS'. The x-axis is the same as the top panel. The y-axis ranges from 0.5 to 2.0. The plot shows two shaded regions: a green region for the Herwig 7.0.4 default model and a yellow region for the Pythia 8.308 default model. Both regions are centered around a ratio of 1.0, indicating that the models are in good agreement with the CMS data. The Herwig model shows a slight dip in the ratio around width 0.2, while the Pythia model shows a slight peak around width 0.4.

mcplots.cern.ch [arXiv:1306.3436]

Rivet 3.1.10,  $\geq 400\text{k}$  events

2

0.5

width