

## Z+Jet

■ CMS  
 —▲— Pythia 8.308 default  
 -.-▼-.- Pythia 8.308 vincia-default

▲ Pythia 8.308 default

Pythia 8.308 vincia-default

Figure 1 consists of two panels. The top panel shows the groomed multiplicity distribution  $\frac{1}{N} \frac{dN}{d\lambda_0^0}$  (charged-only) (CMS jet substructure) for three different models: CMS (black squares), Pythia 8.308 default (blue triangles), and Pythia 8.308 vincia-default (cyan inverted triangles). The x-axis is the groomed multiplicity (charged-only) from 0 to 50, and the y-axis is  $\frac{1}{N} \frac{dN}{d\lambda_0^0}$  from 0 to 700. The bottom panel shows the ratio of the groomed multiplicity distribution to the CMS distribution,  $\frac{1}{N} \frac{dN}{d\lambda_0^0} / \frac{1}{N} \frac{dN}{d\lambda_0^0}^{\text{CMS}}$ , for the same three models. The x-axis is the groomed multiplicity (charged-only) from 0 to 50, and the y-axis is the ratio from 0.5 to 2.5. The ratio is shown as a stacked histogram with green for the Pythia 8.308 default model and yellow for the Pythia 8.308 vincia-default model. A horizontal line at 1.0 indicates the ratio to CMS.