

Top Panel: Differential cross-section $\frac{1}{\lambda} \frac{dN}{dp_T d\lambda}$ (GeV⁻¹) vs. width (charged-only). The y-axis is logarithmic, ranging from 10⁻⁴ to 10³. The x-axis ranges from 0 to 1. Data points are shown for CMS (black squares) and three Pythia 8.186 models: default (blue triangles), default-noFsr (purple triangles), and default-noRap (cyan triangles). The default-noFsr model shows a significant deviation from the other models at low width.

Bottom Panel: Ratio to CMS vs. width (charged-only). The y-axis is linear, ranging from 0.5 to 2. The x-axis ranges from 0 to 1. The ratio is shown for the same three Pythia models. The default and default-noRap models are close to 1.0, while the default-noFsr model is significantly lower at low width. Shaded regions indicate the uncertainty bands for the ratio.

Legend for Top Panel:

- CMS
- ▲ Pythia 8.186 default
- ▲ Pythia 8.186 default-noFsr
- ▲ Pythia 8.186 default-noRap

Legend for Bottom Panel:

- Ratio to CMS

References: (CMS_2021_I1920187), Rivet 4.1.0, ≥ 100k events