

13000 GeV pp

Z (Drell-Yan)

 $\langle N_{\text{ch}} \rangle$ vs p_{T}^{Z} (ATLAS UE in Z production) $\langle N_{\text{ch}}/d\eta d\phi \rangle$

Ratio to ATLAS

0.5

1

2

5

4

3

2

1

0

0

1

2

3

4

5

■

ATLAS

--□--

Herwig 7.2.1 default

—○—

MadGraph5 2.7.2.atlas3 lo

—▲—

Pythia 8.308 default

-◇-

Sherpa 2.2.7 default

ATLAS_2019_I1736531

Rivet 3.1.10, ≥ 500k events

mcplots.cern.ch [arXiv:1306.3436]

2

1

1

0.5

1

2

0

200

400

 $Z p_{\text{T}}$ [GeV]