

Gap fraction

Gap fraction vs Veto scale(FB) ($70 < p_T < 90$, $2 < \Delta y < 3$)

- ATLAS
- - - ■ Pythia 6.425 default
- - - ▲ Pythia 8.301 default

2

1.8

1.6

1.4

1.2

1.0

0.8

0.6

0.4

0.2

0

Rivet 3.1.0, $\geq 100k$ events

mcplots.cern.ch [arXiv:1306.3436]

ATLAS_2011_S9126244

Ratio to ATLAS

2

1

0.5

2

1

0.5

Q_0 [GeV]

The figure consists of two vertically stacked panels sharing a common x-axis representing the veto scale Q_0 in GeV, ranging from 20 to 90. The top panel plots the 'Gap fraction' on the y-axis, ranging from 0 to 2. The bottom panel plots the 'Ratio to ATLAS' on the y-axis, ranging from 0.5 to 2. Three data series are shown: ATLAS (black squares), Pythia 6.425 default (orange squares), and Pythia 8.301 default (blue triangles). In the top panel, the ATLAS data points start at approximately 0.55 for $Q_0 = 20$ and rise to 1.0 at $Q_0 \approx 25$, then gradually increase towards 1.0. The Pythia models start at lower values (around 0.35 for Pythia 6.425 and 0.42 for Pythia 8.301) and reach 1.0 at $Q_0 \approx 25$, remaining constant thereafter. In the bottom panel, the ATLAS ratio is constant at 1.0. The Pythia models start at lower ratios (around 0.65 for Pythia 6.425 and 0.82 for Pythia 8.301) and rise to approximately 1.75 at $Q_0 \approx 25$, then gradually decrease towards 1.0 as Q_0 increases. A horizontal band between 0.9 and 1.1 is highlighted in yellow and green in the bottom panel.

Q_0 [GeV]	ATLAS Gap fraction	Pythia 6.425 default Gap fraction	Pythia 8.301 default Gap fraction	ATLAS Ratio to ATLAS	Pythia 6.425 default Ratio to ATLAS	Pythia 8.301 default Ratio to ATLAS
20	0.55	0.35	0.42	1.0	0.65	0.82
25	0.62	1.0	1.0	1.0	1.75	1.75
30	0.66	1.0	1.0	1.0	1.65	1.65
35	0.70	1.0	1.0	1.0	1.55	1.55
40	0.74	1.0	1.0	1.0	1.48	1.48
45	0.77	1.0	1.0	1.0	1.42	1.42
50	0.80	1.0	1.0	1.0	1.36	1.36
55	0.82	1.0	1.0	1.0	1.32	1.32
60	0.84	1.0	1.0	1.0	1.28	1.28
65	0.86	1.0	1.0	1.0	1.25	1.25
70	0.87	1.0	1.0	1.0	1.23	1.23
75	0.88	1.0	1.0	1.0	1.21	1.21
80	0.89	1.0	1.0	1.0	1.19	1.19
85	0.90	1.0	1.0	1.0	1.17	1.17
90	0.91	1.0	1.0	1.0	1.16	1.16