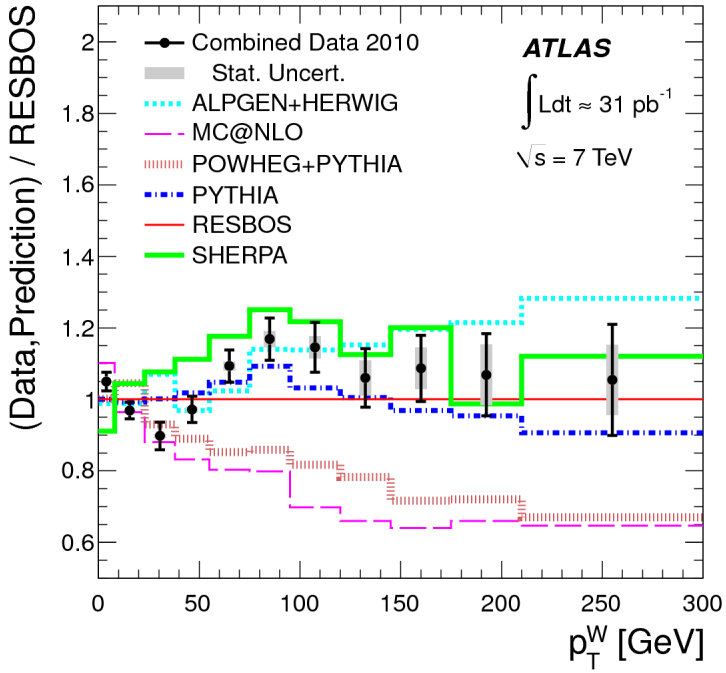
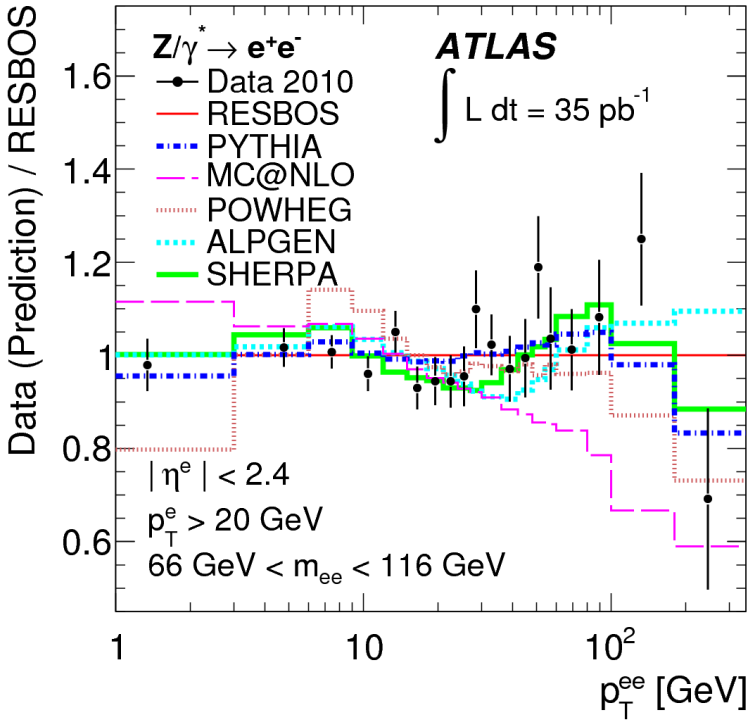
W pt and Z pt

- Wpt one of the key ingredients which limit precision W mass measurement
- Wpt resolution limited, use more precise Z pt related observables to estimate uncertainties on Wpt
- Large differences observed with NLO generators at low pt





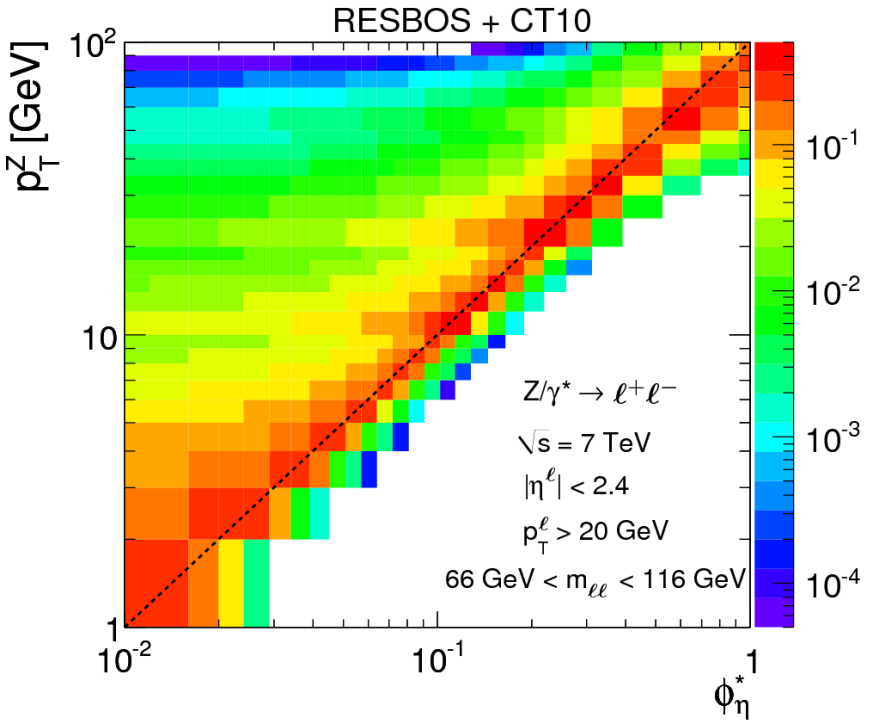
Z pt and Z phi *

- Zpt precision limited due to experimental resolution at low pt, define new variable Z phi* which is highly correlated with Zpt but has better resolution in this region

Z phi*:

- Reconstructed from angular correlation between decay leptons
- Highly correlated to Zpt, but significantly better experimental resolution at low Zpt

$\phi^*_\eta \equiv \tan(\phi_{acop}/2) \cdot \sin(\theta^*_\eta)$, $\phi_{acop} \equiv \pi - \Delta\phi$,



Z pt and Z phi*

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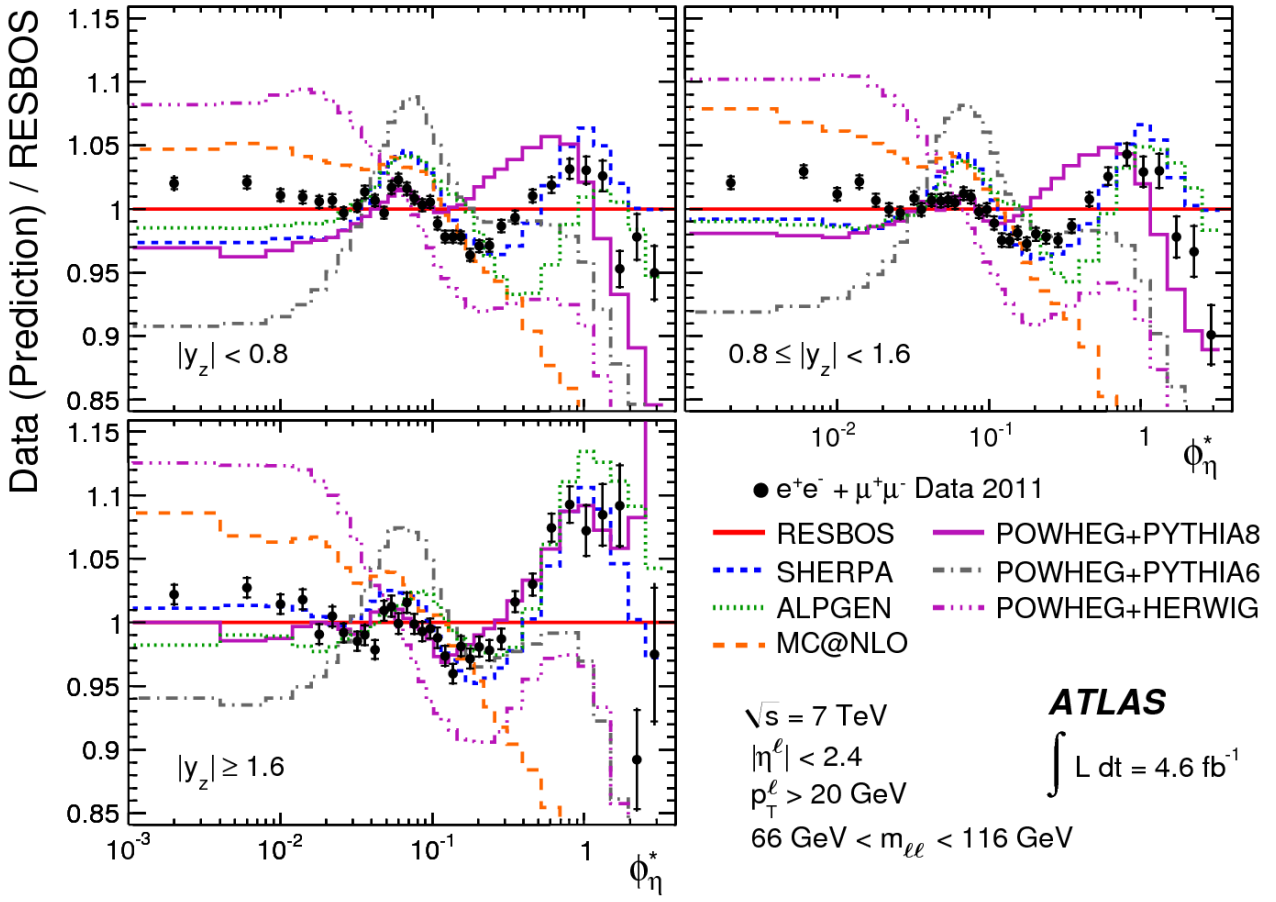
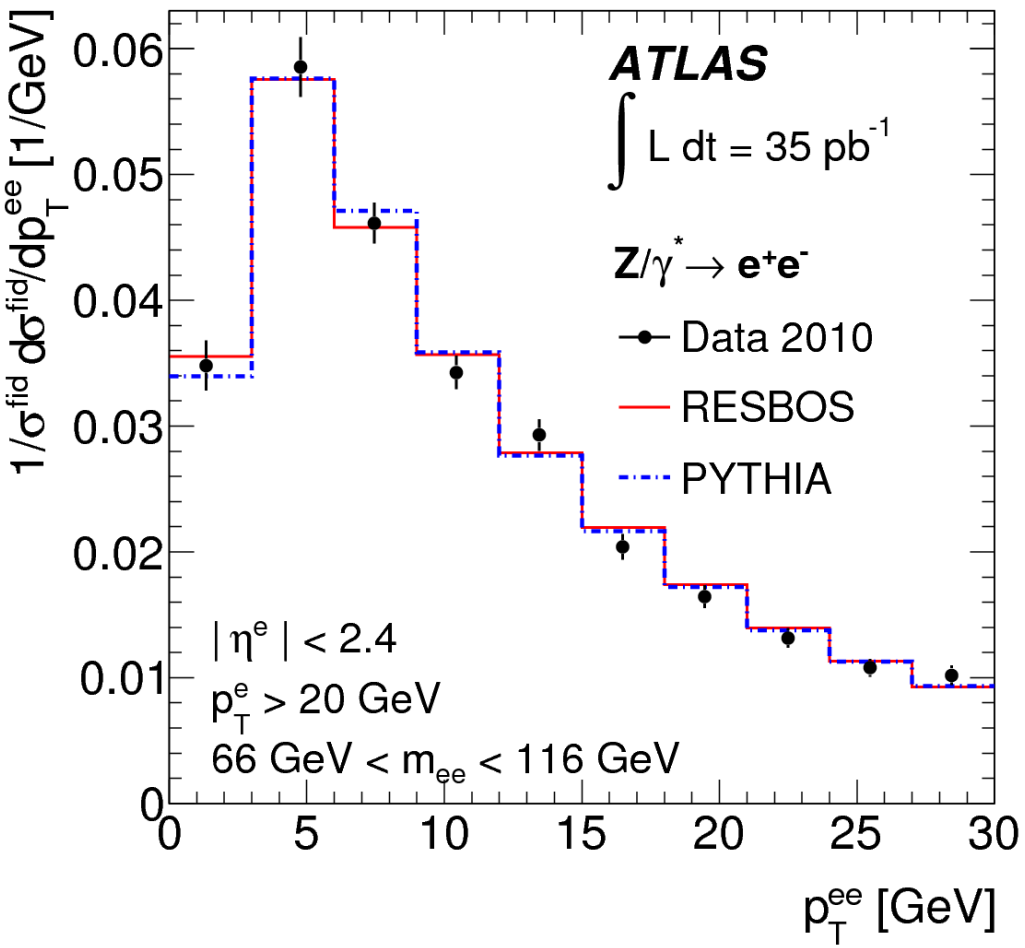


Large variations of POHWEG predictions with parton shower settings
MC@NLO (+Herwig) smaller deviations, same trend as POHWEG+Herwig
What is the most realistic estimate of systematic uncertainties?

Backup – Zpt details



Ttbar+jets

Measure jet production associated with top pair production in semi-leptonic channel,
Requiring at least 3 jets above a varying pt threshold (25 GeV, 40 GeV, 60 GeV, 80 GeV)