Laboratoire d'Annecy de Physique des Particules

MoC@NLO/MG01jet and parton/particle

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VBSTIME

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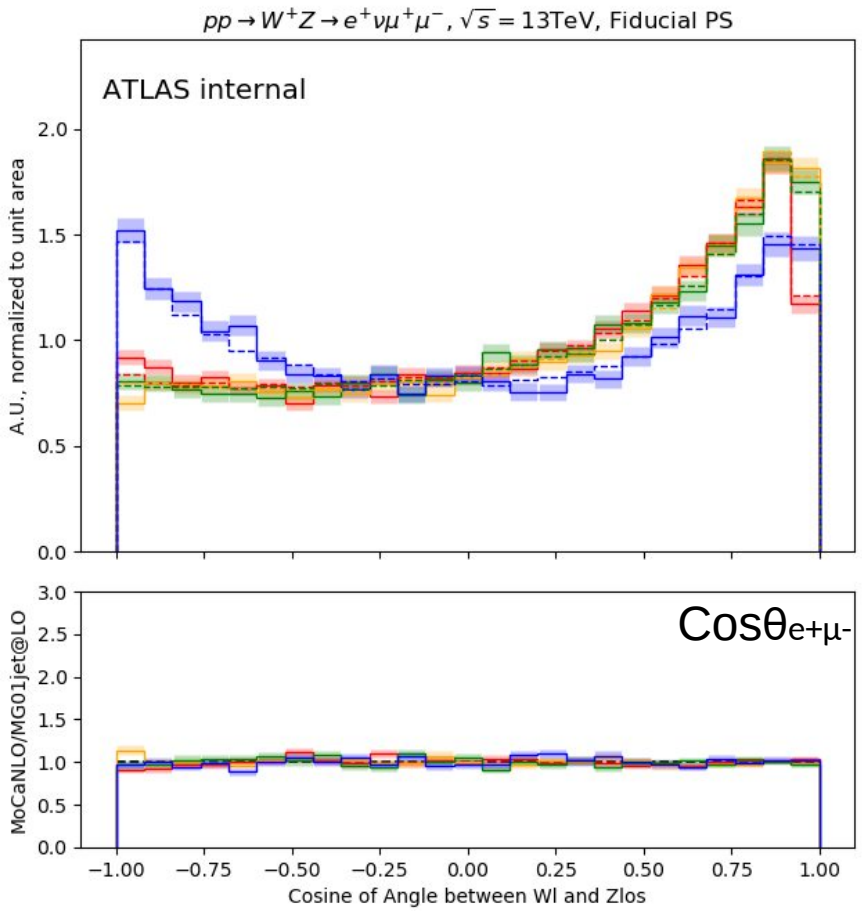
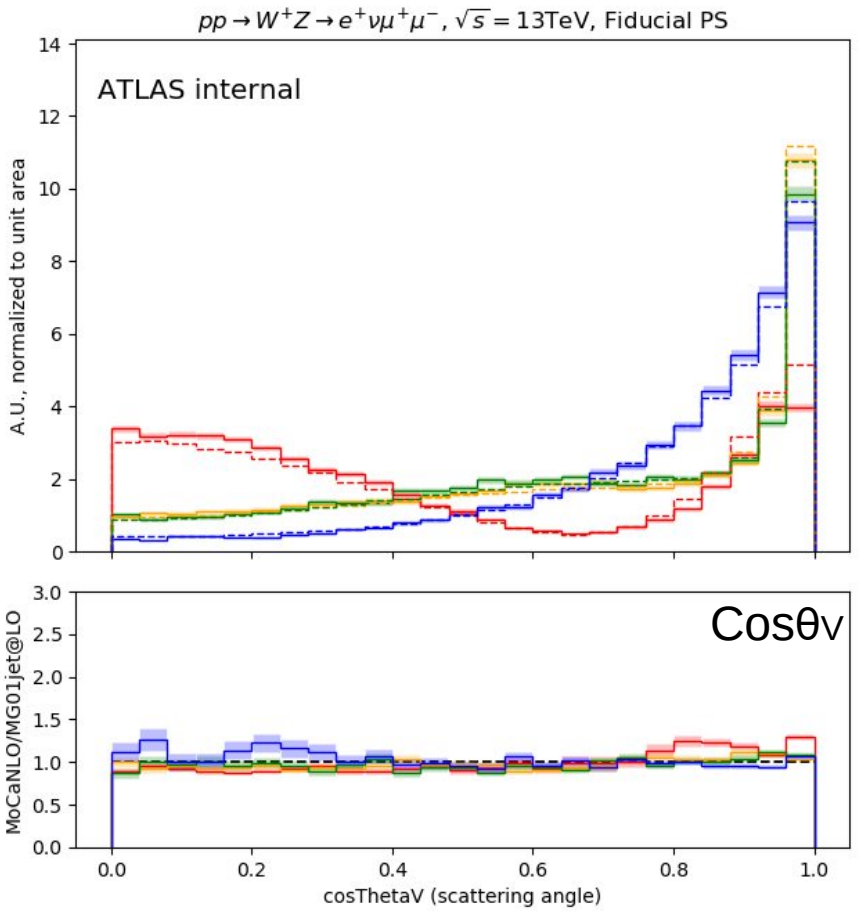
ATLAS

MoC@NLO vs MadGraph01jet

- Comparisons of MoC@NLO results with MadGraph WZ+0,1jet (parton)

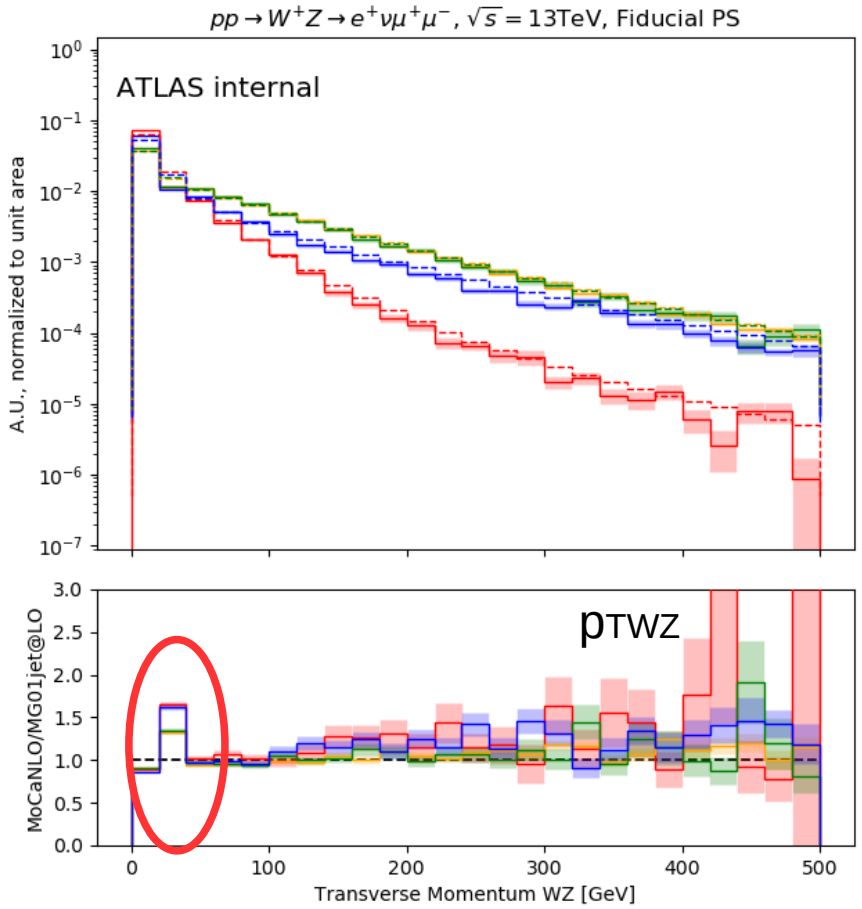


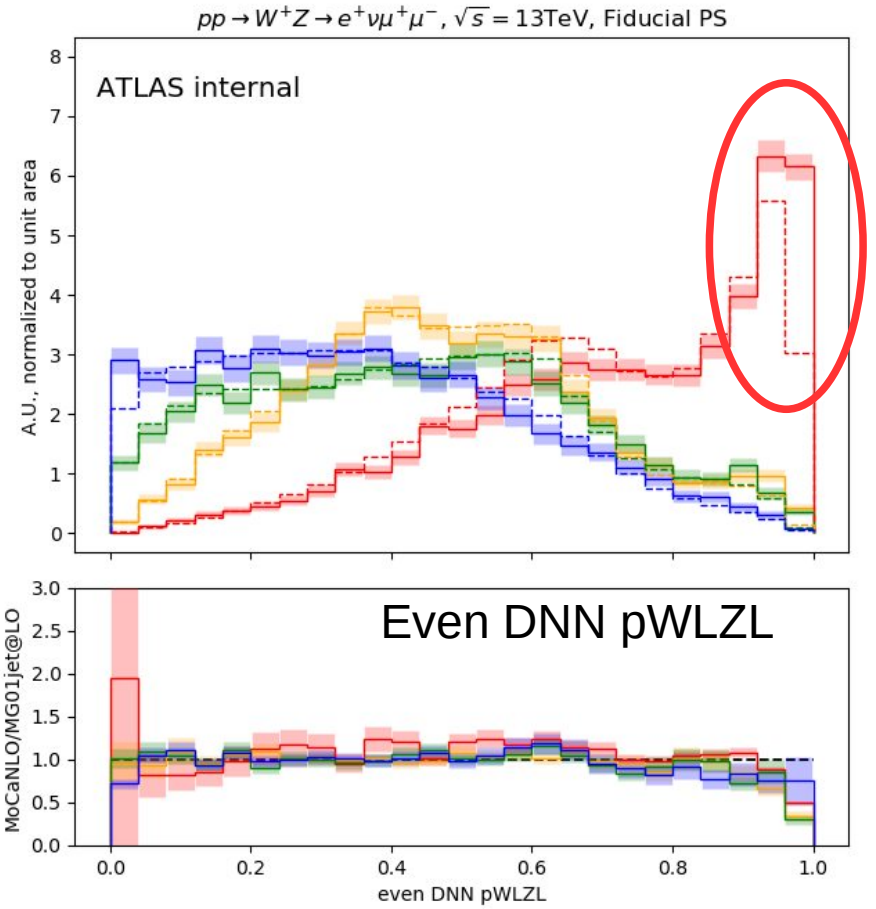


Very good agreement for angular variables

MoC@NLO vs MadGraph01jet

- Comparisons of MoC@NLO results with MadGraph WZ+0,1jet (parton)

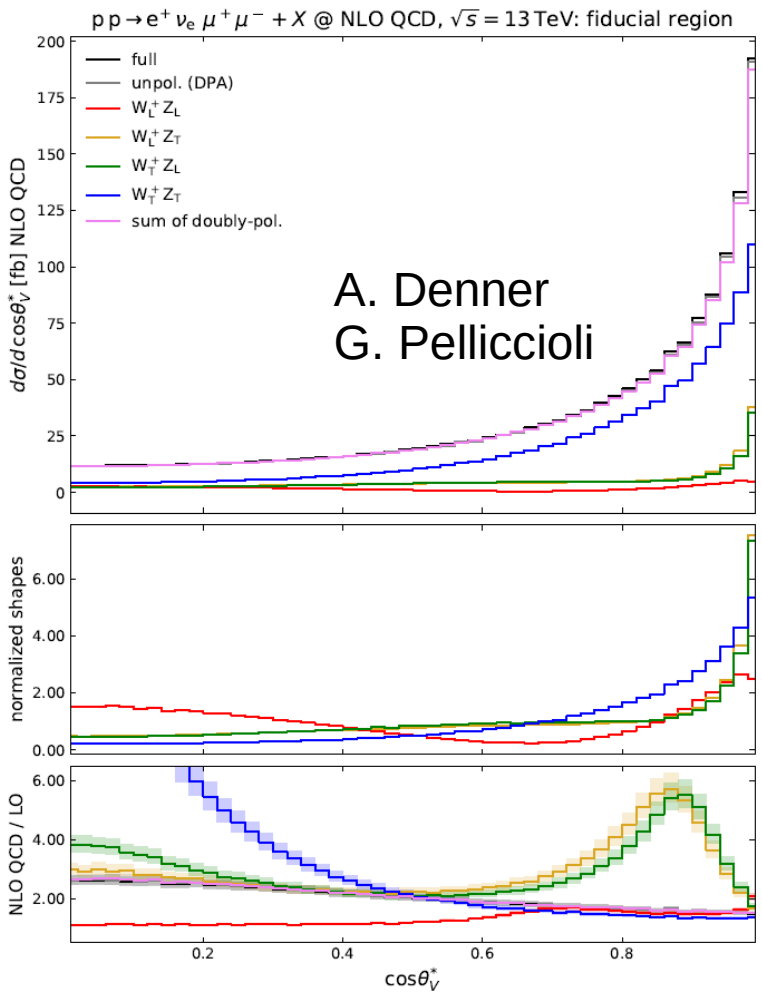


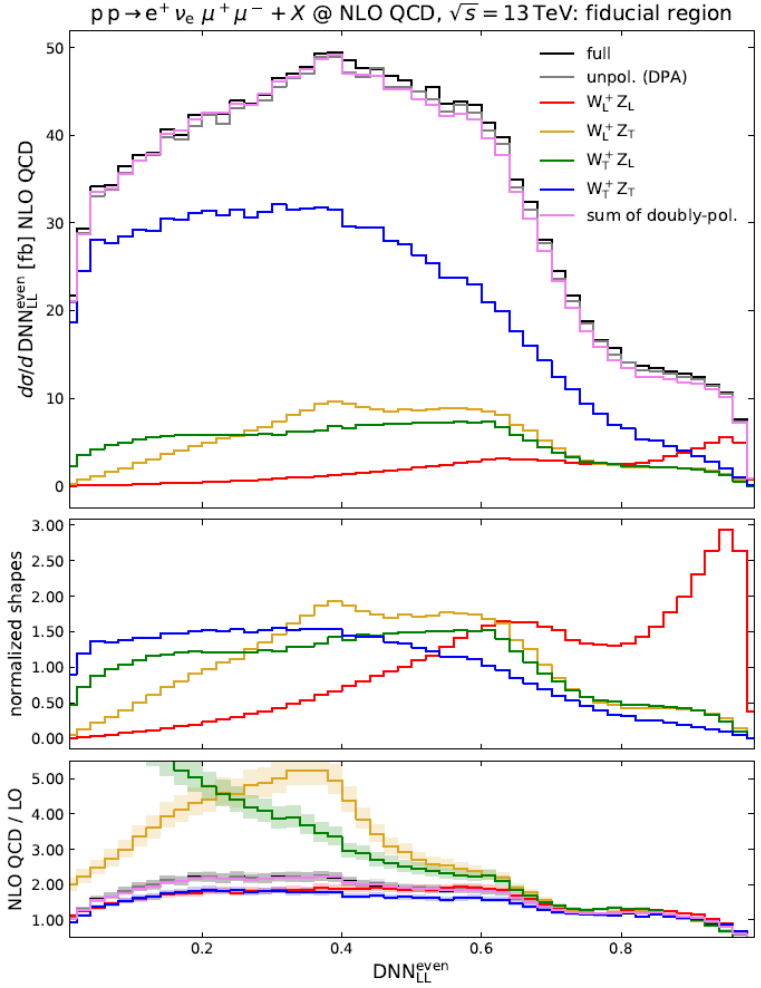


Reasonably good agreement on transverse momentum distributions and DNN outputs

Reminder: MoC@NLO vs MadGraph

- Comparisons of MoC@NLO results with MadGraph WZ+0jets (parton)

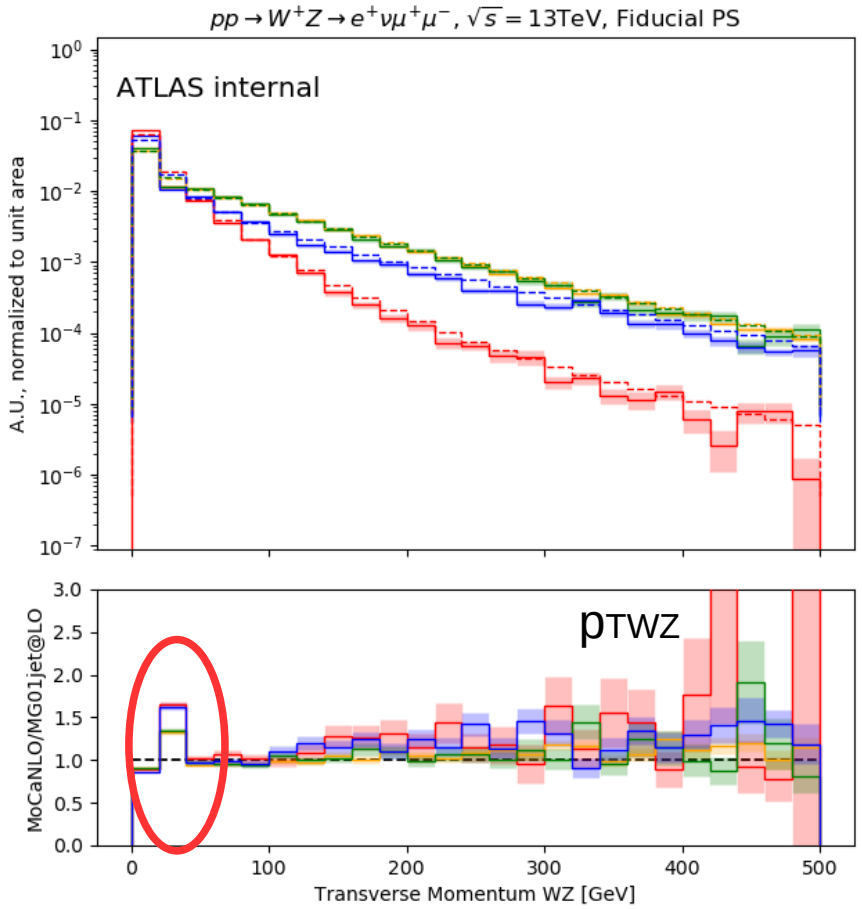


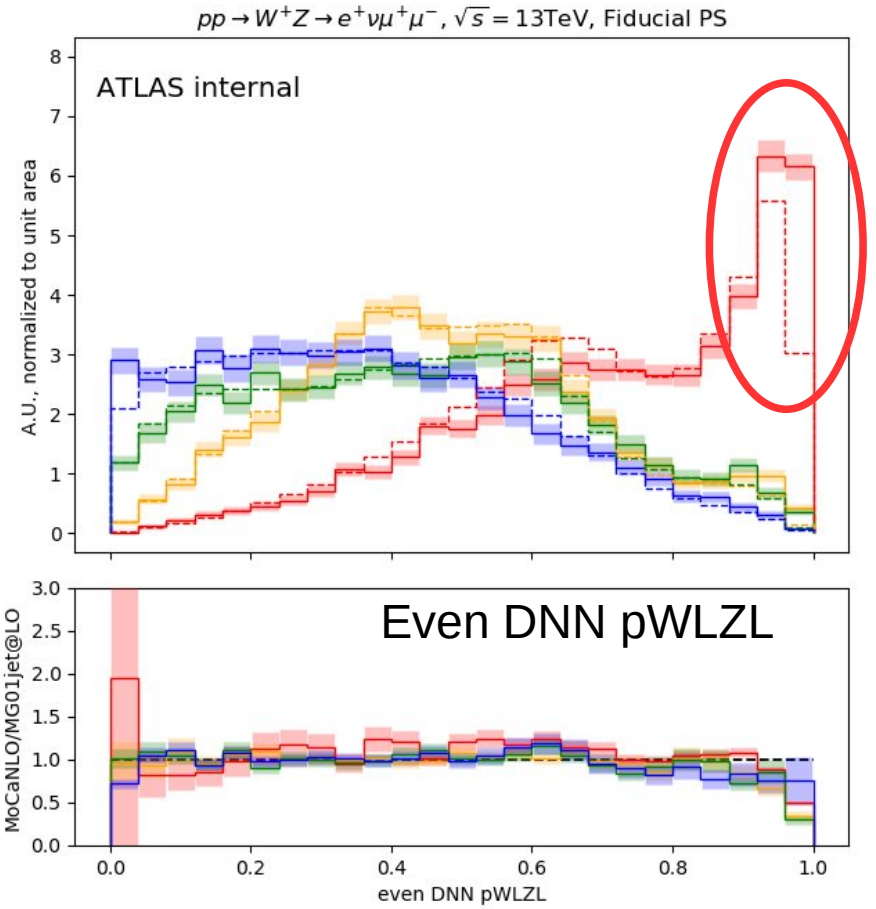


Very big scale factors. The generation of a jet at matrix element catches most of the NLO dynamics.

MoC@NLO vs MadGraph01jet

- Comparisons of MoC@NLO results with MadGraph WZ+0,1jet (parton)





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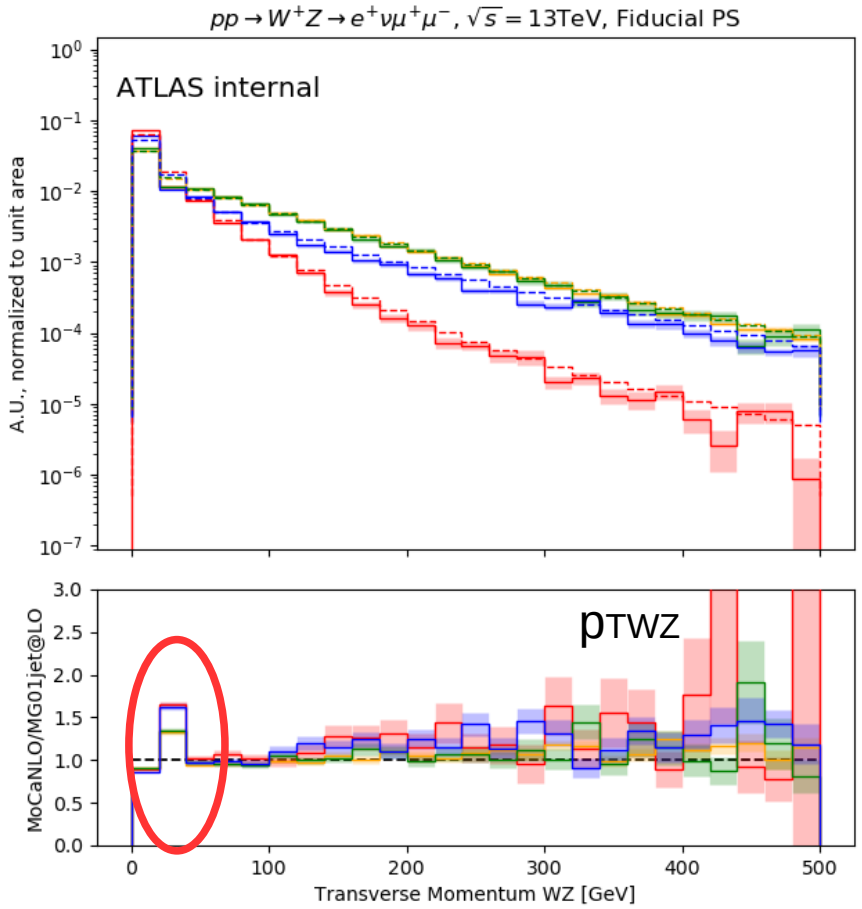
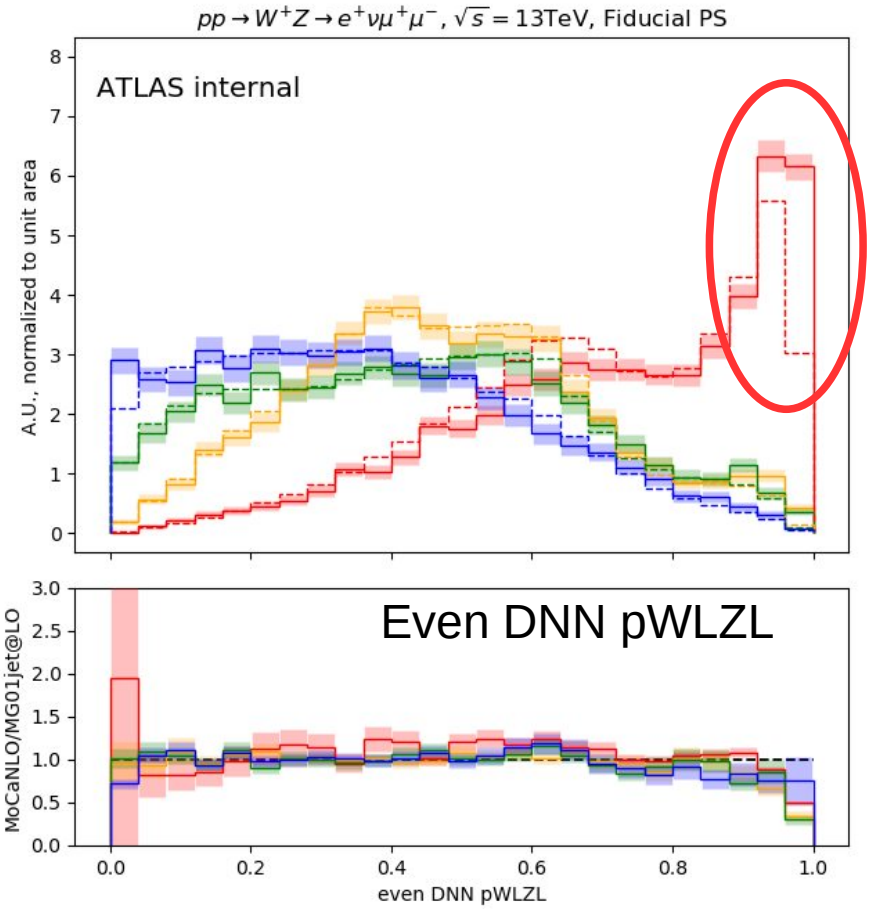
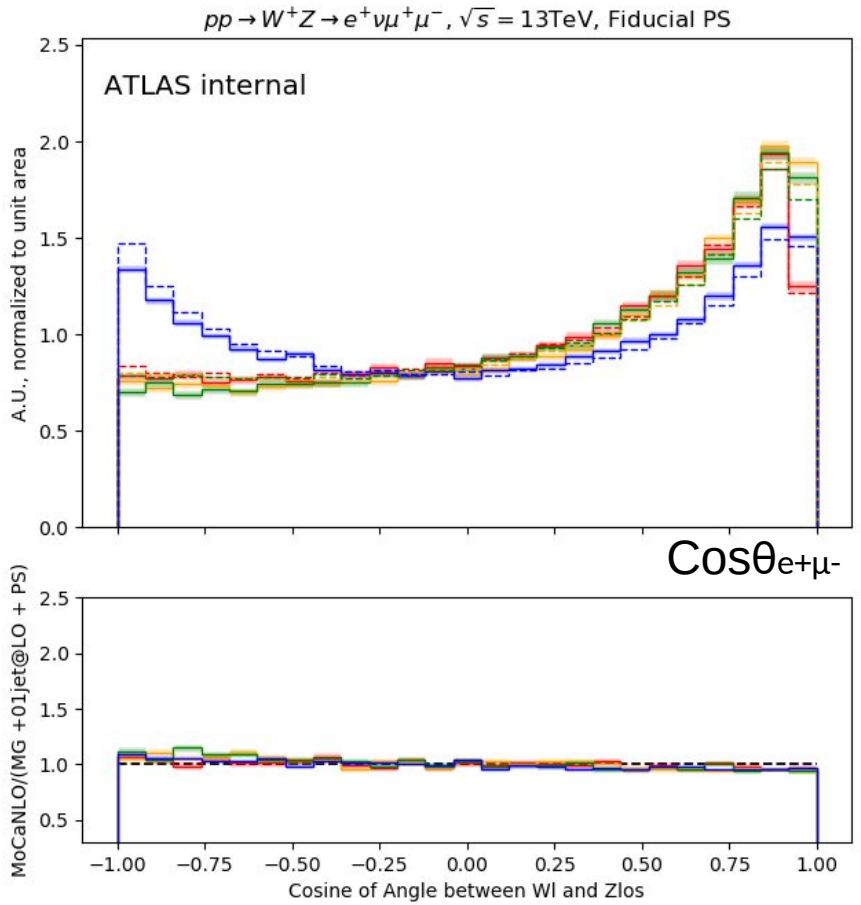


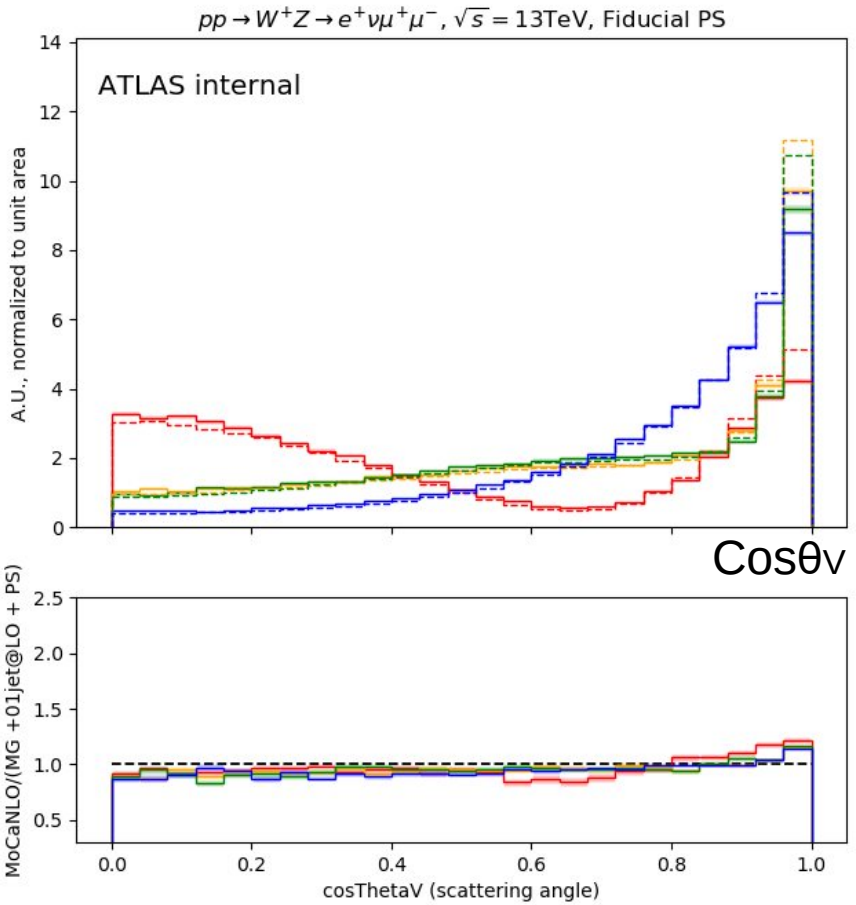


Reasonably good agreement on transverse momentum distributions and DNN outputs

MoC@NLO vs MadGraph01jet

- Comparisons of MoC@NLO results with MadGraph WZ+0,1jet with Pythia PS and CKKW-L merging





Good agreement for angular variables

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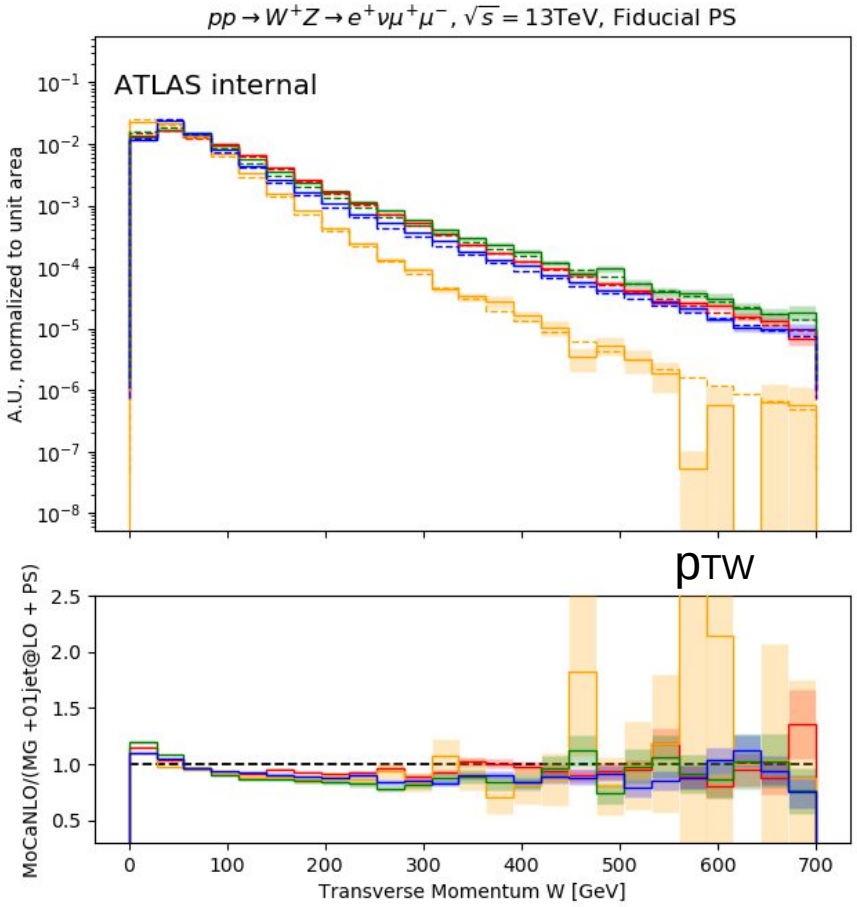
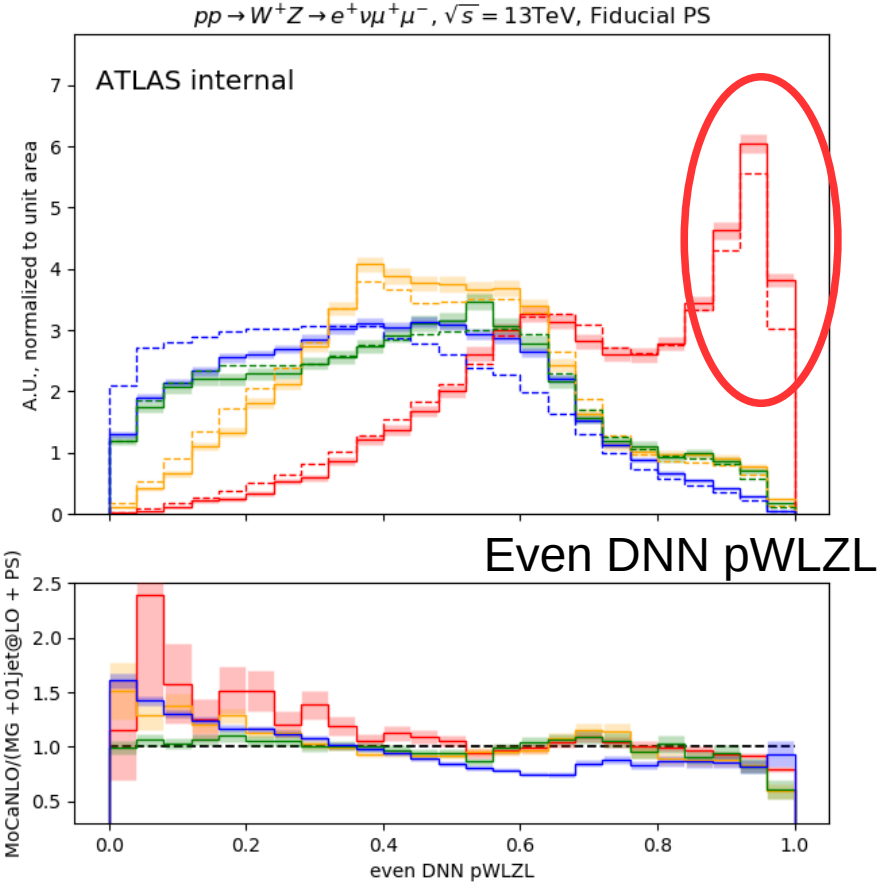


pTW

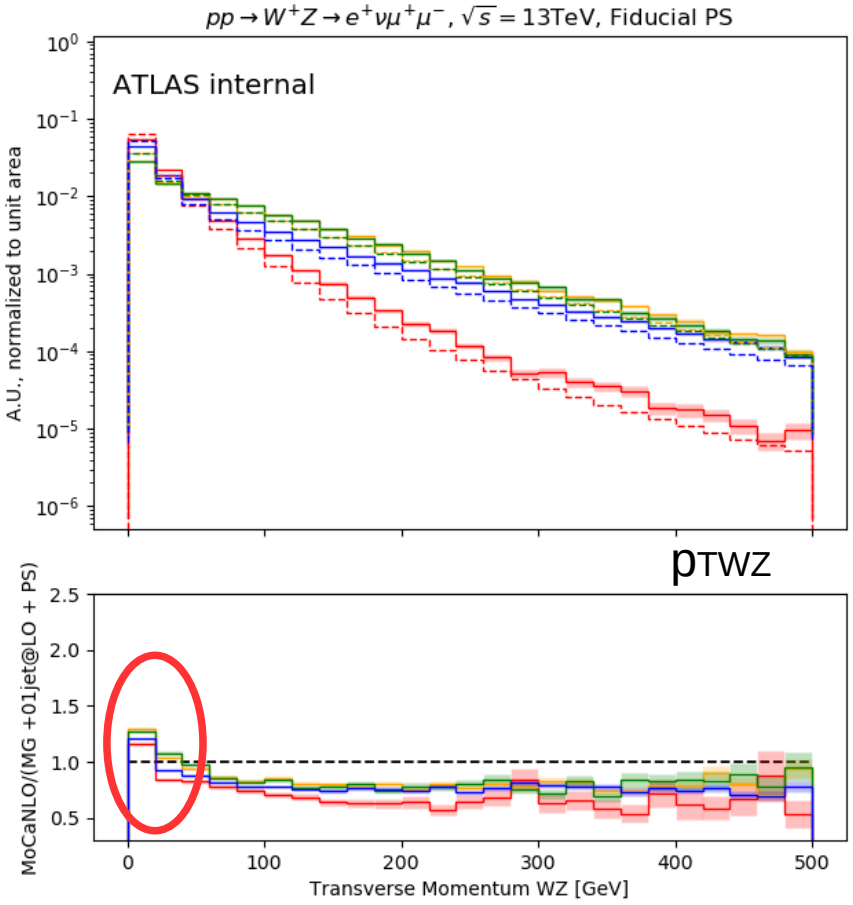


Even DNN pWLZL

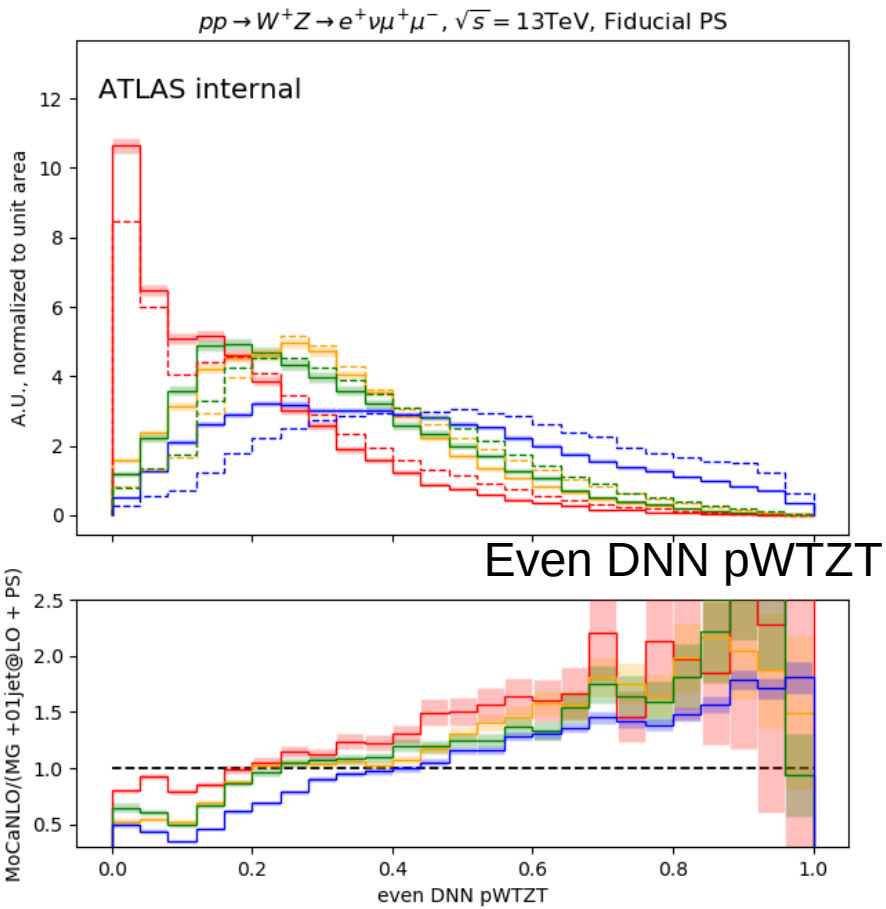
Reasonably good agreement on most transverse momentum distributions and DNN outputs

MoC@NLO vs MadGraph01jet

- Comparisons of MoC@NLO results with MadGraph WZ+0,1jet with Pythia PS and CKKW-L merging



pTWZ

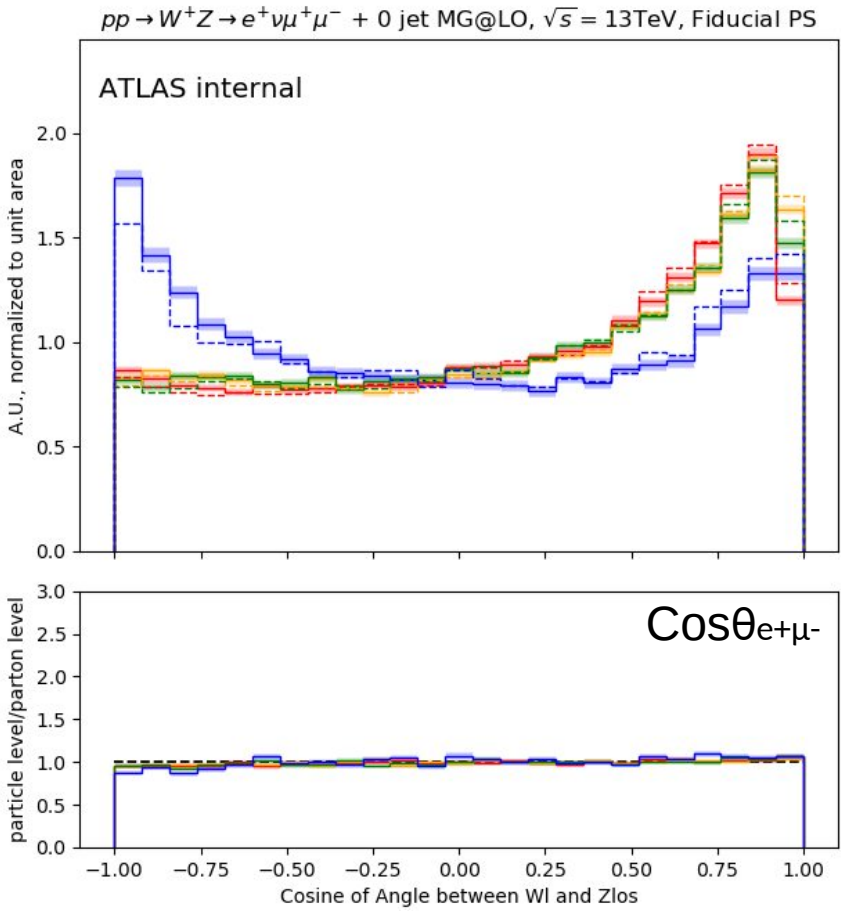


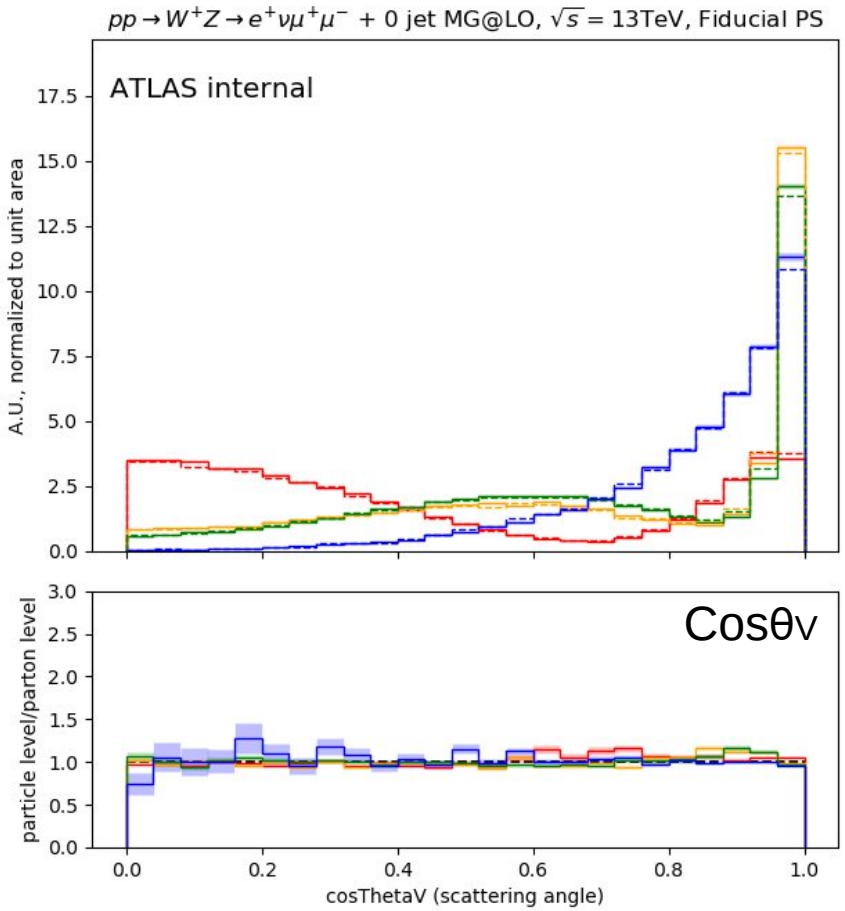
Even DNN pWTZT

Some large discrepancies still visible on pTWZ and some DNN outputs

MadGraph0jets particle/parton

- Comparisons MadGraph WZ+0jets at particle and parton level.





PS does not affect much angular variables

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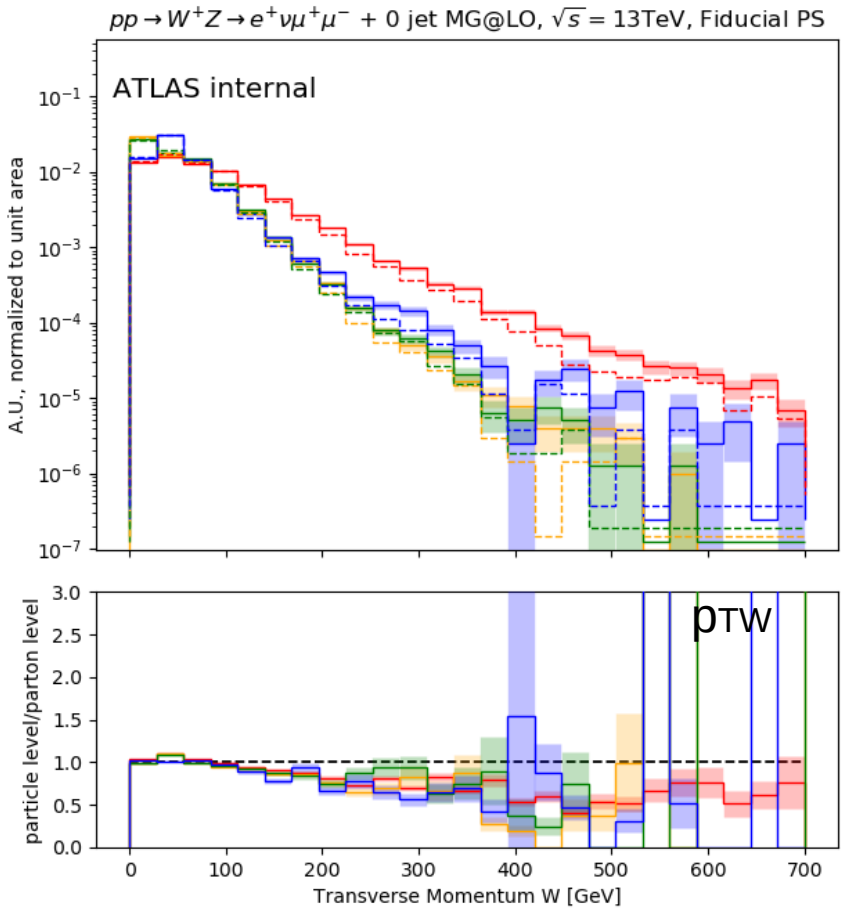
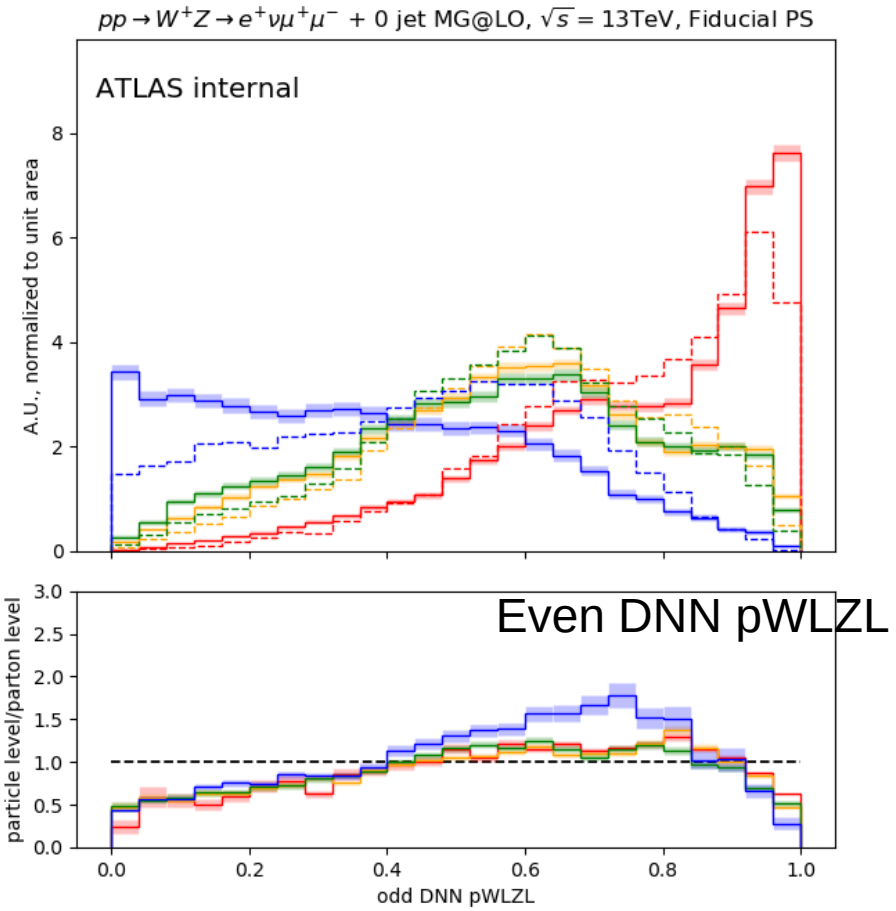
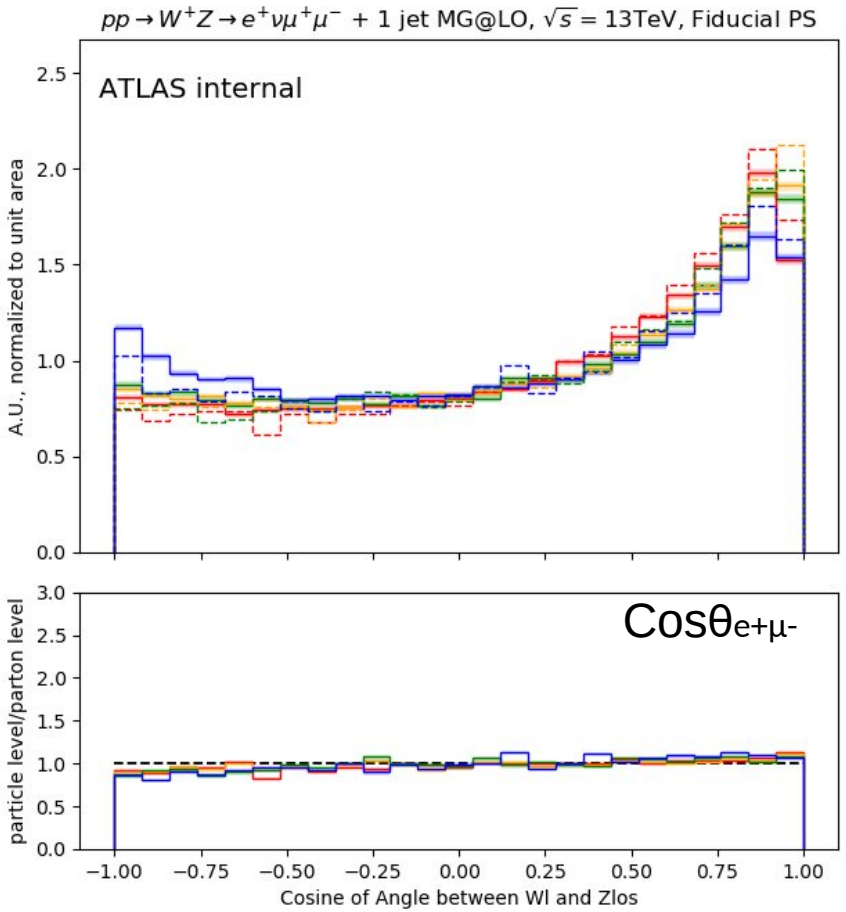


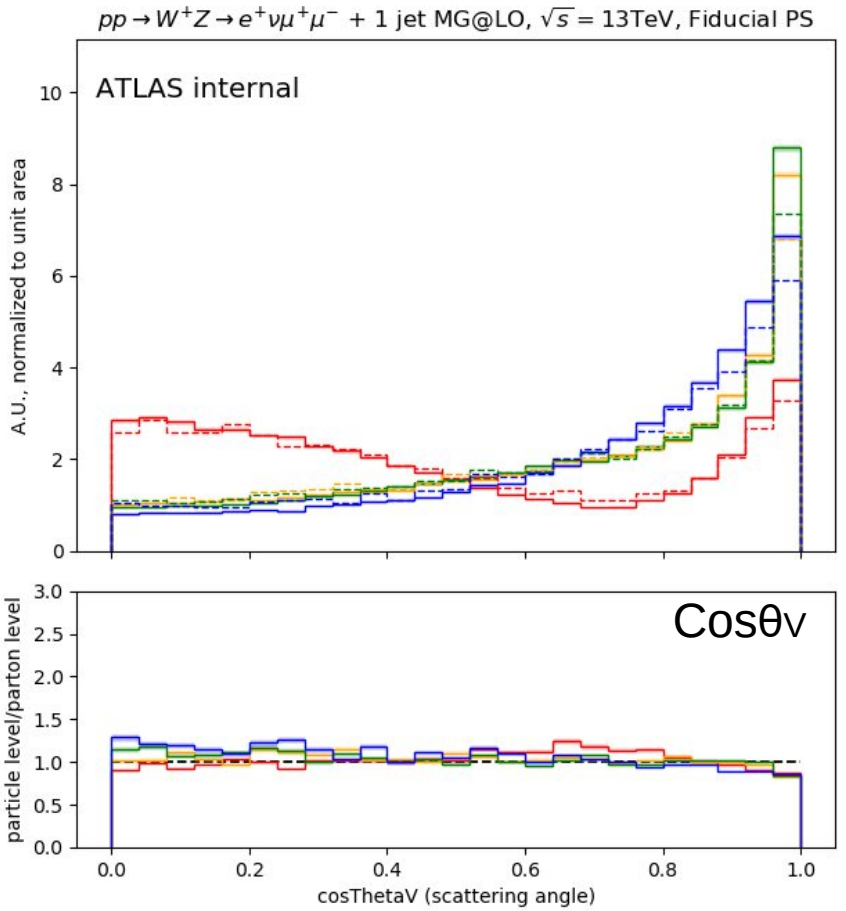


PS adds some distortion to transverse momentum distributions and DNN outputs.

MadGraph1jets particle/parton

- Comparisons MadGraph WZ+1jet at particle and parton level.

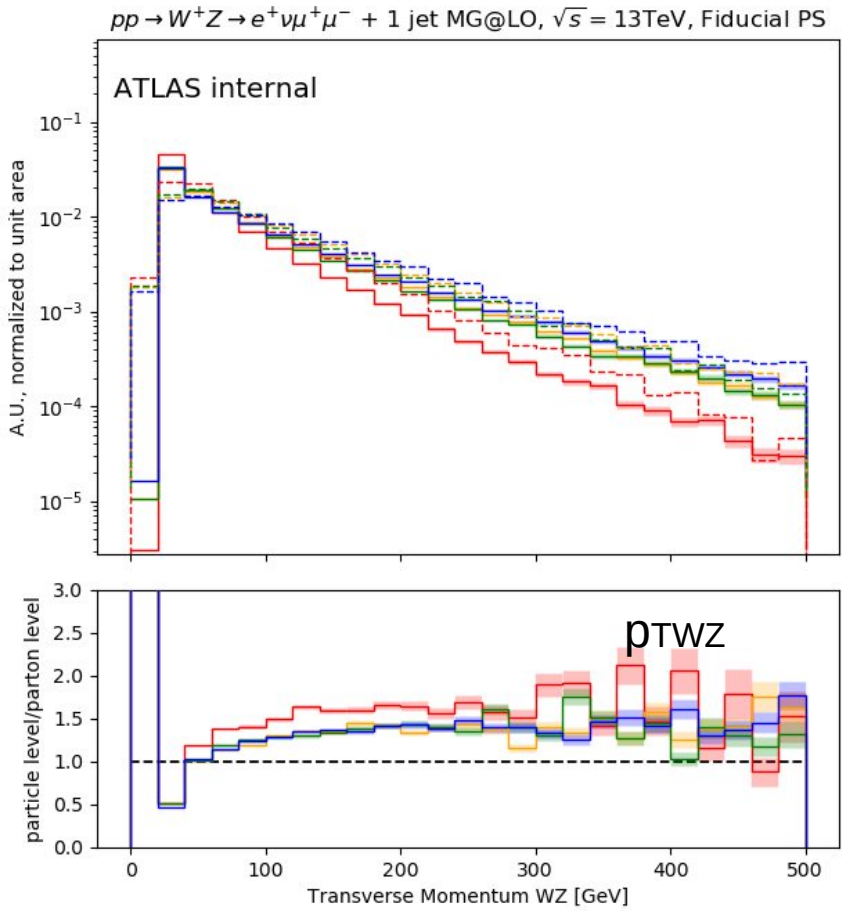


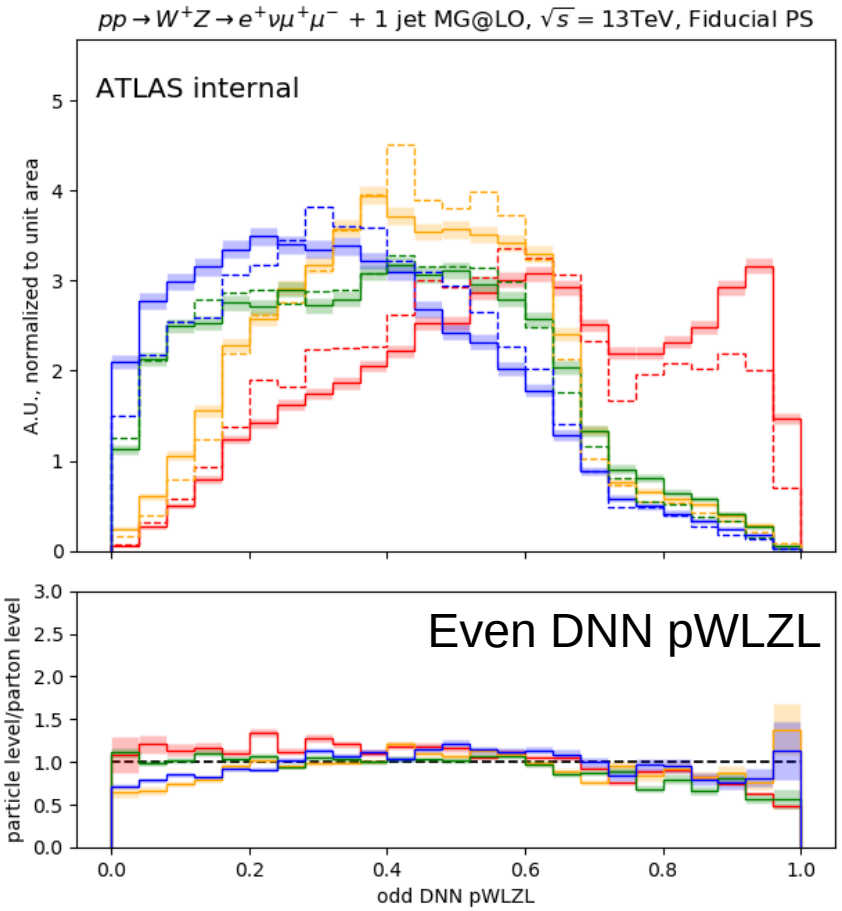


PS does not affect much angular variables

MadGraph1jets particle/parton

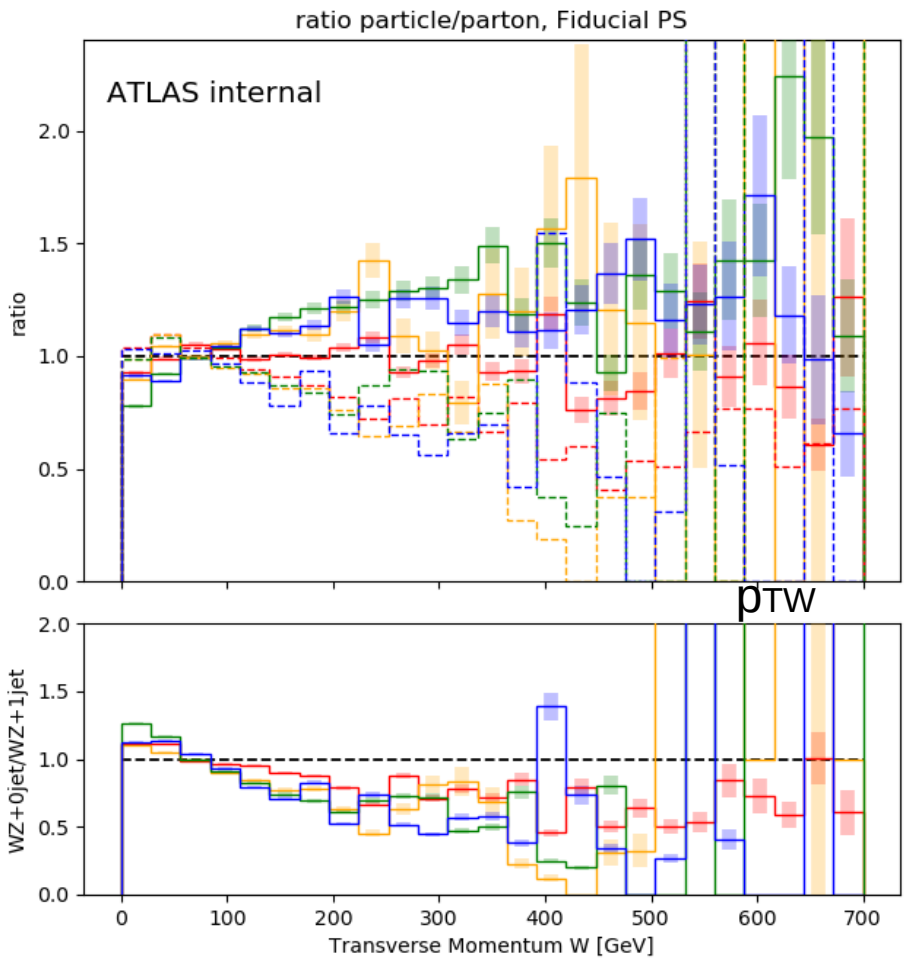
- Comparisons MadGraph WZ+1jet1 at particle and parton level.

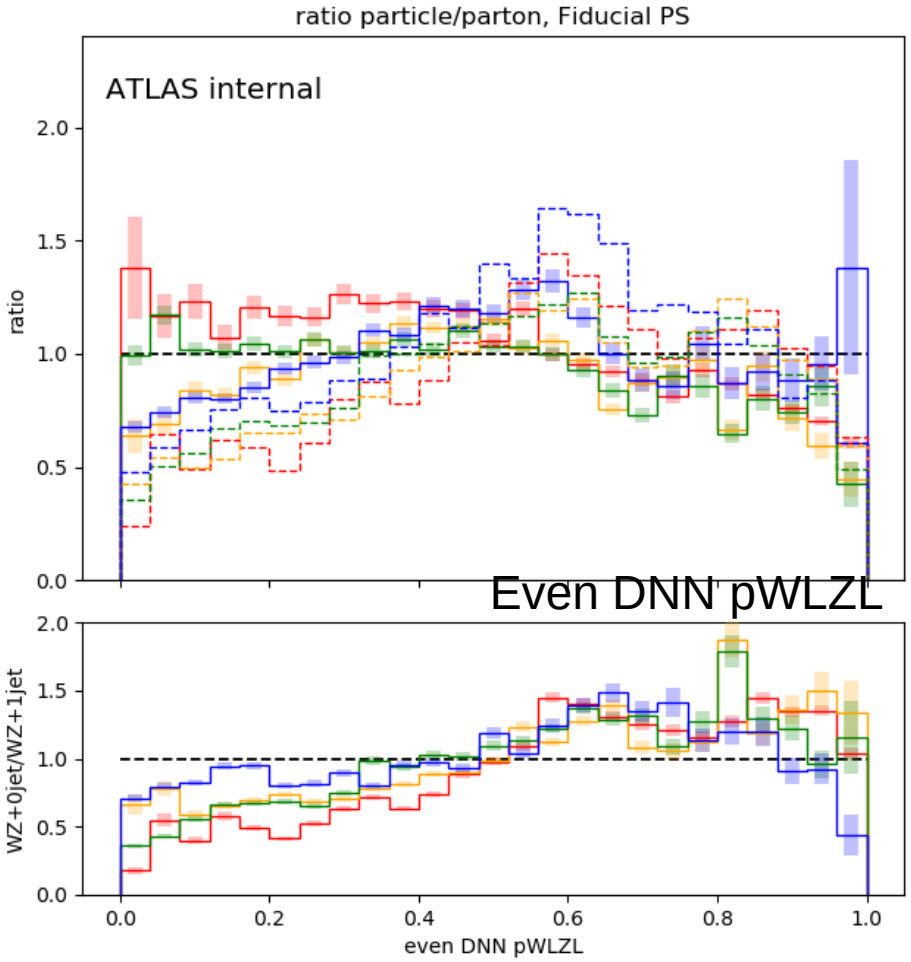




PS adds some distortion.
DNN outputs are very different wrt 0 jet sample.

Comparison particle/parton 1jet vs 0jet





WZ + 1 jet WZ + 0 jet

WLZL WLZT WTZL WTZT

PS affects 0 jets and 1 jet samples differently.

Conclusions

- Very good agreement seen in all distributions between MoC@NLO and MG+0,1jet at parton level -> small scale factors.
- Visible effect of Pytha parton shower + CKKW-L merging.

- Investigation of particle/parton corrections is on going.
  - Parton shower does not affect angular variables much.
  - Some distortion observed in transverse momentum distributions and DNN outputs.
  - Different behaviour of shape corrections for 0 and 1 jet samples.

- (A lot) more plots at: https://cernbox.cern.ch/index.php/s/xIHDNhk3vYo3bMJ