On the W mass and theoretical scaling study: results by DYqT

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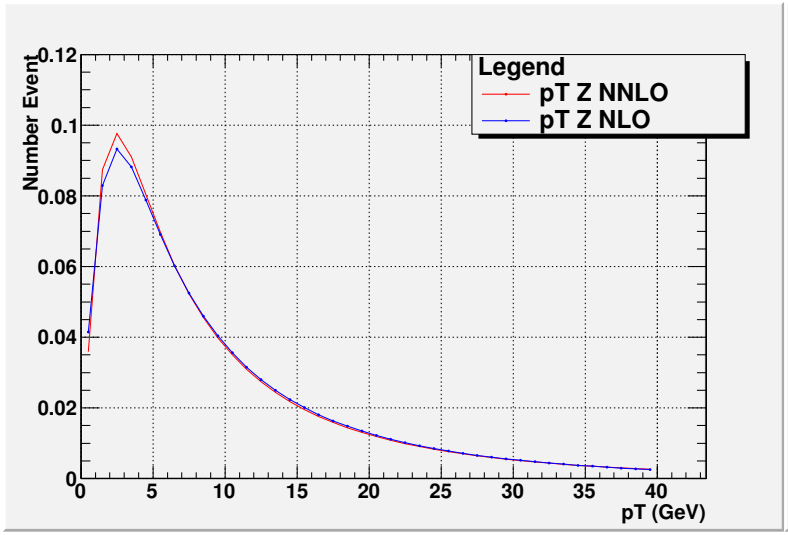
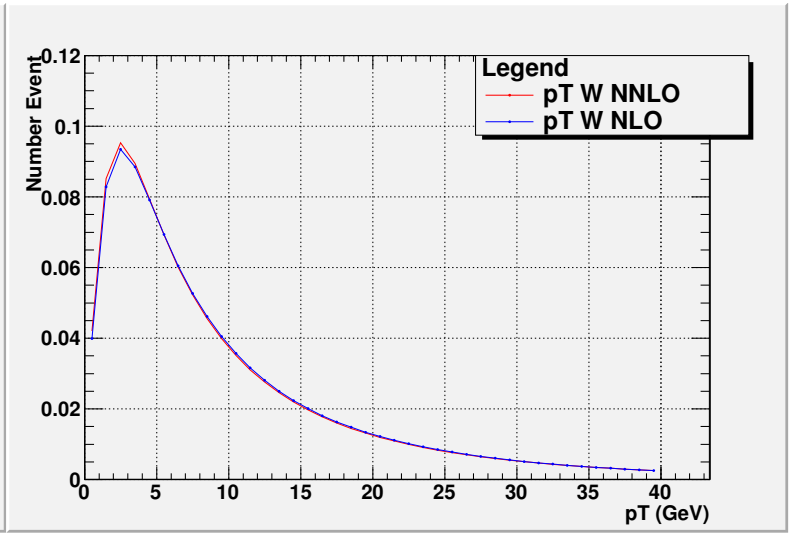
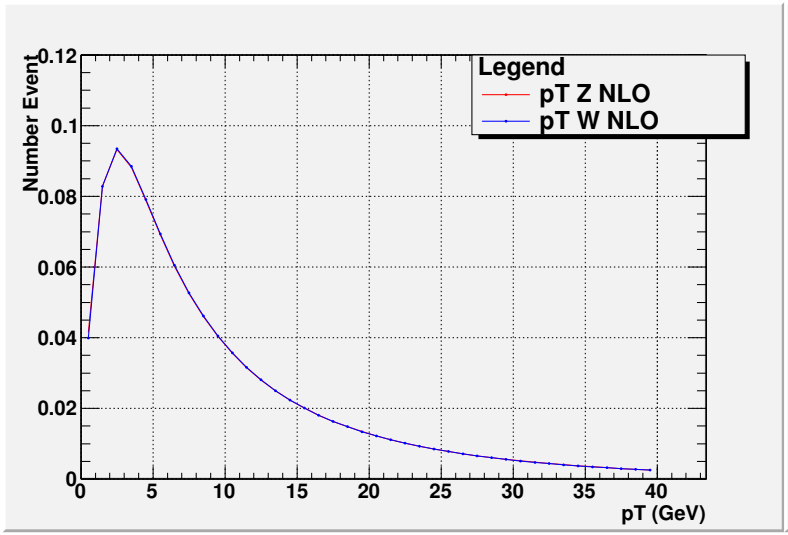
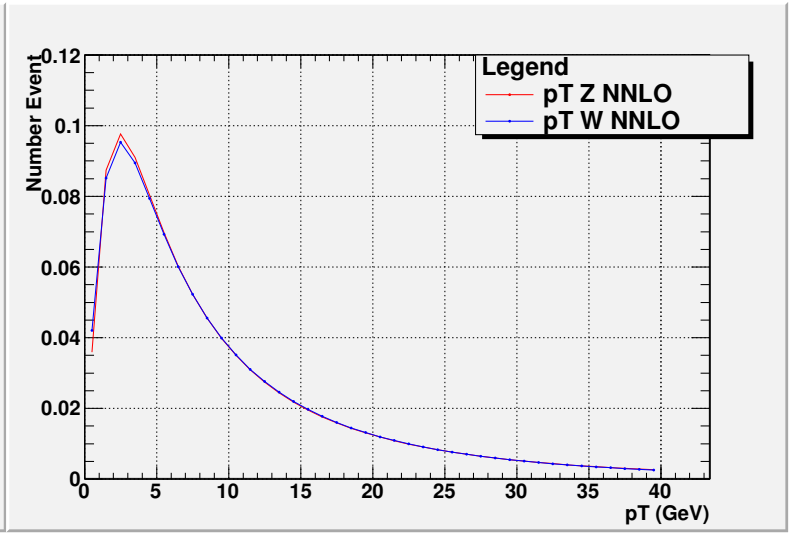
- pT distributions: $M_W = M_Z, \Gamma_W = \Gamma_Z$









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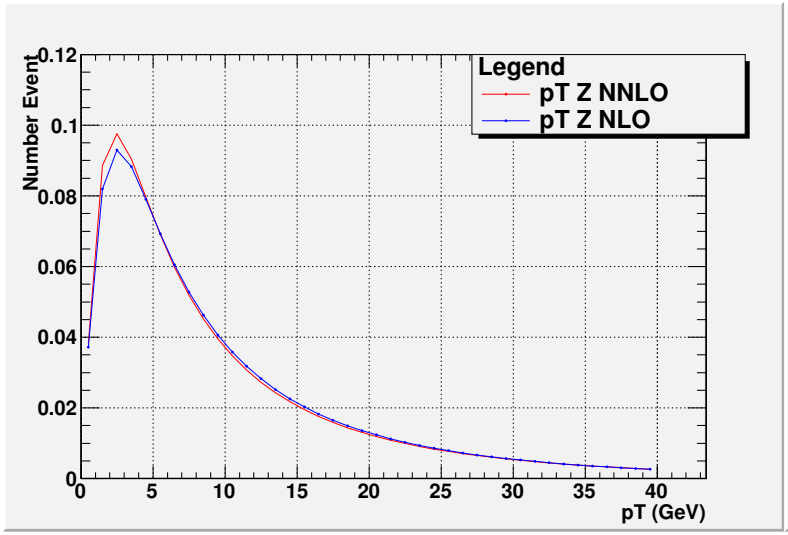

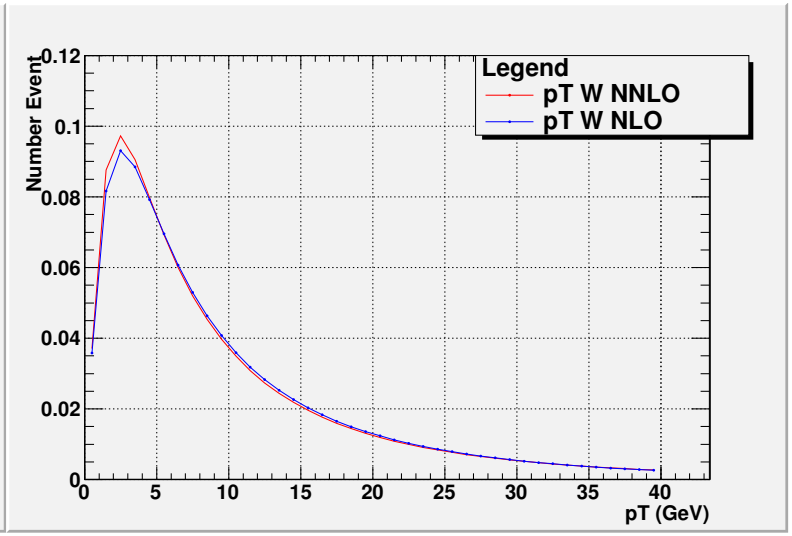

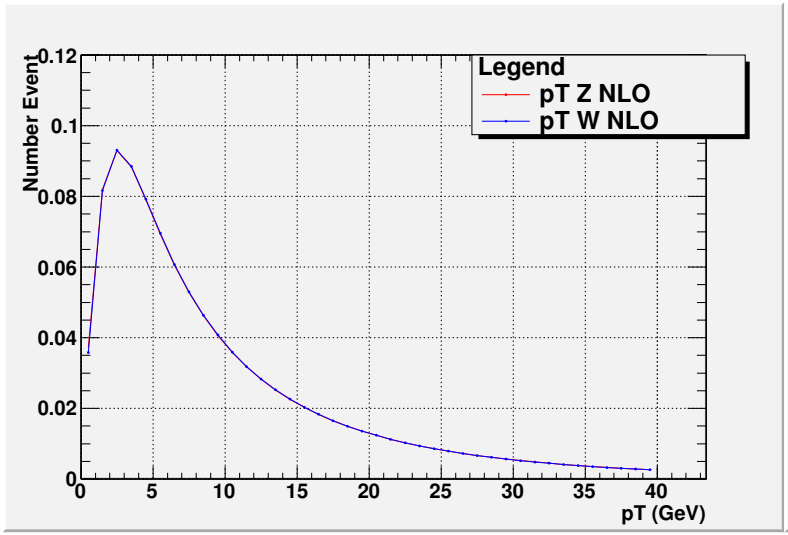

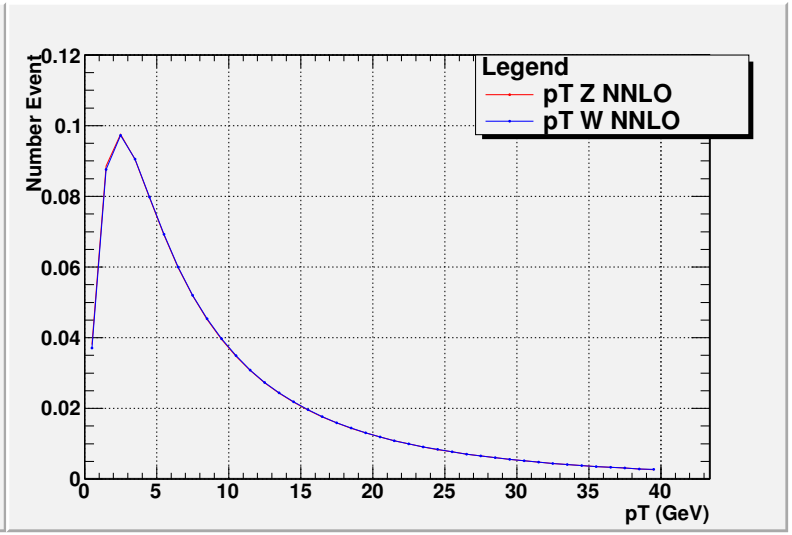

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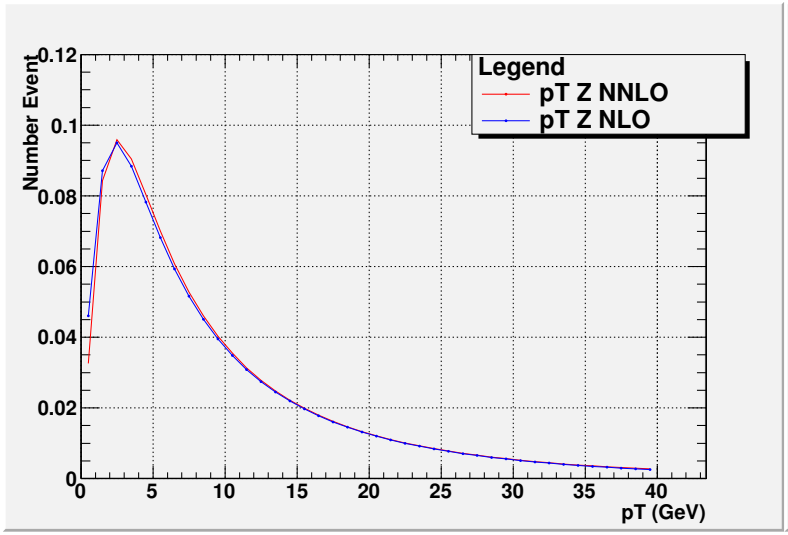
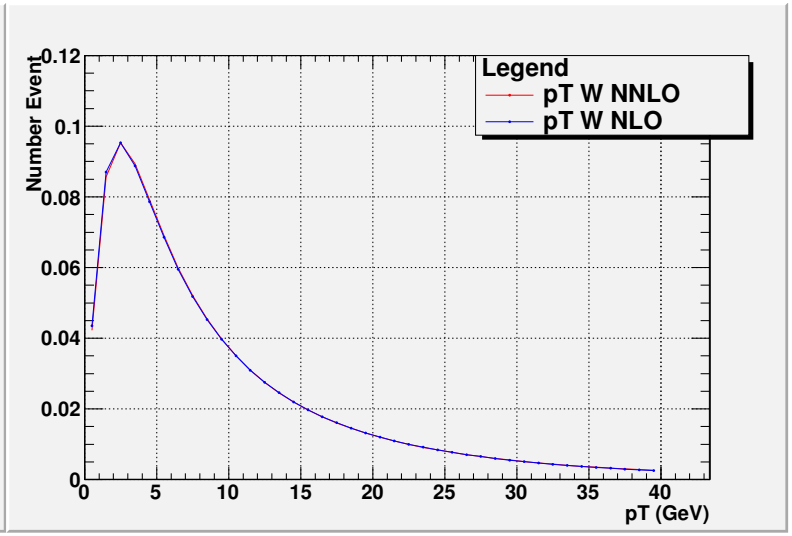
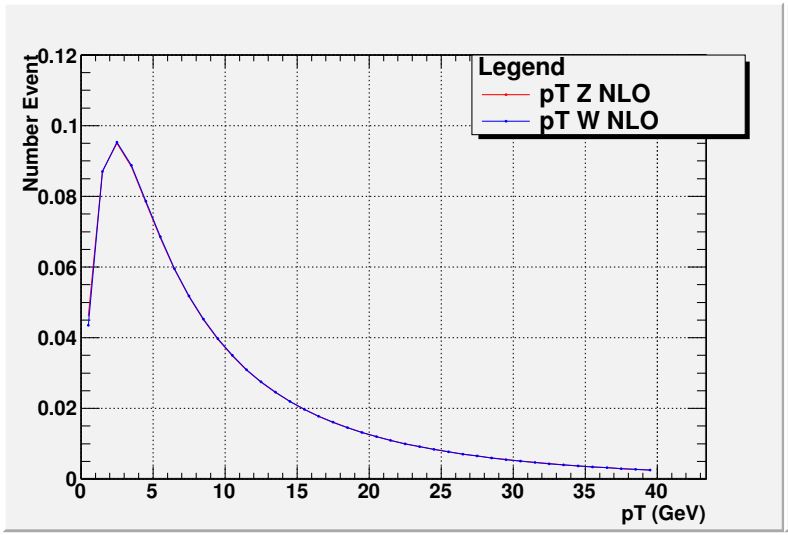
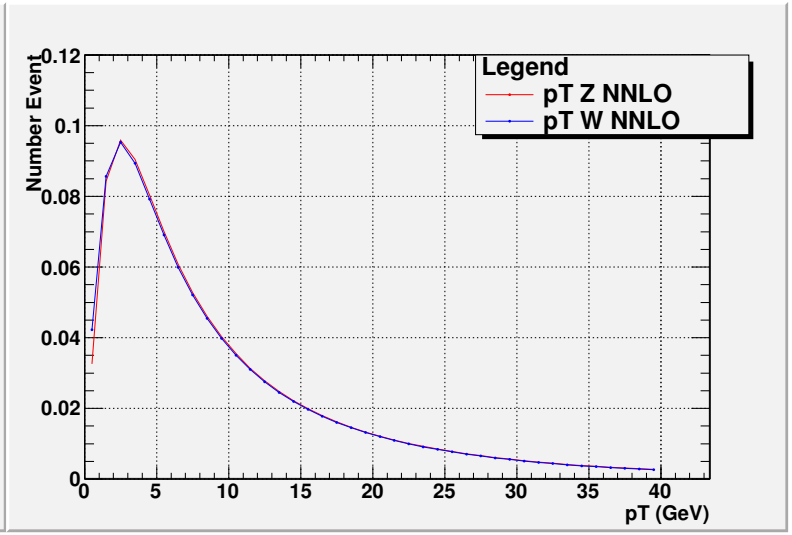


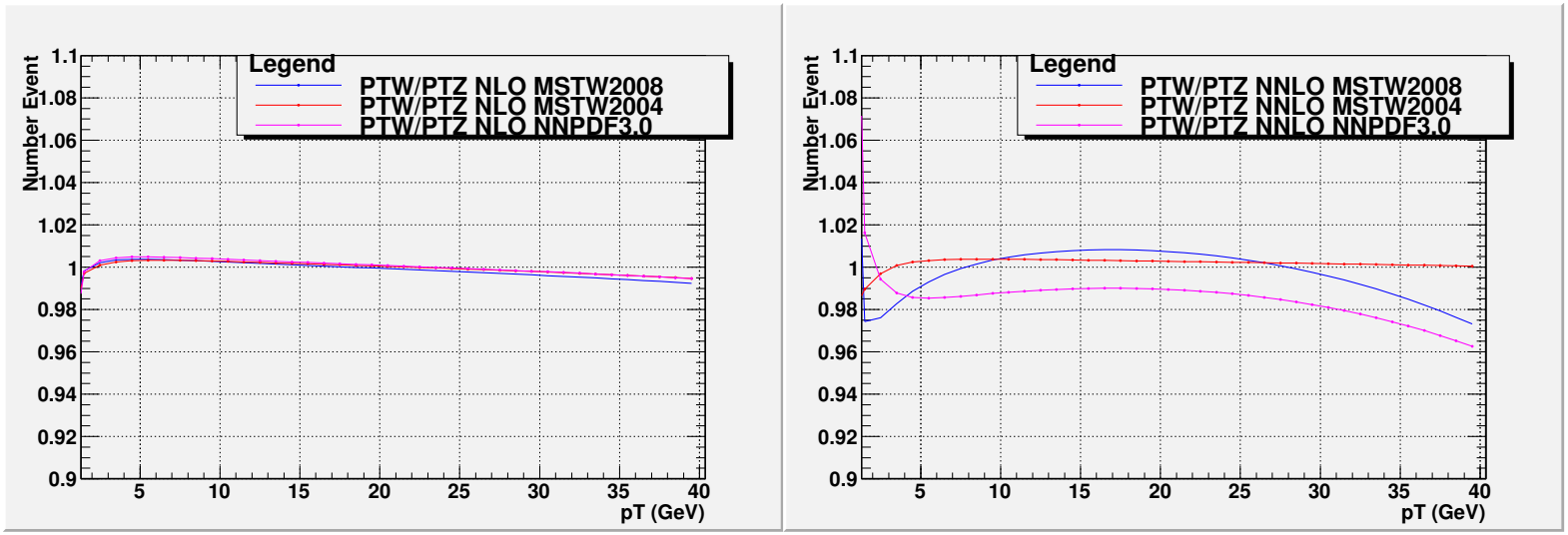






- W and Z MSTW2008-2004 at NLO+NNLL distributions present a thin spread ($\leq 1\%$) in peaks region;
- NNPDF3.0 does not present any spread in peaks region;
- Both bosons at the same order have a complete overlap along the range investigated.

- p_T^W / p_T^Z distributions: $M_W = M_Z, \Gamma_W = \Gamma_Z$

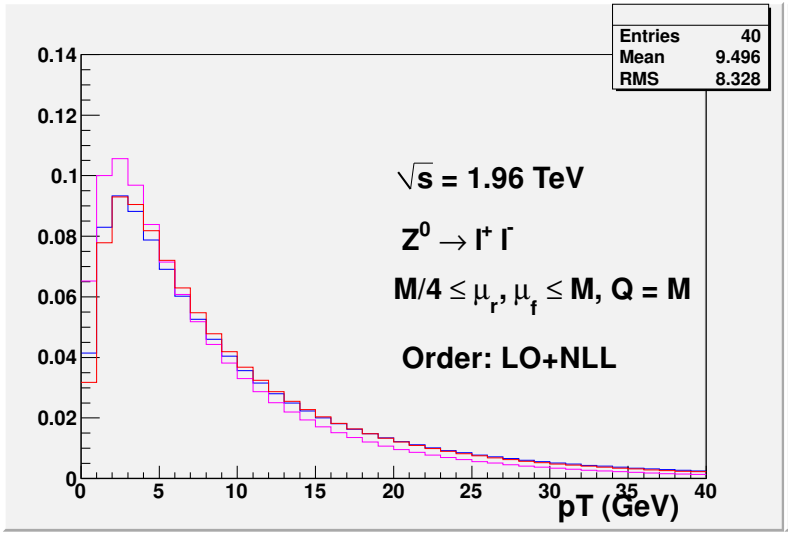


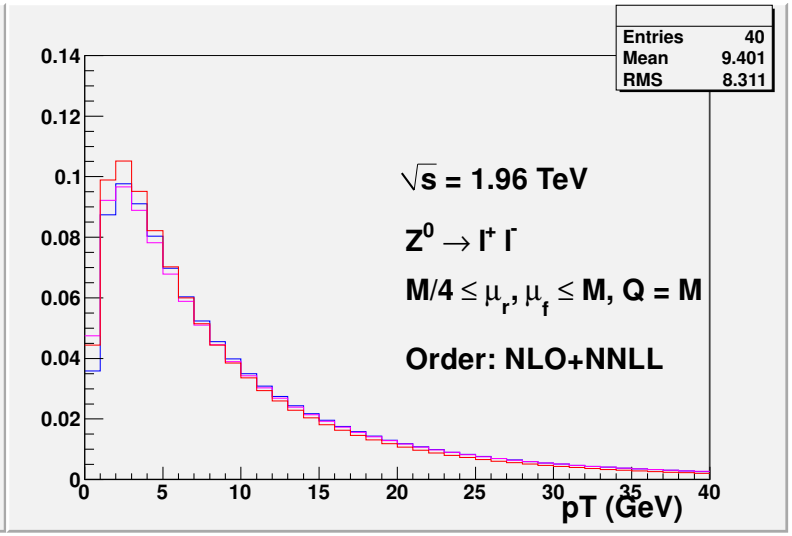
- LO+NLL flat ratios and no difference among PDFs set;
- NLO+NNLL between $1-6\%$ spread along $[0, 40]$ GeV. Gluon distributions might affect more NLO+NNLL.

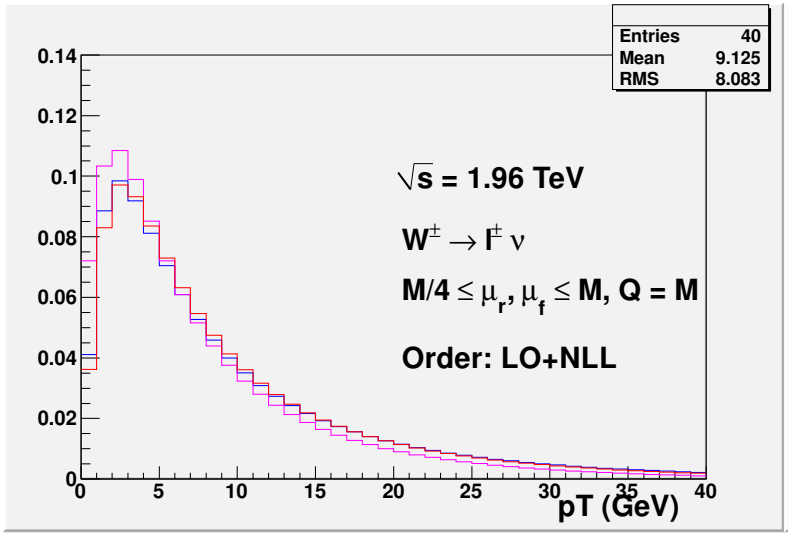
- Non Dependent scaling:
  $(\mu_R, \mu_F, Q) = (M, M, M)$,
  $(\mu_R, \mu_F, Q) = (M/2, M/4, M)$,
  $(\mu_R, \mu_F, Q) = (M/4, M/2, M)$
- Dependent scaling[1]:
  $(\mu_R, \mu_F, Q) = (M, M, M)$,
  $(\mu_R, \mu_F, Q) = (M/4, M/4, M)$,
  $(\mu_R, \mu_F, Q) = (M/2, M/2, M)$

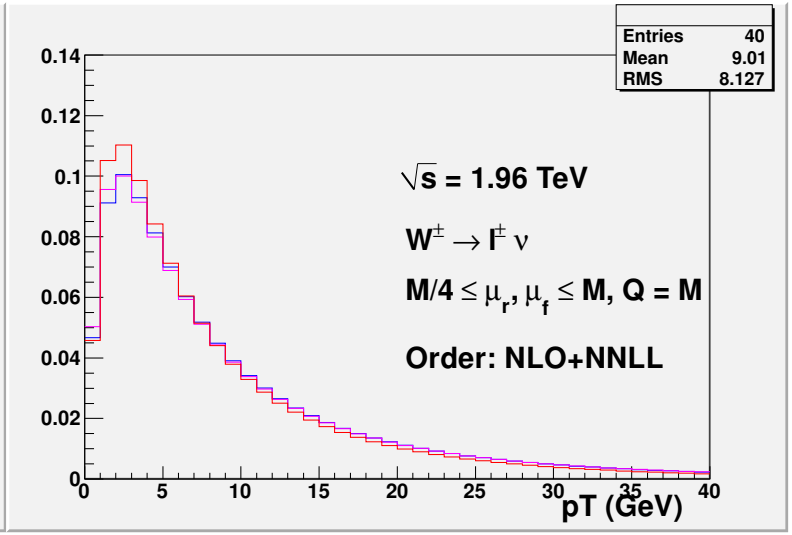
[1] See previous talk (Sep. 10th 2015)

- pT distributions: MSTW2008

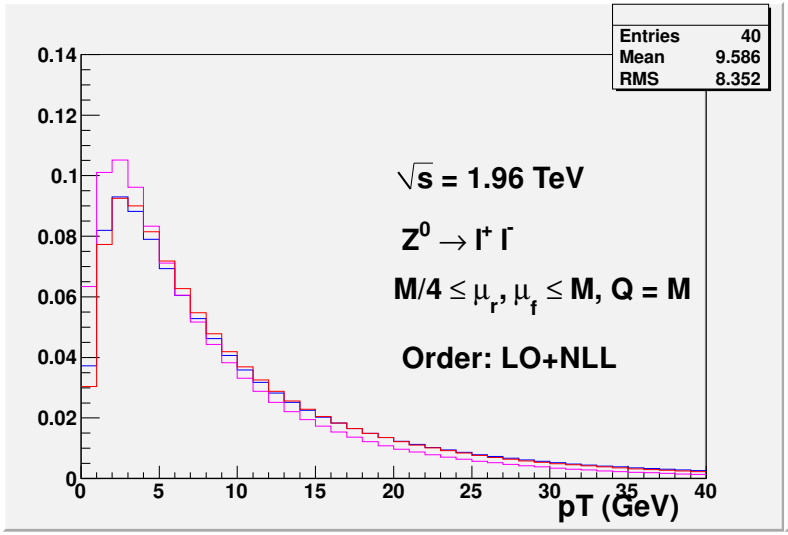


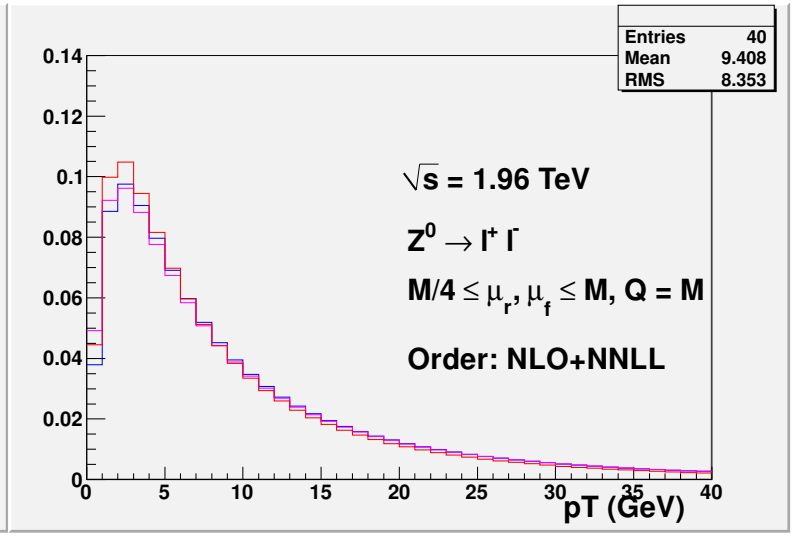


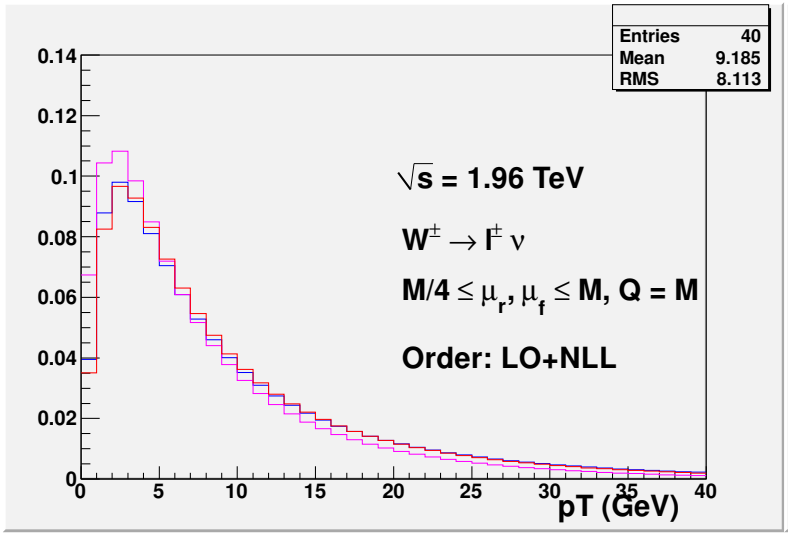


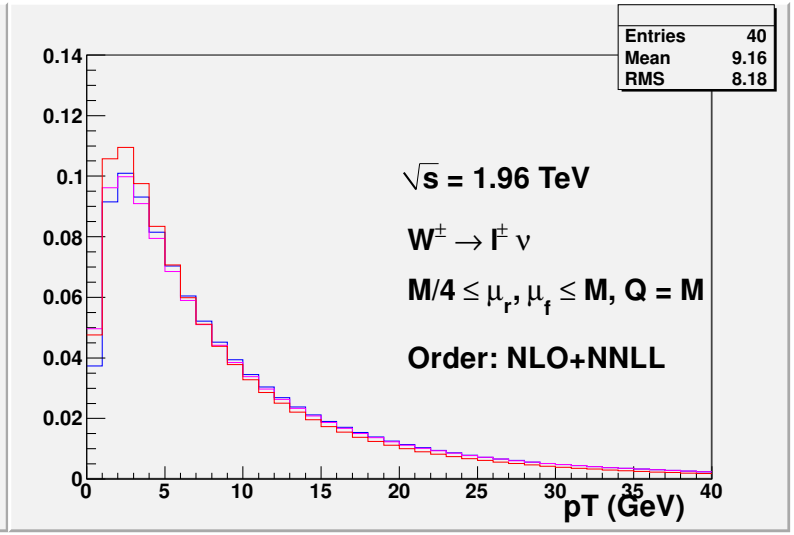


- pT distributions: MSTW2004

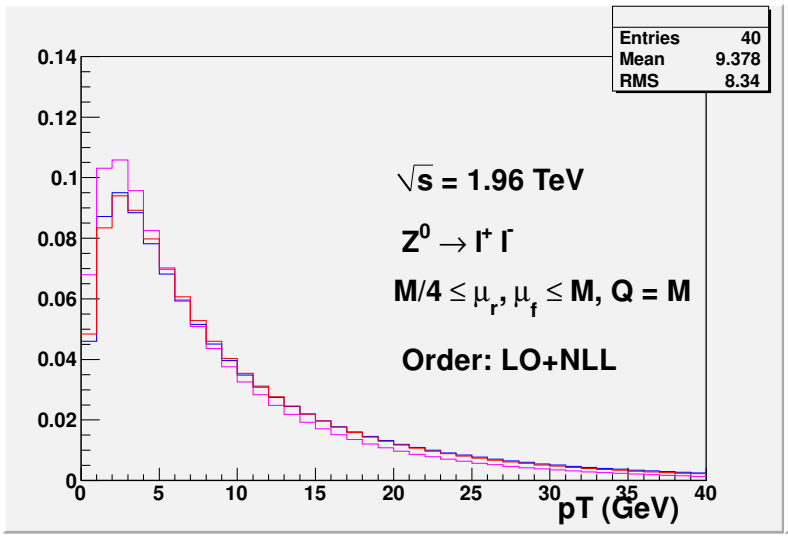


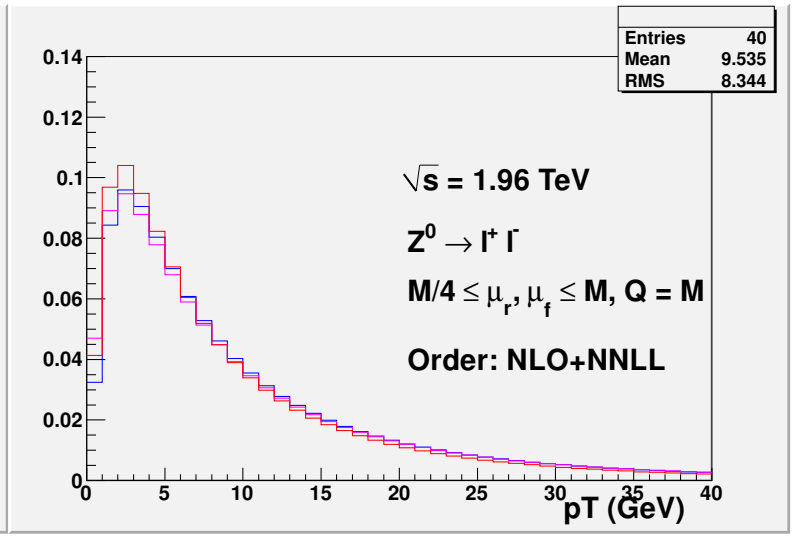


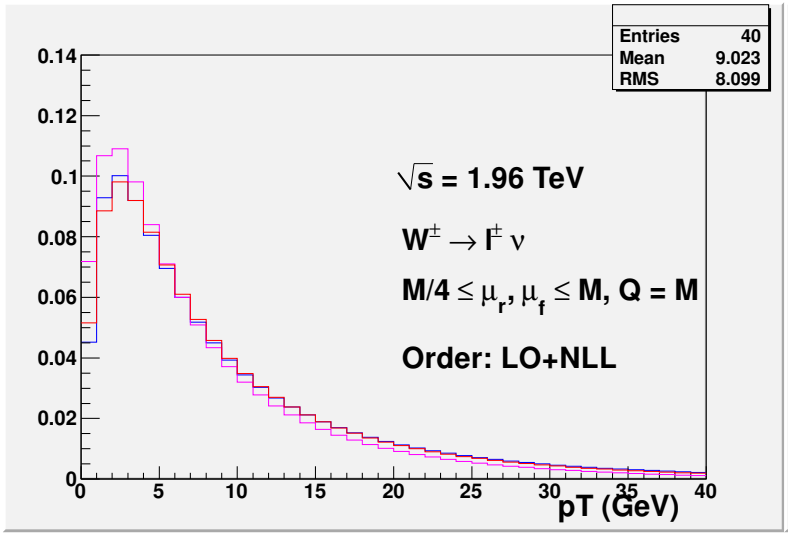


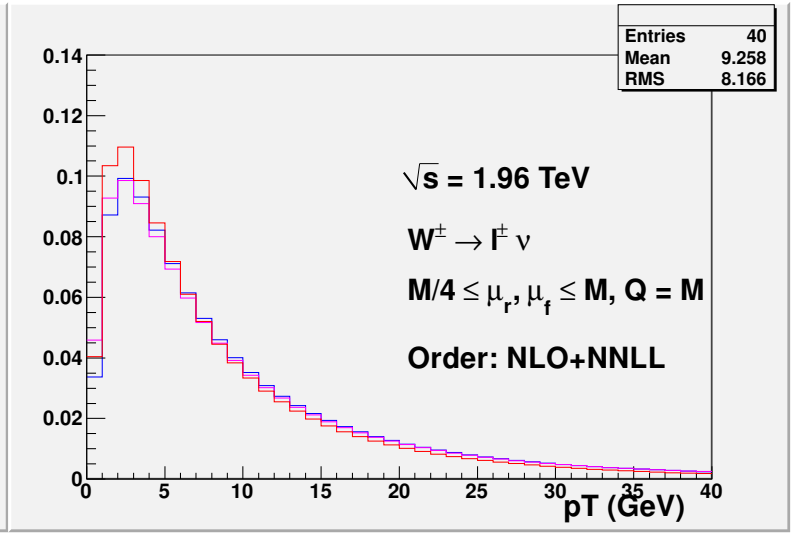


- pT distributions: NNPDF3.0

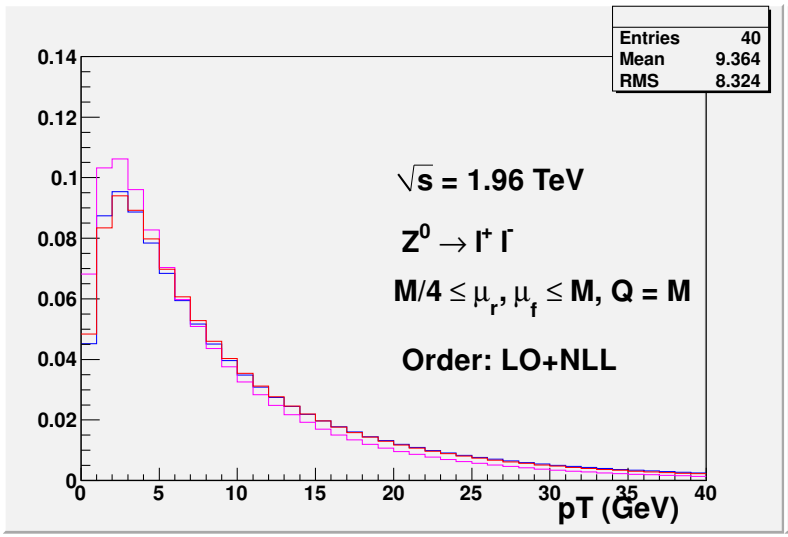


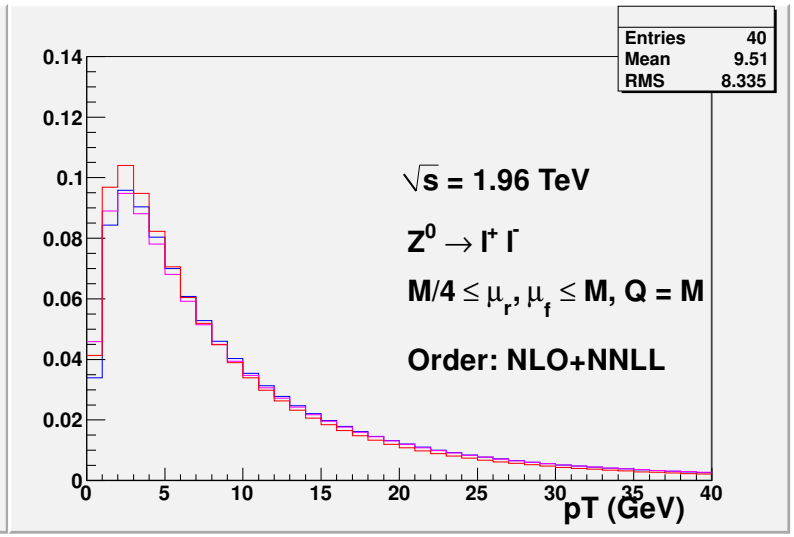


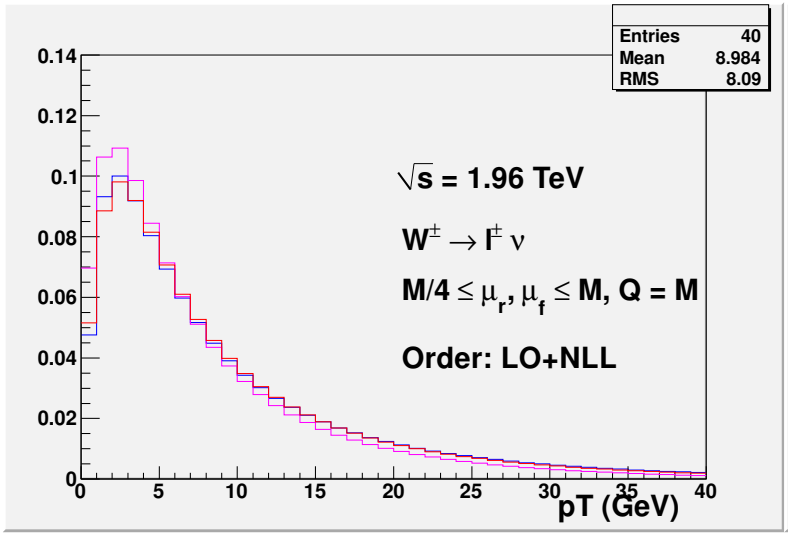


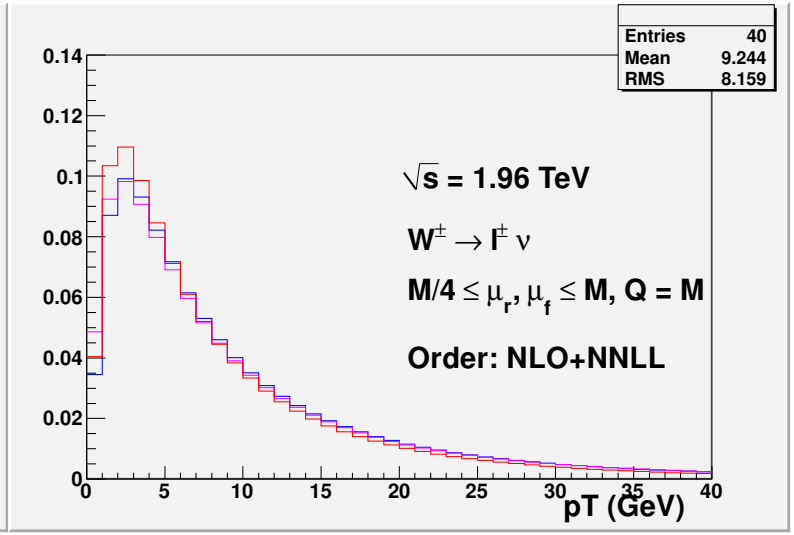


- pT distributions: NNPDF2.3

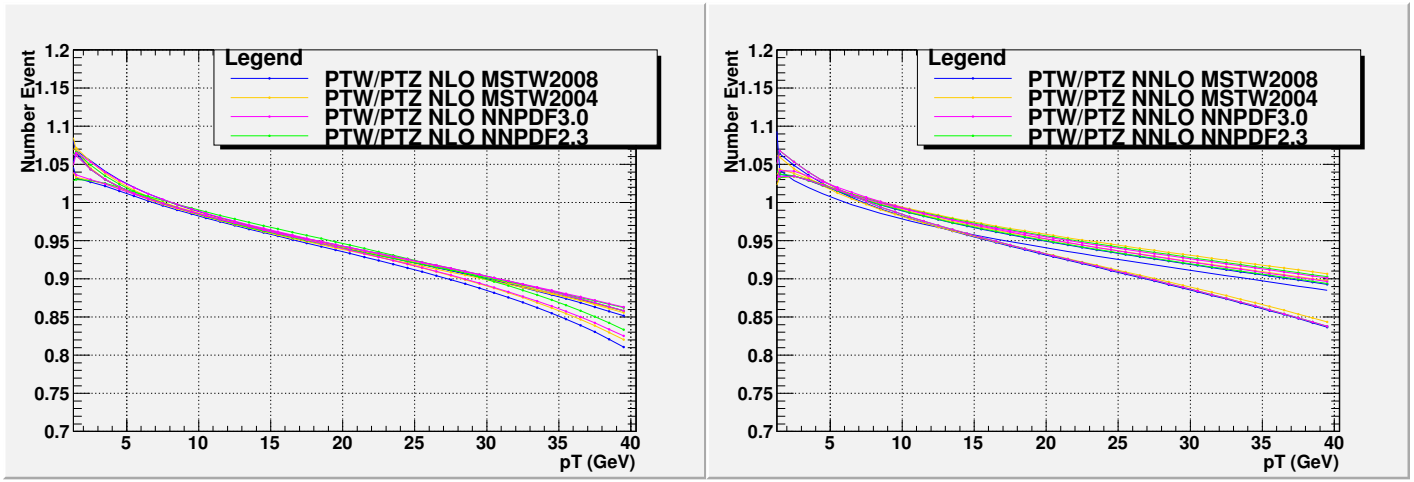




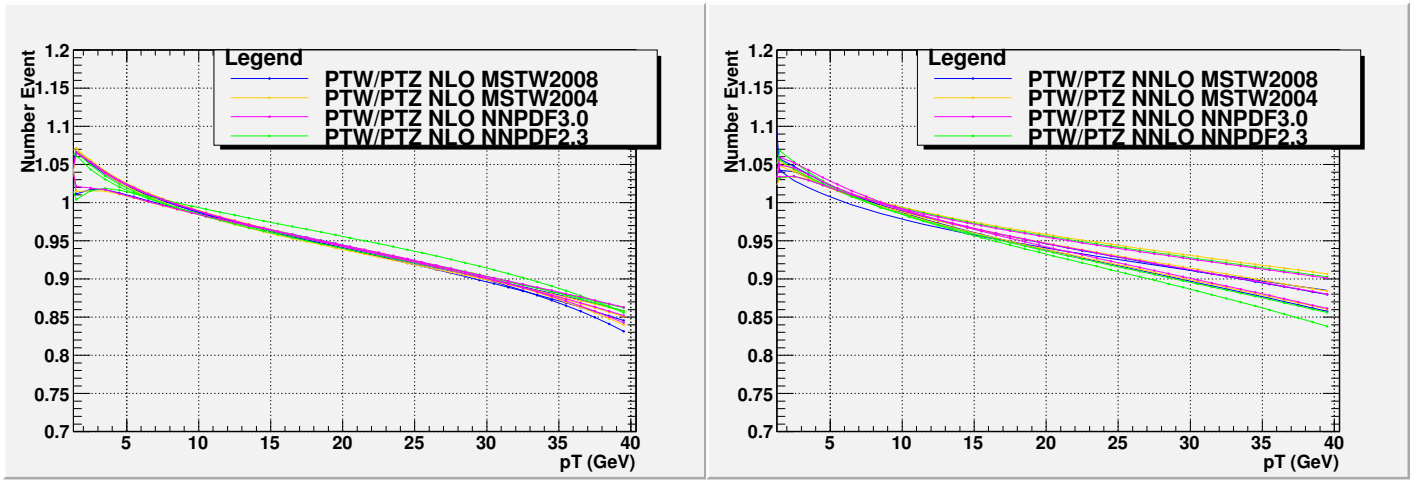




- Non-dependent μ_R, μ_F scaling



- Dependent μ_R, μ_F scaling



- Setting $M_W = M_Z, \Gamma_W = \Gamma_Z$, W and Z p_T spectra look the same at the same order and PDFs set;
- Changing PDFs set $\longrightarrow$ flat ratios LO+NLL, $1 - 6\%$ spread at NLO+NNLL;
- `MSTW2004` NLO and NNLO are very similar sets. Other sets are more subjected to different perturbative orders (gluon distributions).

- At each order, scaling+PDF set variation $\longrightarrow$ error-band $1-5\%$ in $p_T \in [0, 40]$ GeV;
- At NLO+NNLL band increases as p_T increases;
- Non Dependent scaling seems to have a bit less of a spread at low-p_T.