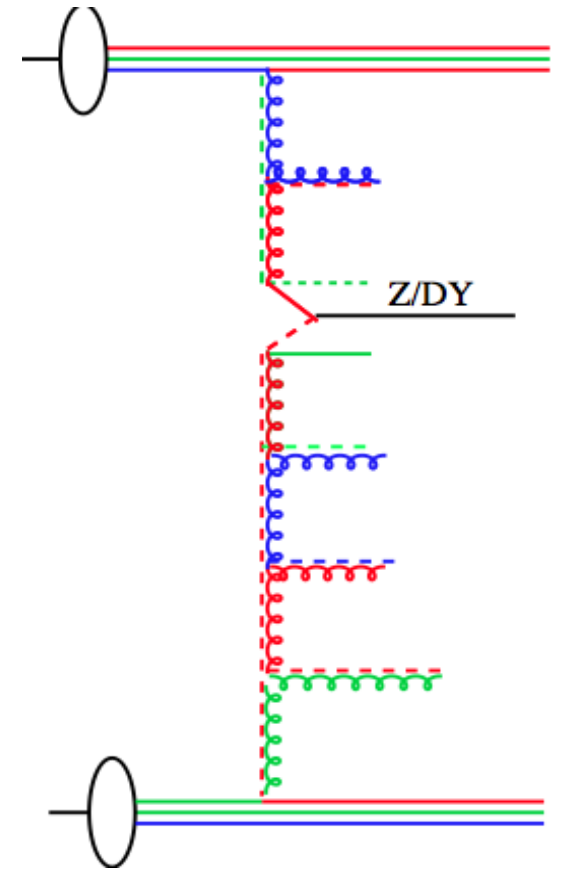
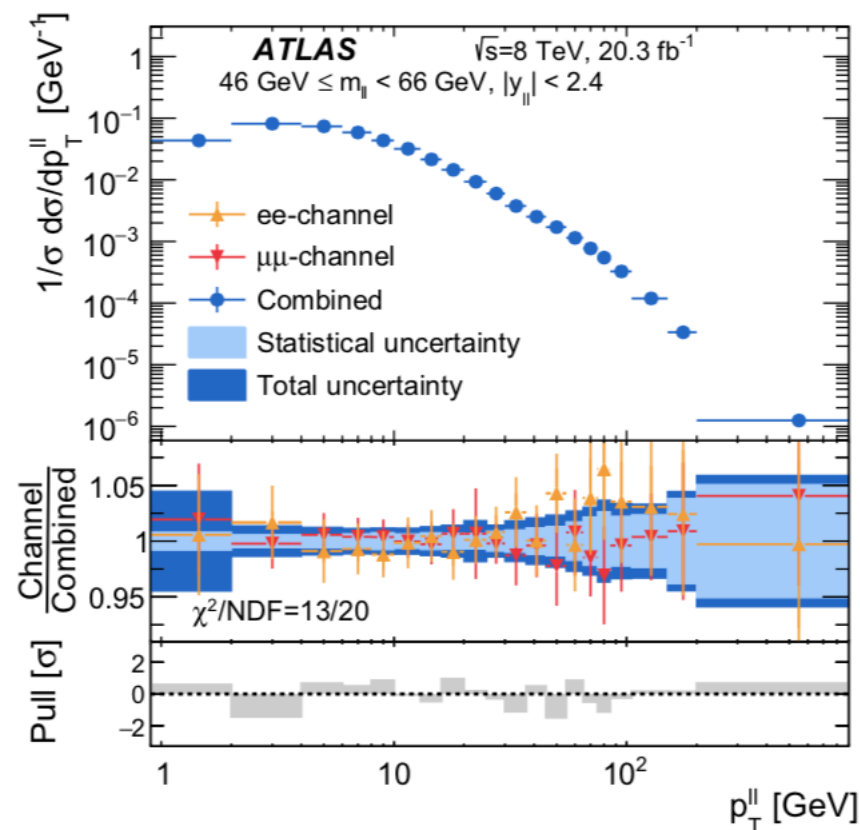


# PB TMD meeting

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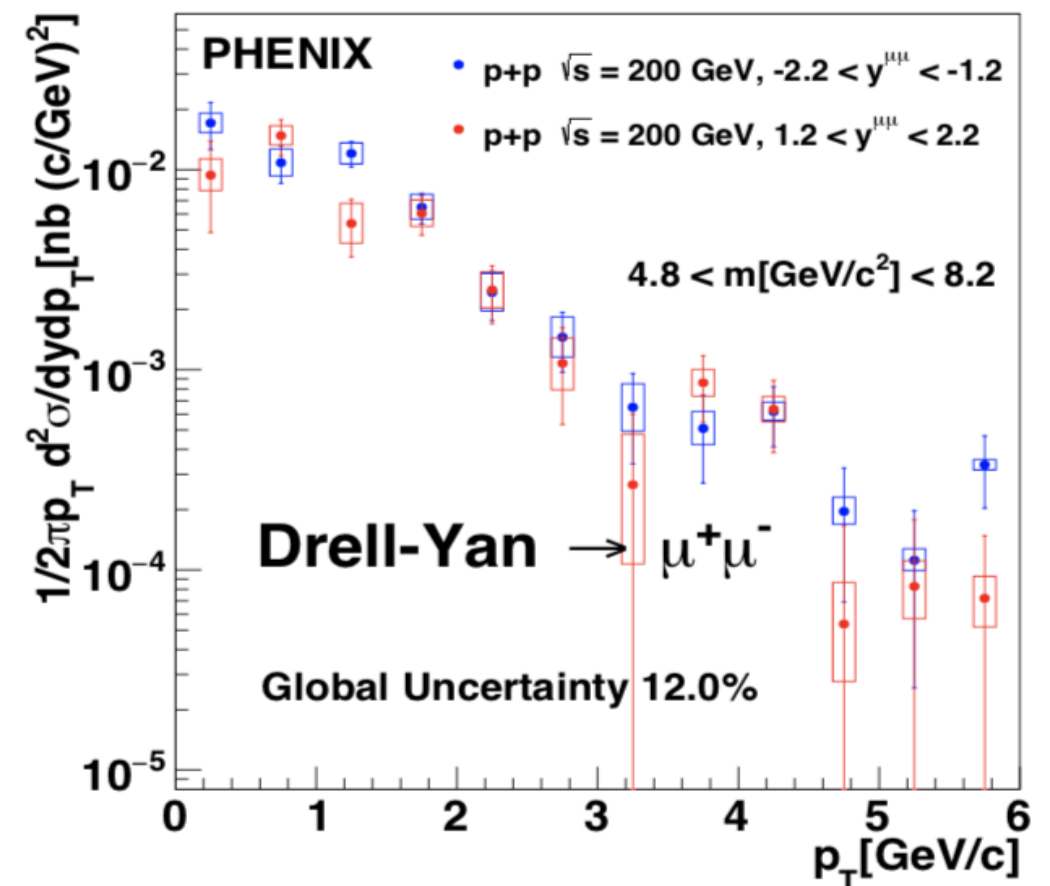
# Where can intrinsic $k_T$ be constrained ?

- need to go to low DY mass:
  - at low mass, little room for QCD evolution (parton shower)
  - $p_T$  of DY is dominated by intrinsic  $k_T$
- at LHC no low mass DY measurements available:
  - ATLAS 8 TeV:  $p_T$  spectrum for mass  $46 \leq m_{DY} \leq 66$  GeV



# Where can intrinsic $k_T$ be constrained ?

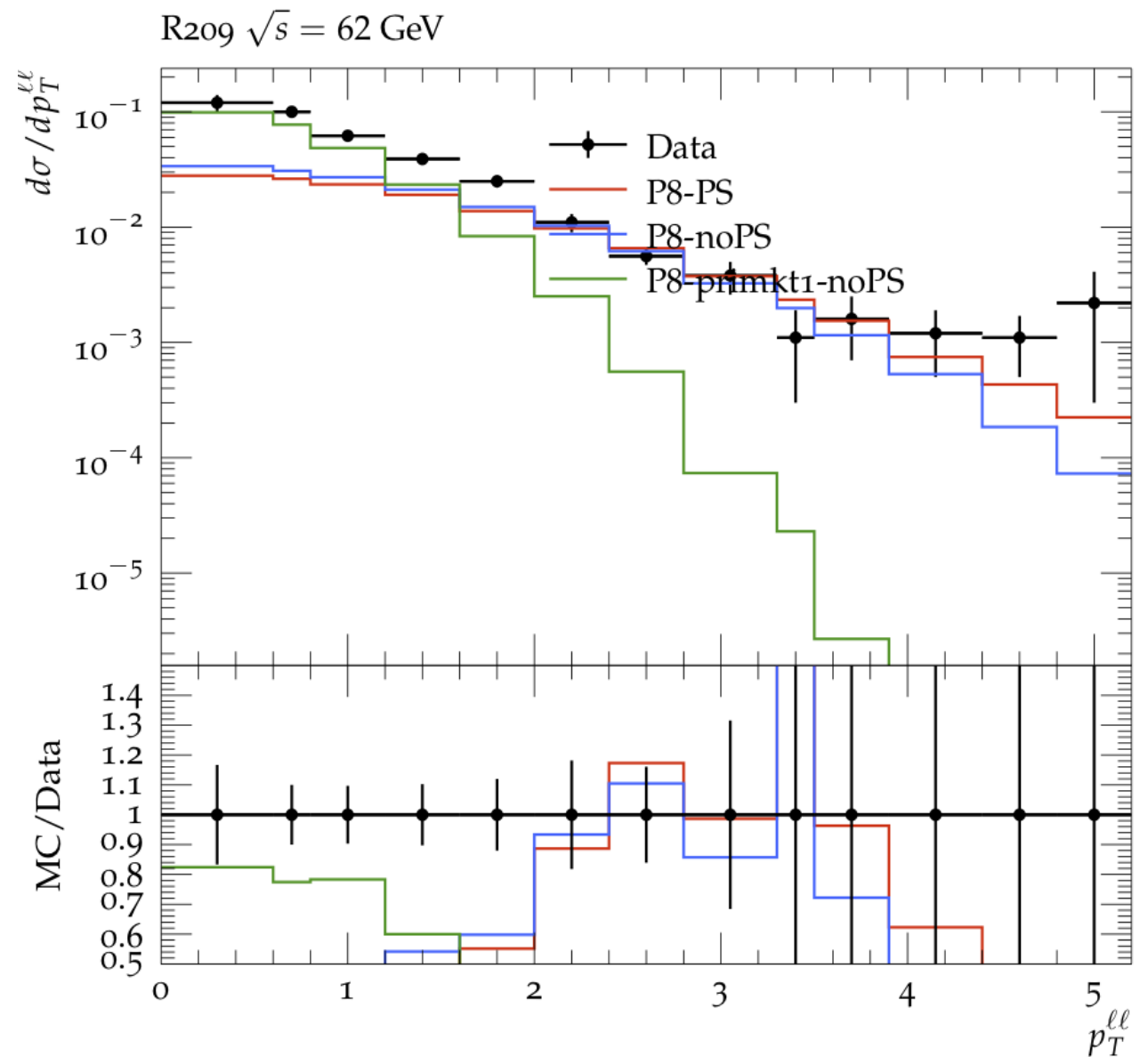
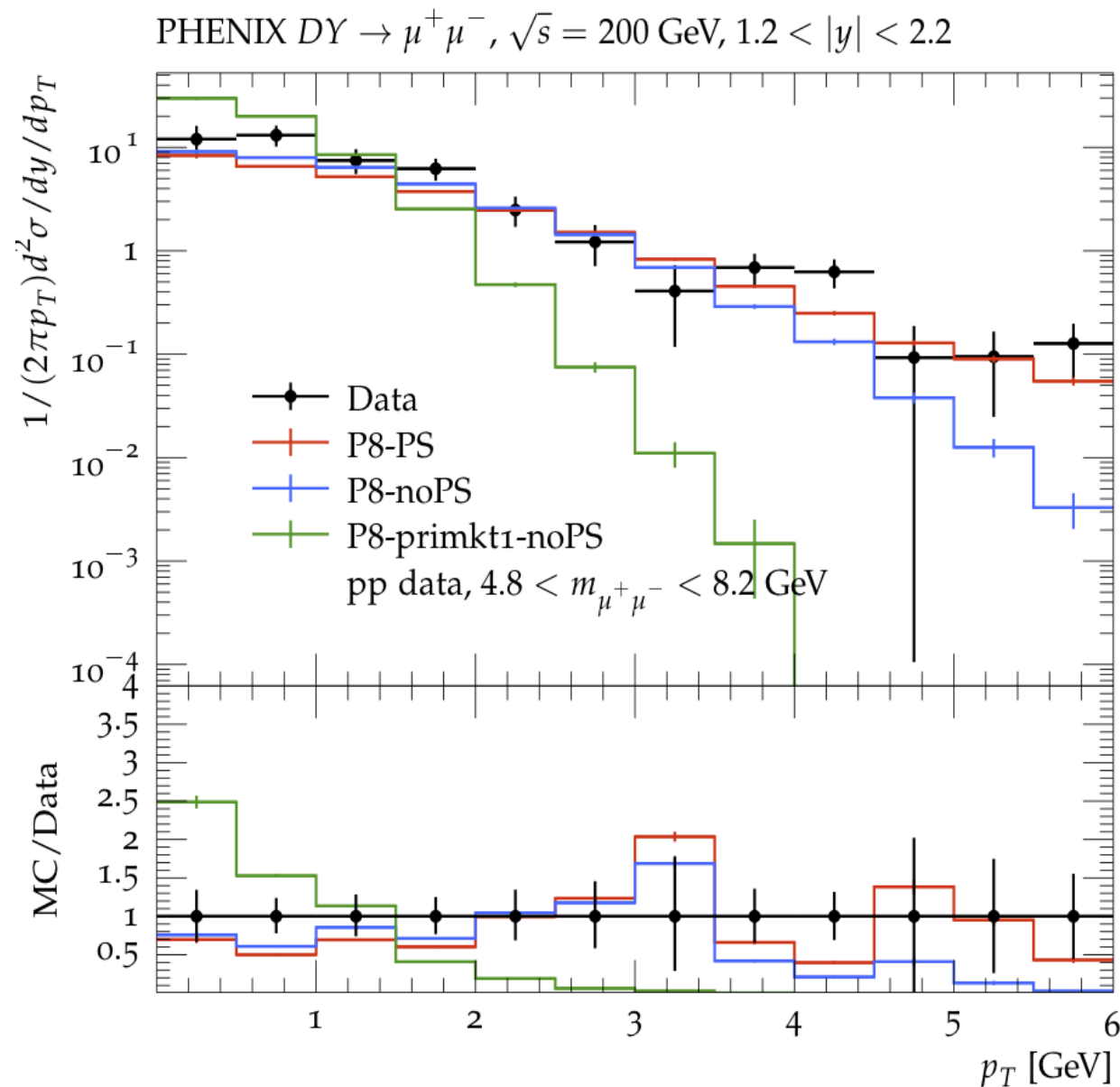
- latest measurement: PHENIX  
(PhysRevD.99.072003) at  $\sqrt{s} = 200$  GeV  
for  $4.6 \leq m_{DY} \leq 8.2$  GeV
- other measurements (older)
  - R209 (1982) PhysRevLett.48.302  
(data read from plot in paper)
  - E288 (1981) PhysRevD.23.604
  - E605 (1992) PhysRevD.43.2815
  - NUSEA (2003) hep-ex/0301031  
(unpublished)



For all measurements, now Rivet plugins prepared and validated

# First results at 200 and 62 GeV

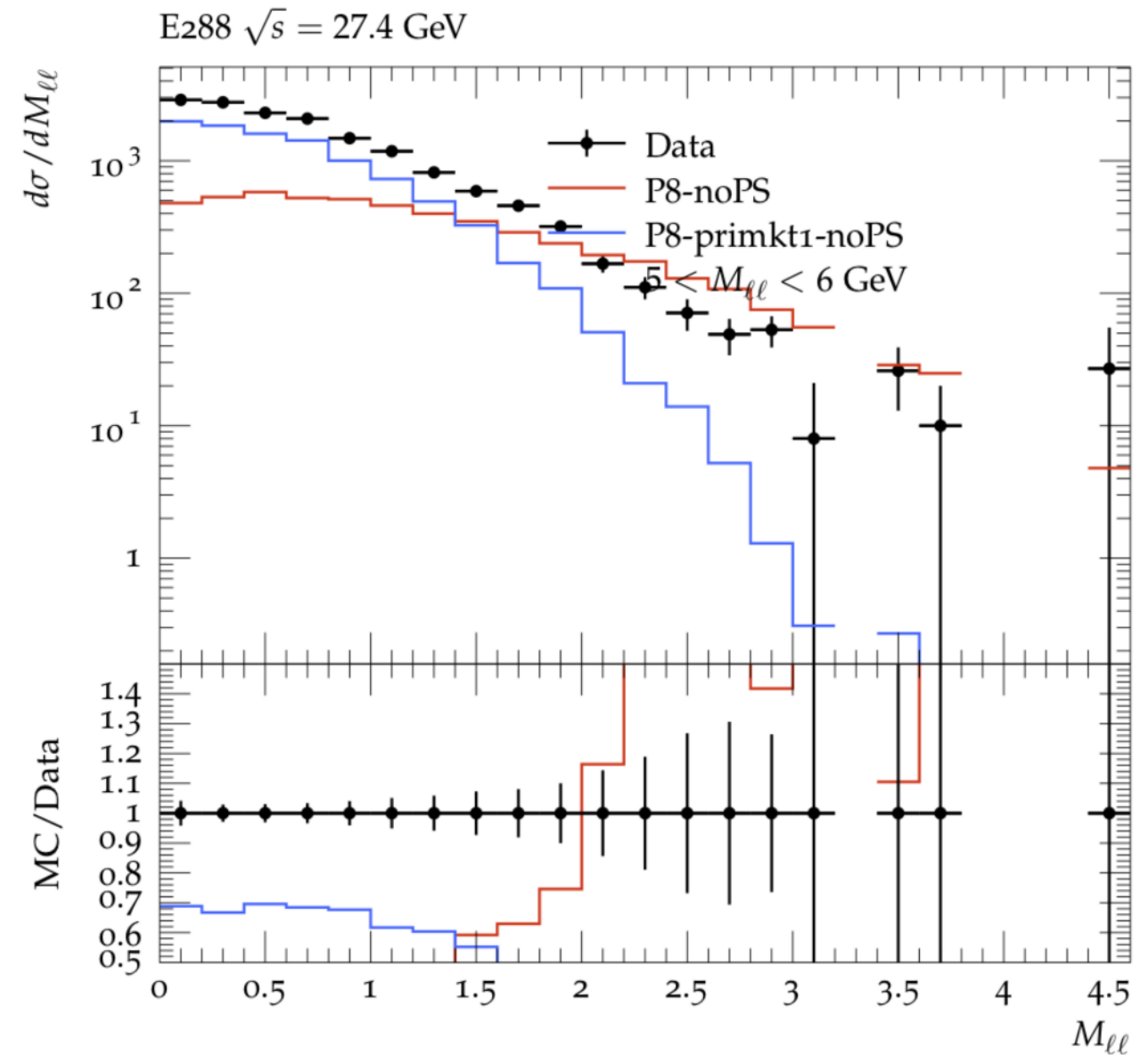
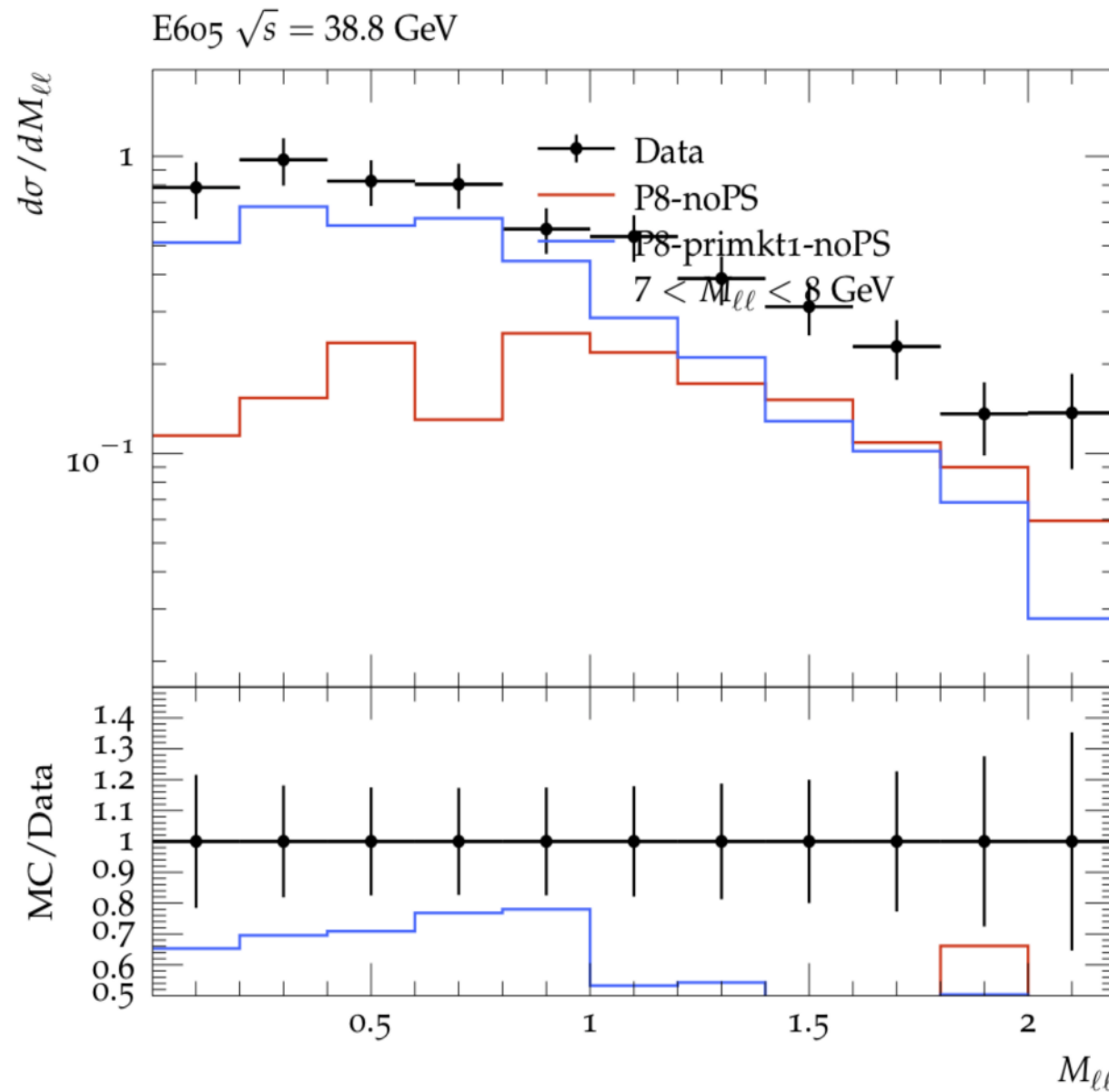
- P8-PS: CUETP8M1, standard parton shower
- P8-noPS: noPS, primordialKThard=2
- P8-primkt-noPS: noPS, primordialKThard=1



- primordial kt plays dominant role in P8: change from 2 to 1 gives large effect
- Parton Shower has little effect

# First results at 38.8 and 28.3 GeV

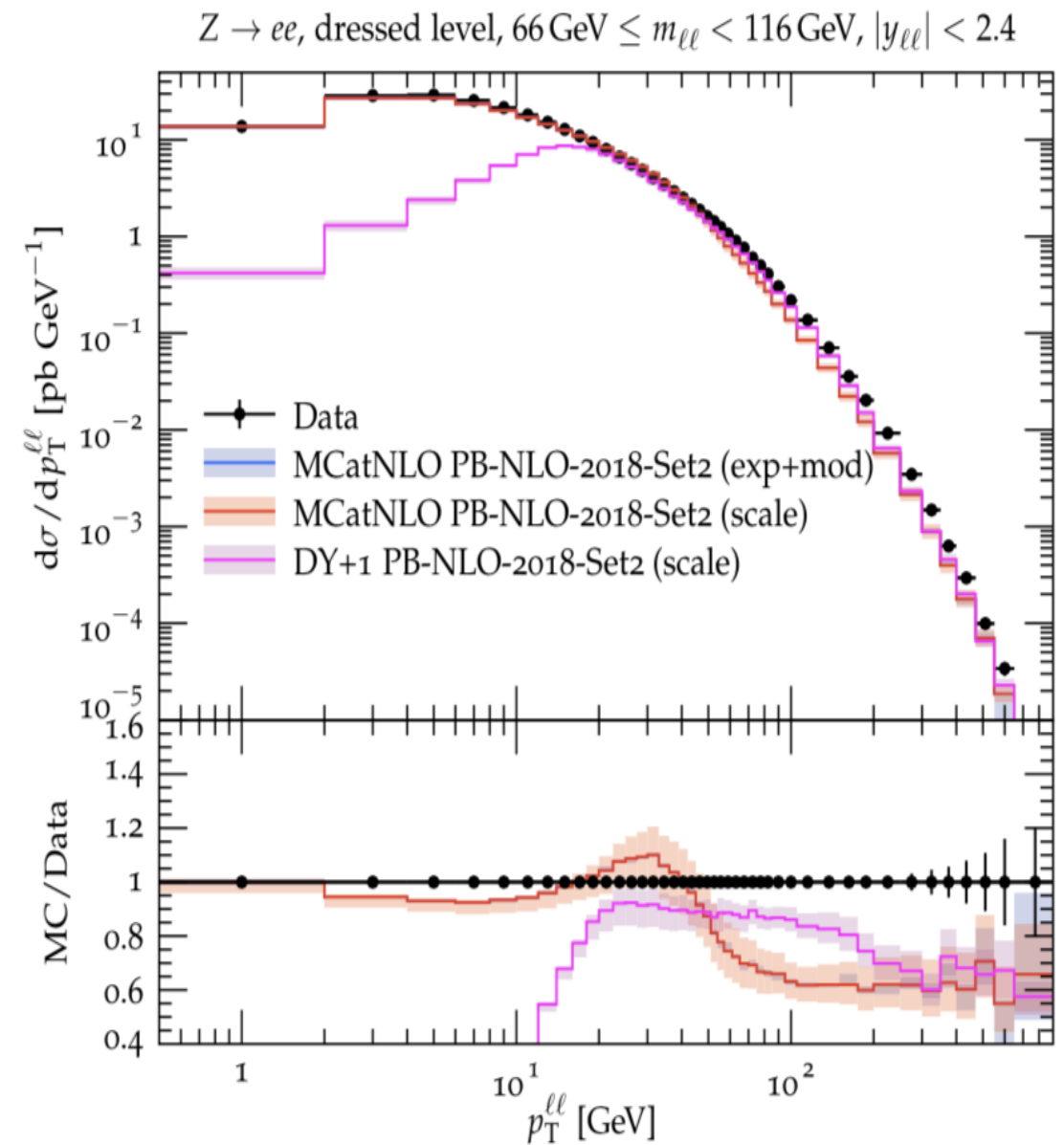
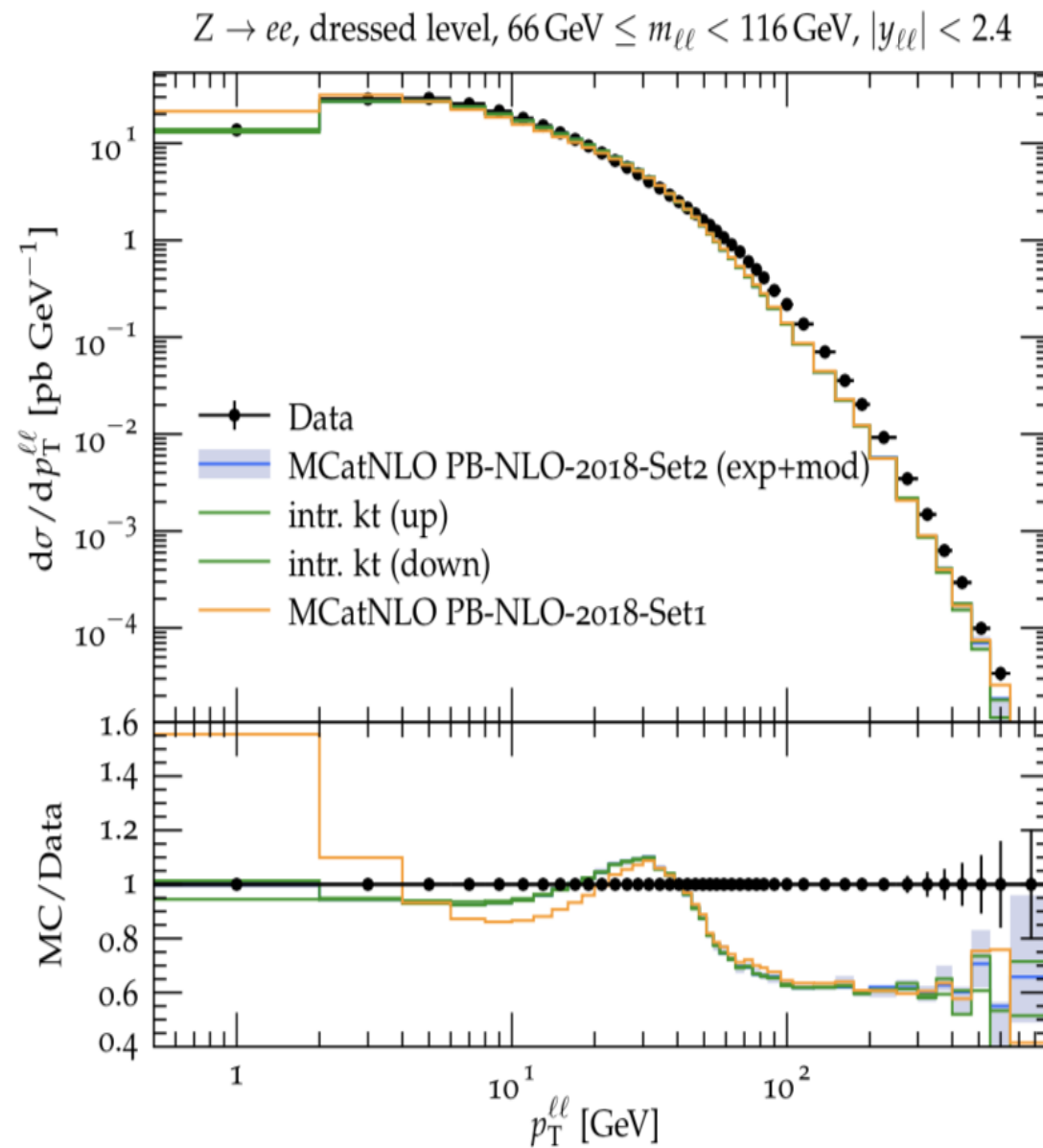
- P8-PS: CUETP8M1, standard parton shower
- P8-noPS: noPS, primordialKThard=2
- P8-primkt-noPS: noPS, primordialKThard=1



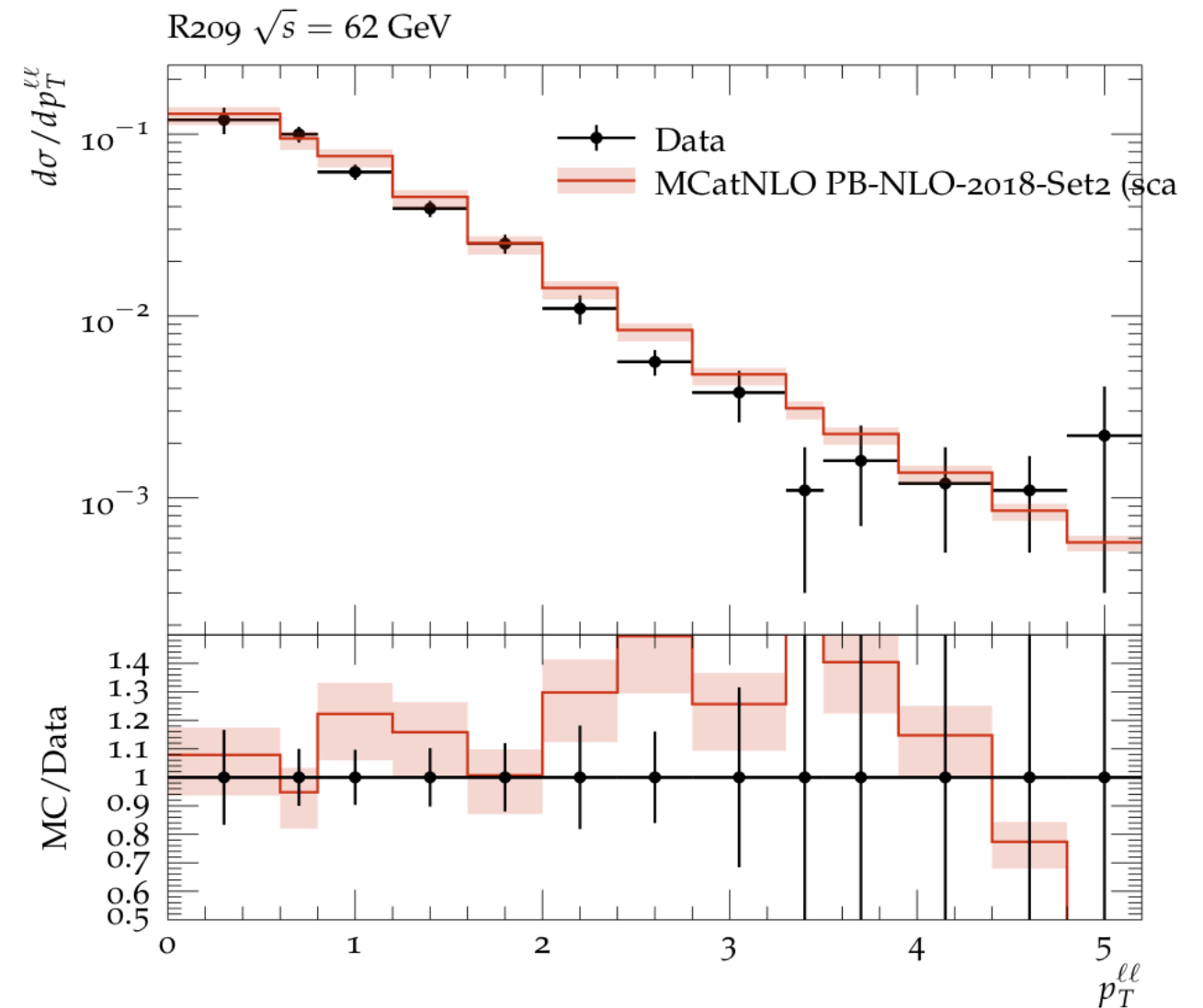
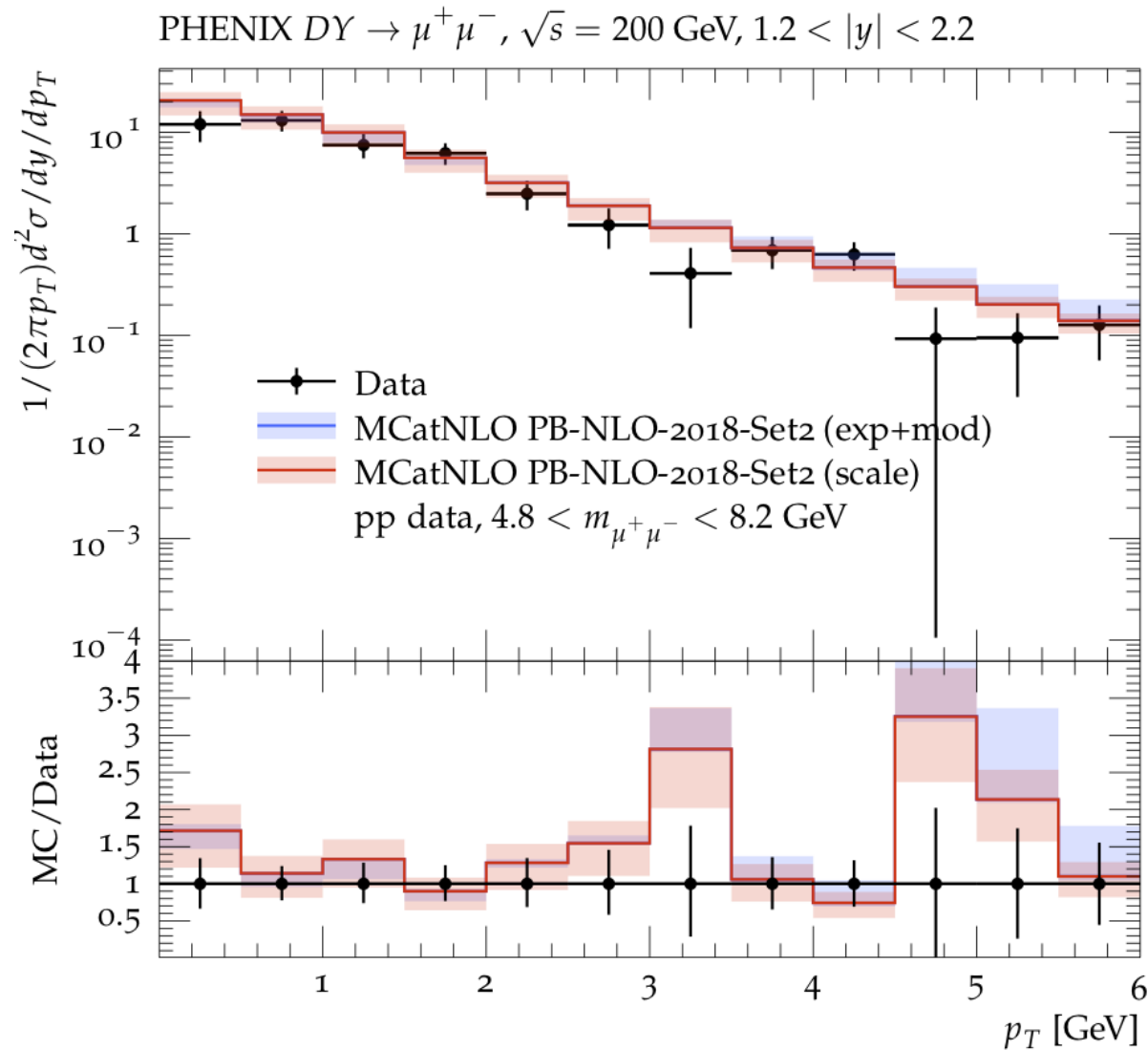
- primordial kt plays dominant role in P8: change from 2 to 1 gives large effect
- Parton Shower has little effect

# Effects from PB- TMDs

- using Parton Branching TMDs for DY pt spectrum (A. Bermudez et al PhysRevD.100.074027).



# and what happens at low mass ?



- Intrinsic  $k_T$  width = 0.7 GeV (no hard tail)
- low mass data can be used to constrain intrinsic  $k_T$

# Agenda

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## PB TMD discussion

Thursday, 12 December 2019 from **15:30** to **17:30** (Europe/Berlin)  
at **CMS meeting room**

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<https://vidyoportal.cern.ch/flex.html?roomdirect.html&key=Nh6qpY4rP69Q>

If you want to join by phone, please use one of the phone numbers listed in the link below:

<http://information-technology.web.cern.ch/services/fe/howto/users-join-vidyo-meeting-phone>

and enter the meeting extension 1010403749 in order to join.

### Thursday, 12 December 2019

15:30 - 15:50    Intro 20'



15:50 - 16:10    DY and QED corr 20'  
Speaker: Melanie Schmitz (DESY)

