

Discussion on the pseudodata exercise

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... ..

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What we would need

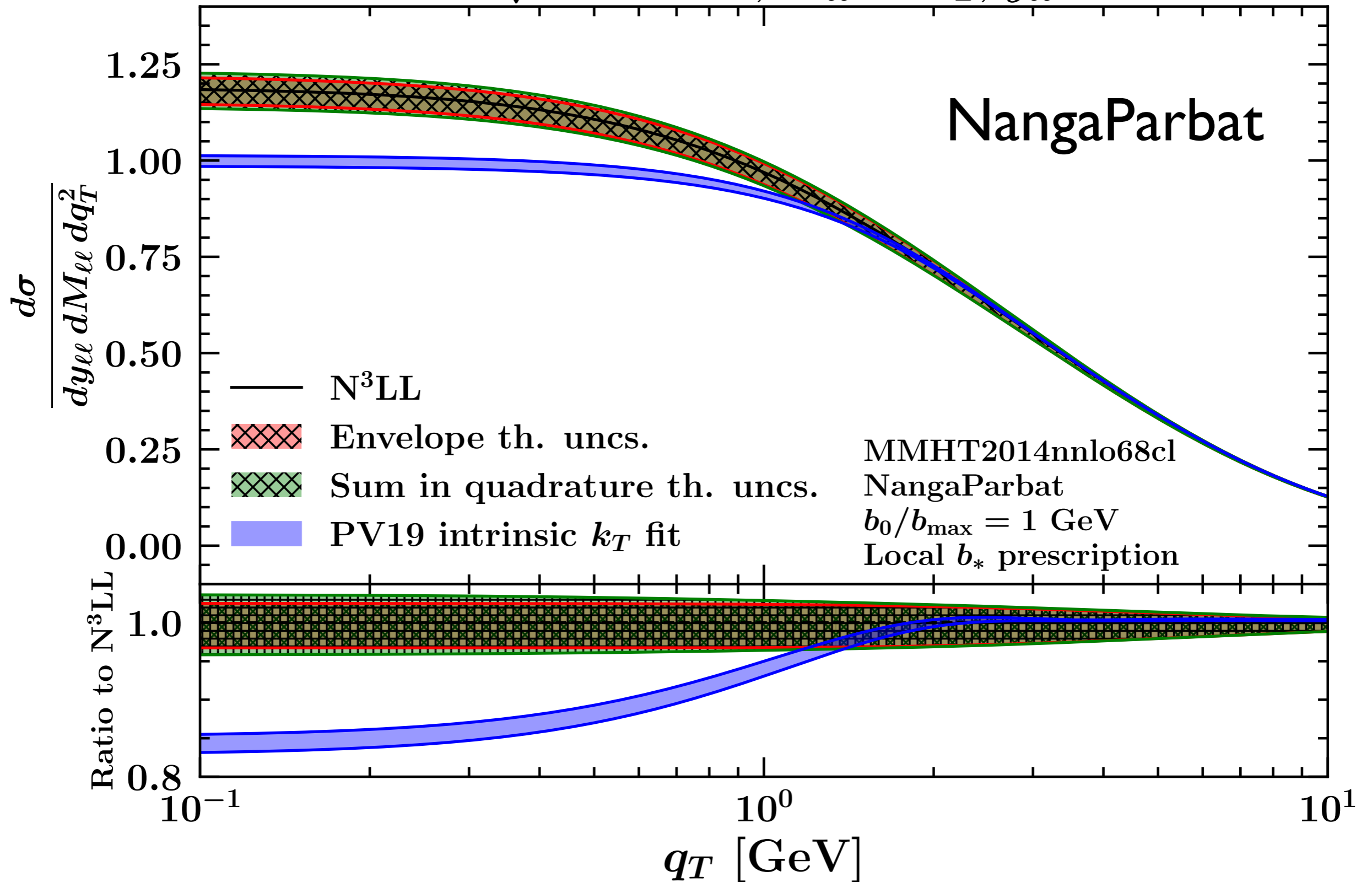
Set of pseudodata with the following kinematics:

- $12 \text{ GeV} < Q < 1 \text{ TeV}$ (3-4 bins below/above M_Z)
- $0 < q_T < 5 \text{ GeV}$
 - with the smallest possible bin width (ideally, 0.5)
 - extending to $q_T/Q < 0.2$ if possible
- $0 < y < \text{highest possible}$
 - high enough to see decrease of cross section
 - small bin width not as crucial as in the q_T case
- no fiducial cuts

Items to discuss

- Impact of PDF variations
 - use different sets both for pseudodata and predictions
 - normalised vs. non-normalised cross-sections
- Heavy flavours
 - analyse separate channels w.r.t. PDF variation
 - thresholds: explore $n_f = 5$ vs. VFNS
 - Hard-to-estimate effects: power corrections $\mathcal{O}(m_{HF}/Q, m_{HF}/q_T)$
- Blinding of pseudodata
 - “single(theorist)-blind” variation of Q_0 and intrinsic- k_T in shower
- Extras
 - range of luminosities? definition of metric to quantify fit quality?

LHC $\sqrt{s} = 13$ TeV, $M_{\ell\ell} = M_Z$, $y_{\ell\ell} = 0$



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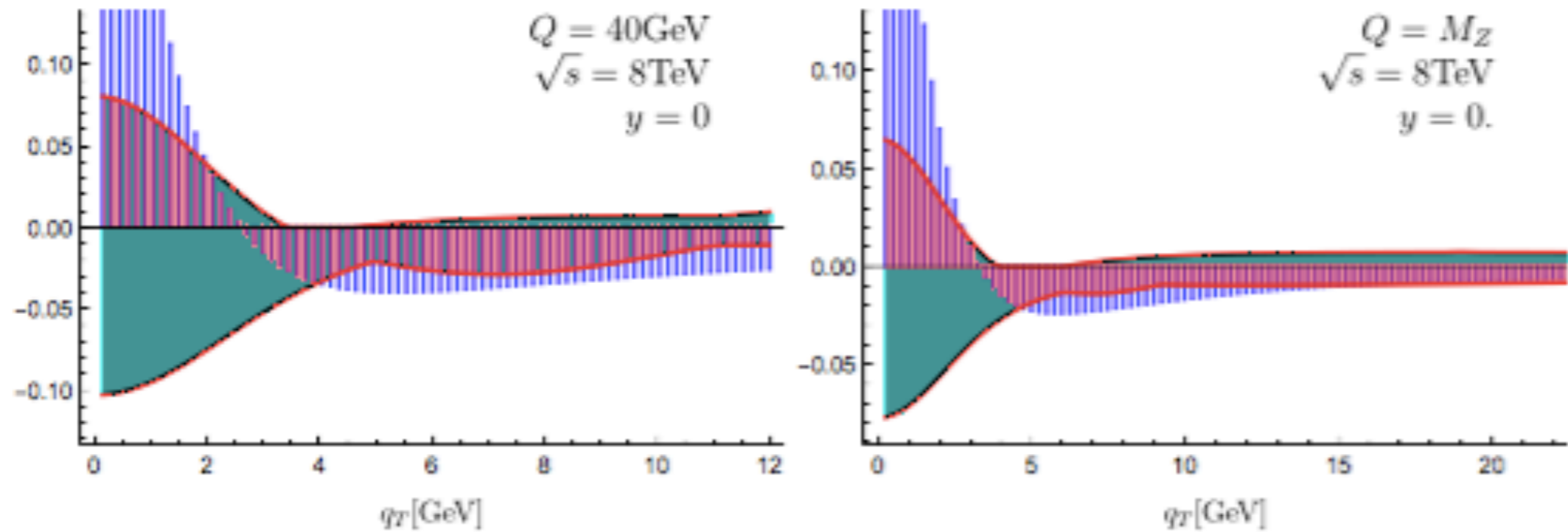


Figure 4: Sensitivity to nonperturbative physics in LHC DY measurements: the transverse momentum dependence of the ratio in Eq. (12), for central rapidity and different values of the lepton-pair invariant mass. The solid band is obtained from perturbative scale variation.