[HIN-14-009]
status

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dilepton meeting
16th May 2016

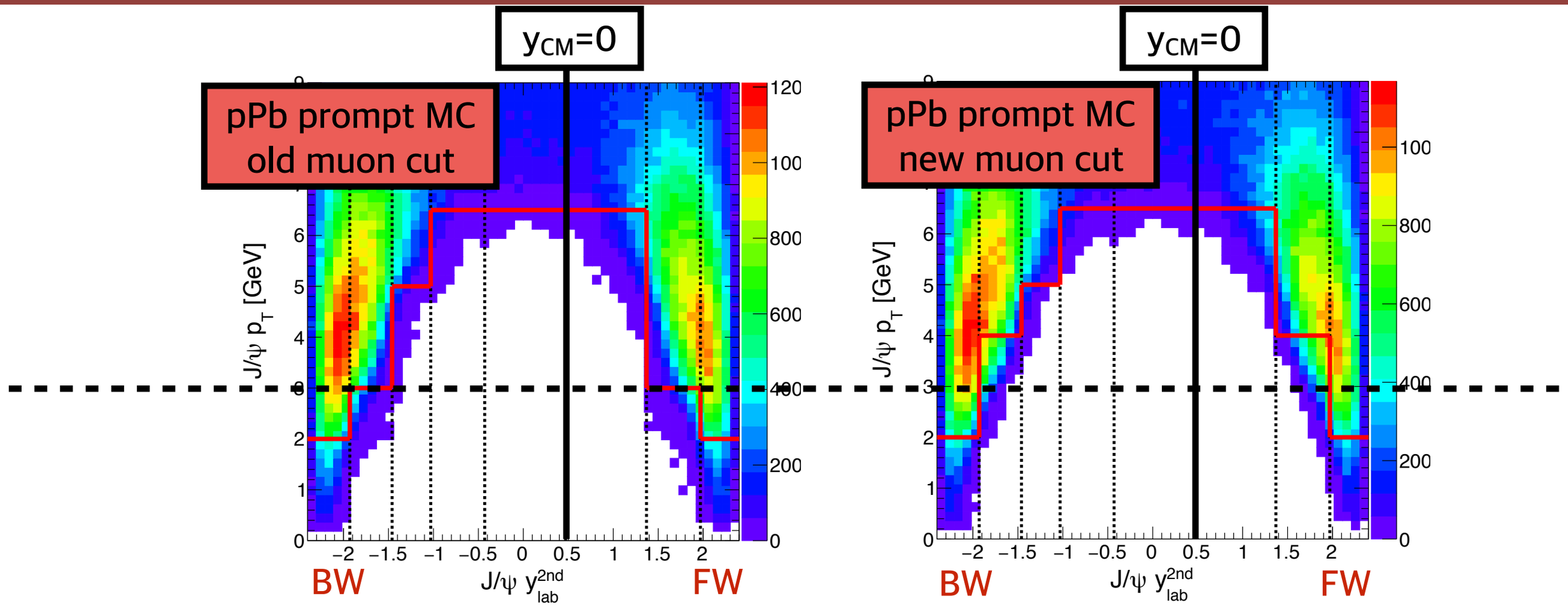
Sample Status

- All new (extended) official MC trees are done!
  - 4 samples from last week :

B2 J/psi MC 1st run (Pbp) extended	OniaTree	/store/group/phys_heavyions/dileptons/MC2013/pPb502TeV/NonPromptJpsi/MCinclBtoJPsiMuMu_pa_1st_run_STARTHI53_V27_ext1_nocut.root	7.4 GB (14,892,039 evt))
B2 J/psi MC 2nd run (Pbp) extended	OniaTree	/store/group/phys_heavyions/dileptons/MC2013/pPb502TeV/NonPromptJpsi/MCinclBtoJPsiMuMu_pa_2nd_run_STARTHI53_V27_ext1_nocut.root	7.7 GB (15,565,599 evt)
prompt psi(2S) MC 1st run (Pbp) extended	OniaTree	/store/group/phys_heavyions/dileptons/MC2013/pPb502TeV/PromptPsi2S/MCPsi2SWithFSR_pa_1st_run_STARTHI53_V27_ext1_nocut.root	3.7 GB (8,087,524 evt)
prompt psi(2S) MC 2nd run (pPb) extended	OniaTree	/store/group/phys_heavyions/dileptons/MC2013/pPb502TeV/PromptPsi2S/MCPsi2SWithFSR_pa_2nd_run_STARTHI53_V27_ext1_nocut.root	3.5 B (7,576,580 evt)

More details on [twiki]

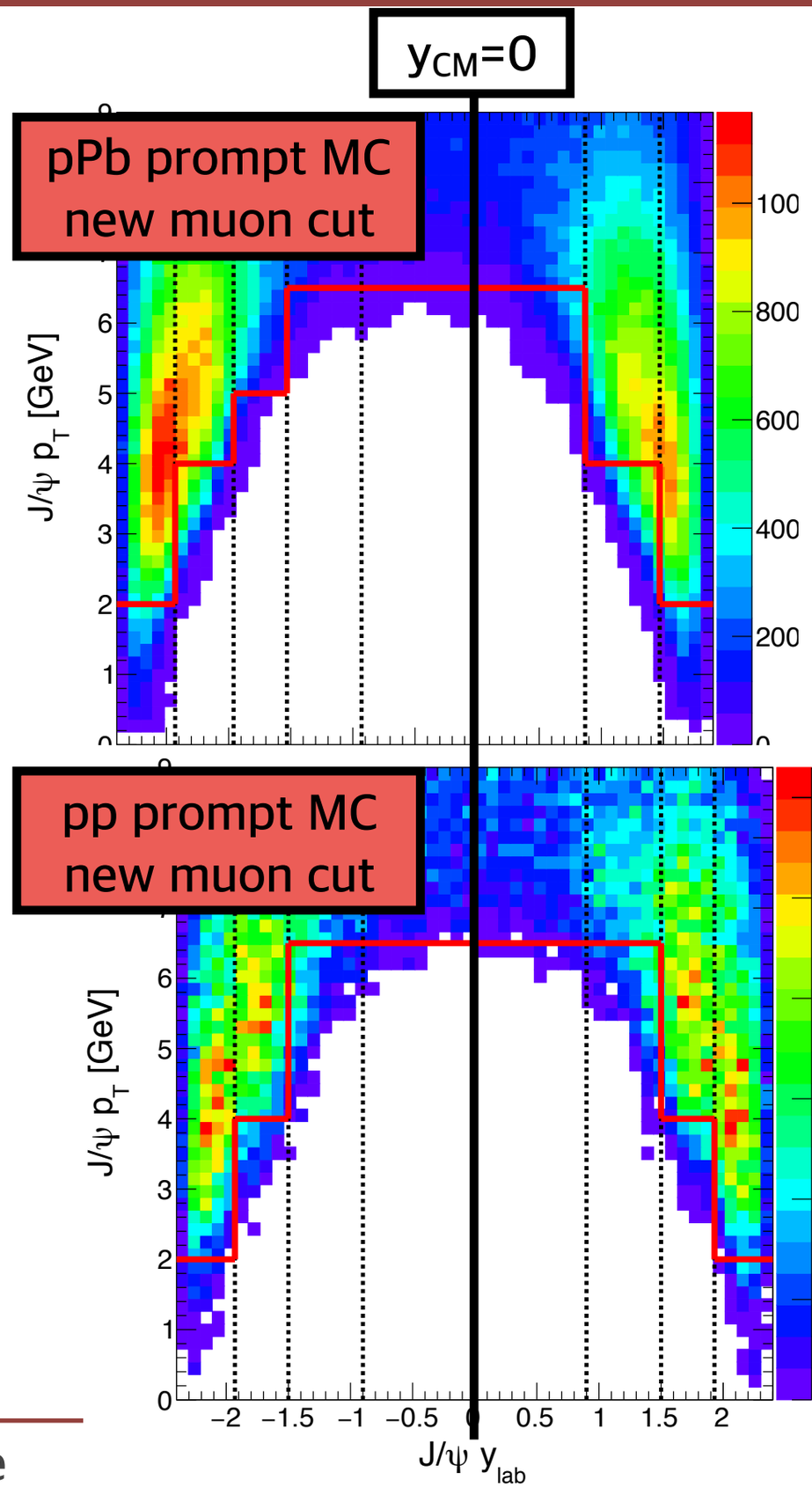
p_T binning change (1)



- New (tighter) muon acceptance cut make holes in pPb
  - For y_{CM} bins [-2.4, -1.97] and [0.9, 1.5] : change p_T limit from 3 to 4 GeV
  - Do not affect R_{FB} binning

p_T binning change (2)

- Due to the y shift, p_T binning for pPb and pp different
  - R_{pPb} binning are restricted compared to each x-sections binning of pp or pPb



z vertex reweight

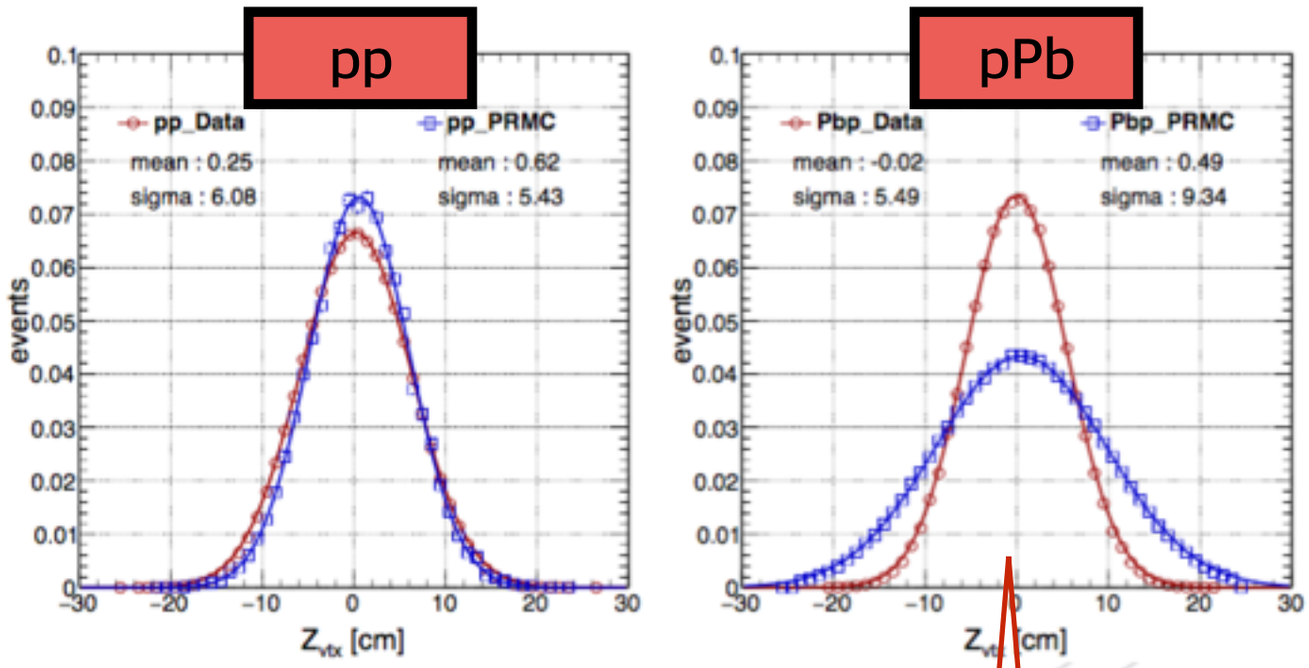


Figure 21: Longitudinal position distributions of the primary vertex in real data (red circles) and in prompt J/ψ Monte Carlo simulation (blue squares) for pp (left) and pPb (right). Each distribution is fitted with a gaussian function with the parameters shown on the plot.

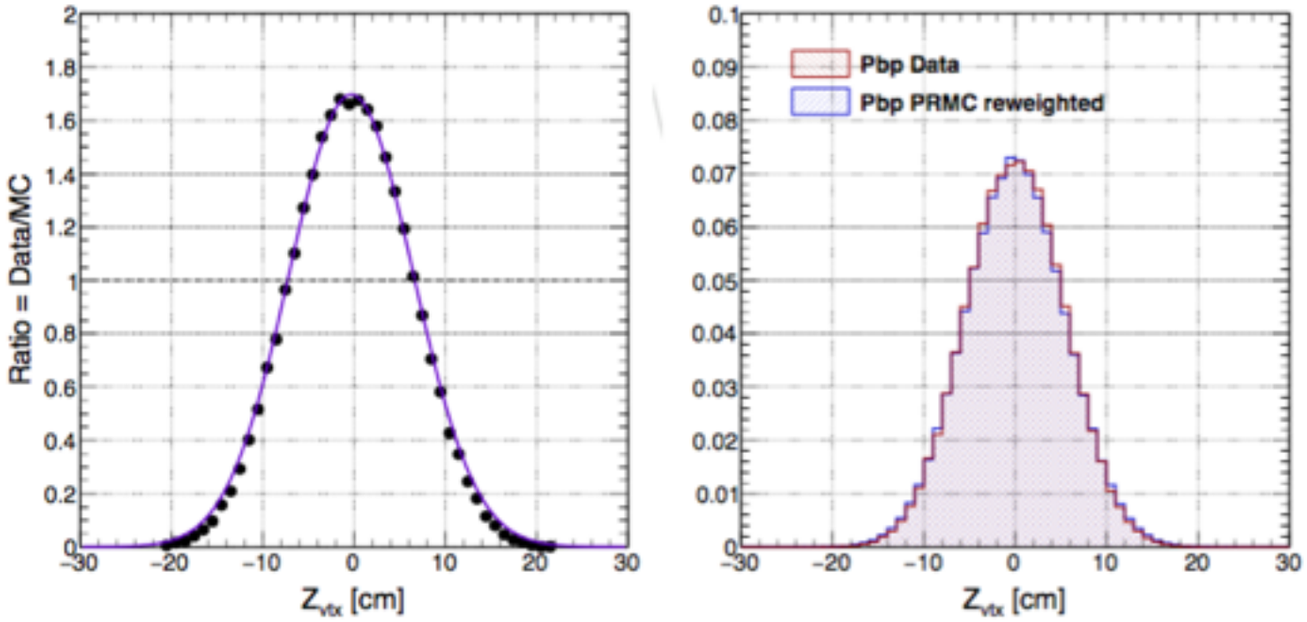


Figure 22: the fitted ... g. 21, and used ... Black ... rams themselves. Right : Z vertex distributions of real data and MC for pPb after MC distributions are reweighted.

pPb weight factor

pPb after reweight

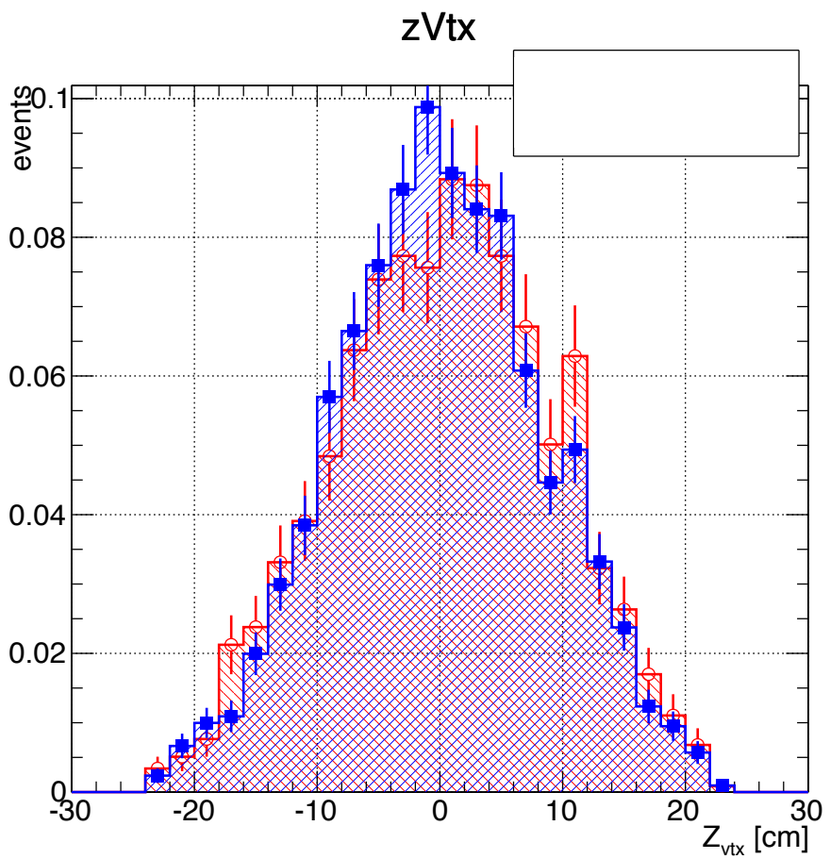
- z vtx reweight for pPb
- NO reweight for pp

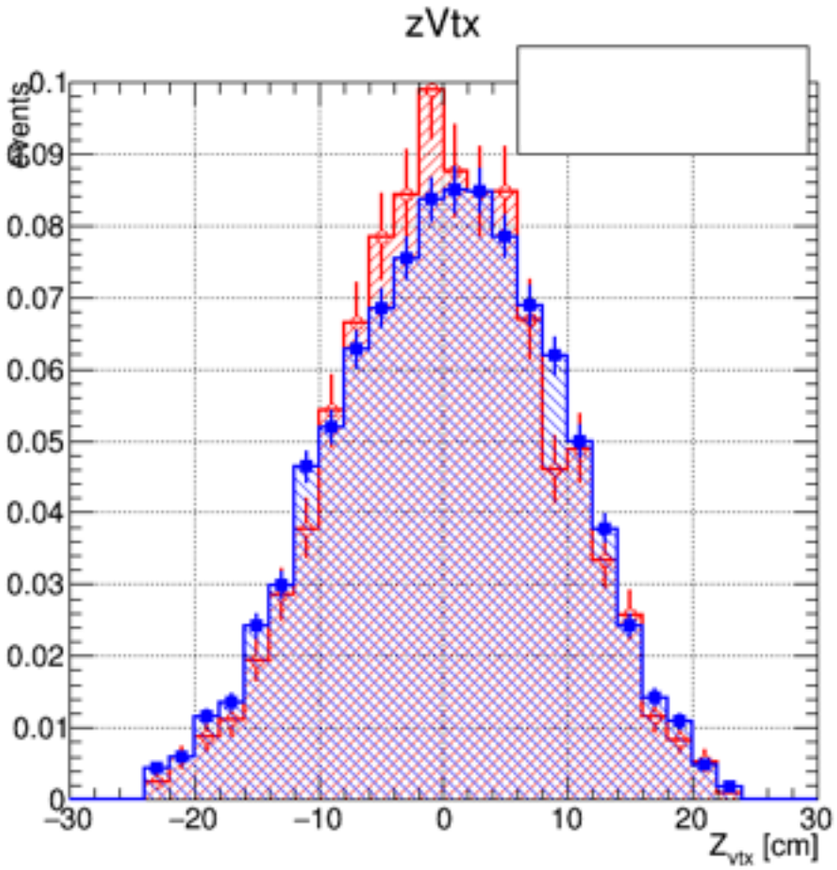
z vertex reweight

- More stable distributions of z vetex

e.g.)
BACKWARD

- y_{CM} = [-1.93, -1.5]
- p_T = [5, 6.5] GeV





private MC (1M)

official MC (2M)

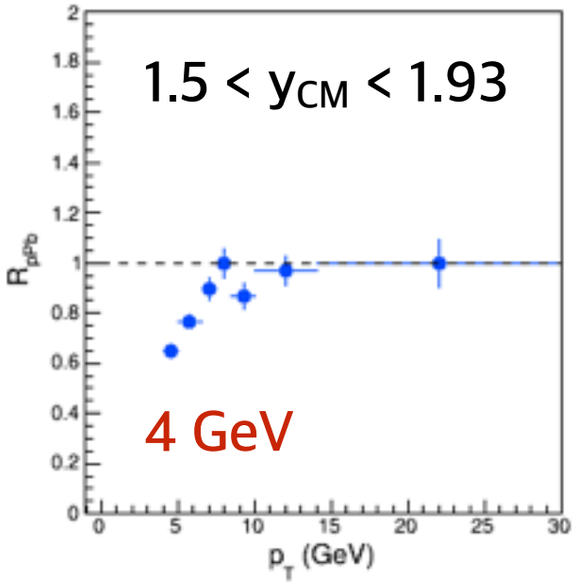
new official MC extended (8M)

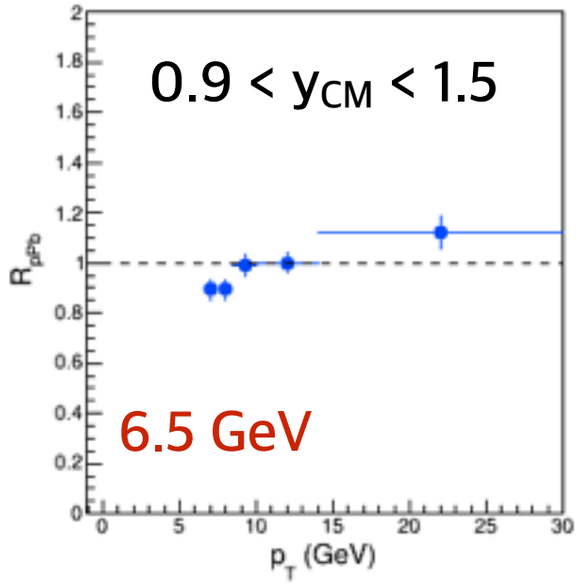
R_{pPb} of prompt J/psi

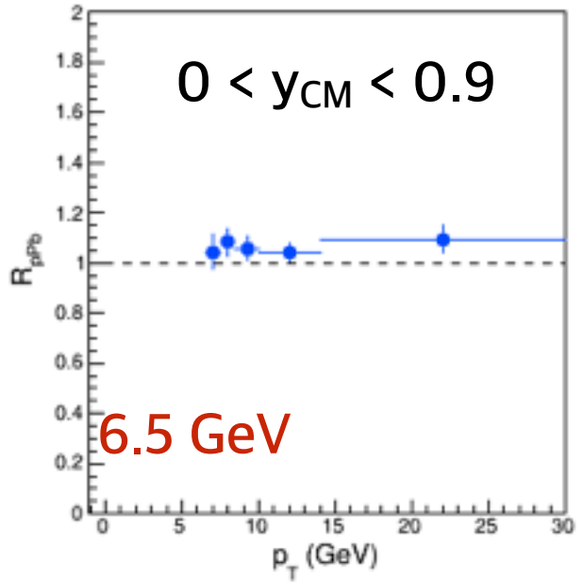
- R_{pPb} result with new official MC
  - Acc. and. Eff from pure MC (e.g. no TNP)
  - No big difference from previous result

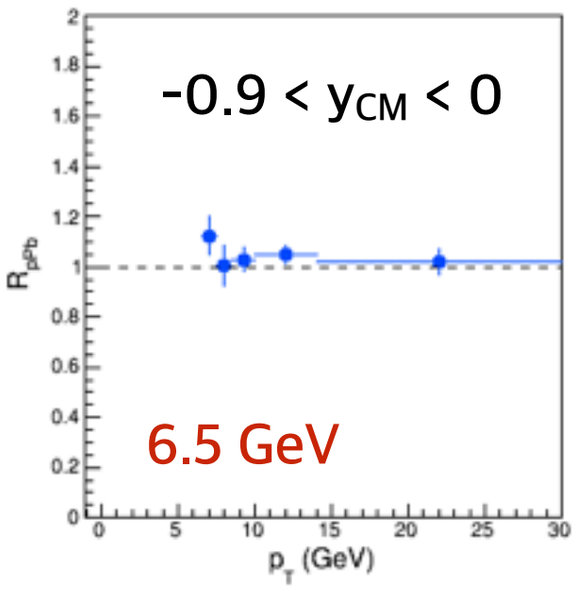
$$R_{\mathrm{pPb}}(y, p_{\mathrm{T}}) = \frac{\mathrm{d}^2\sigma^{\mathrm{J}/\psi}_{\mathrm{pPb}}/\mathrm{d}y\mathrm{d}p_{\mathrm{T}}}{A_{\mathrm{Pb}} \cdot \mathrm{d}^2\sigma^{\mathrm{J}/\psi}_{\mathrm{pp}}/\mathrm{d}y\mathrm{d}p_{\mathrm{T}}}$$

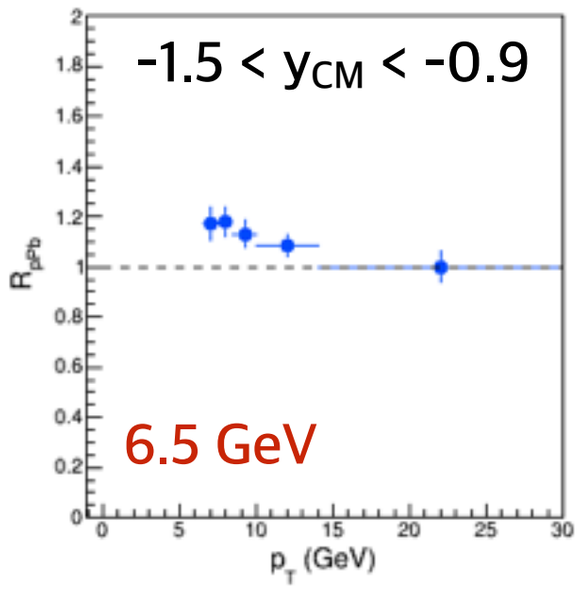
pp L_{int} = 26.3 pb^{-1}
pPb L_{int} = 34.6 nb^{-1}

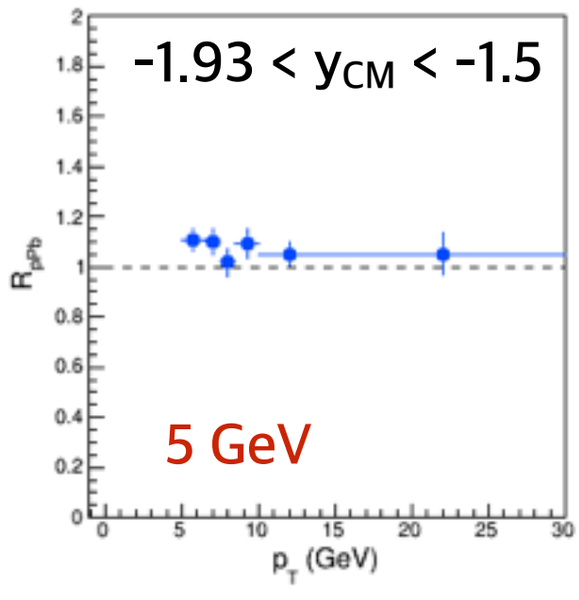


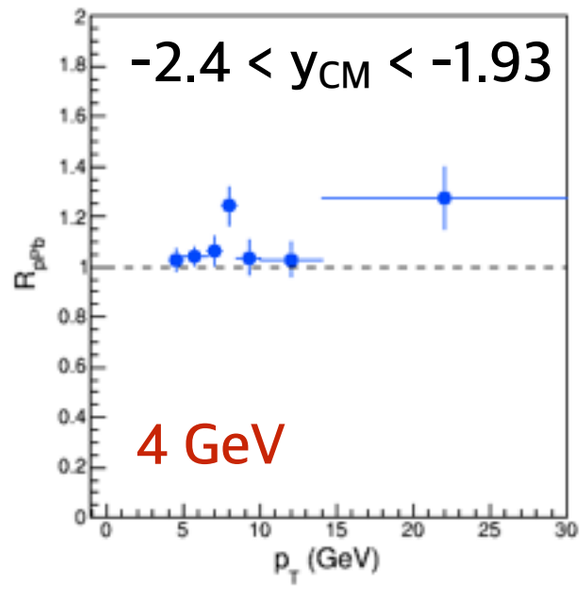






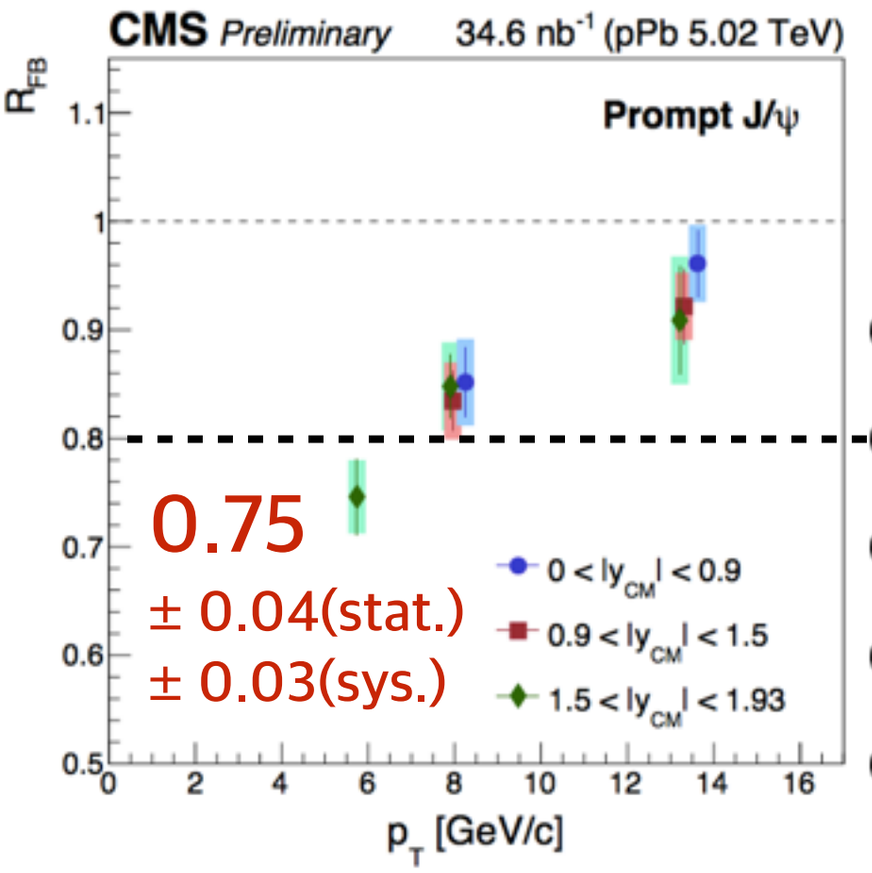




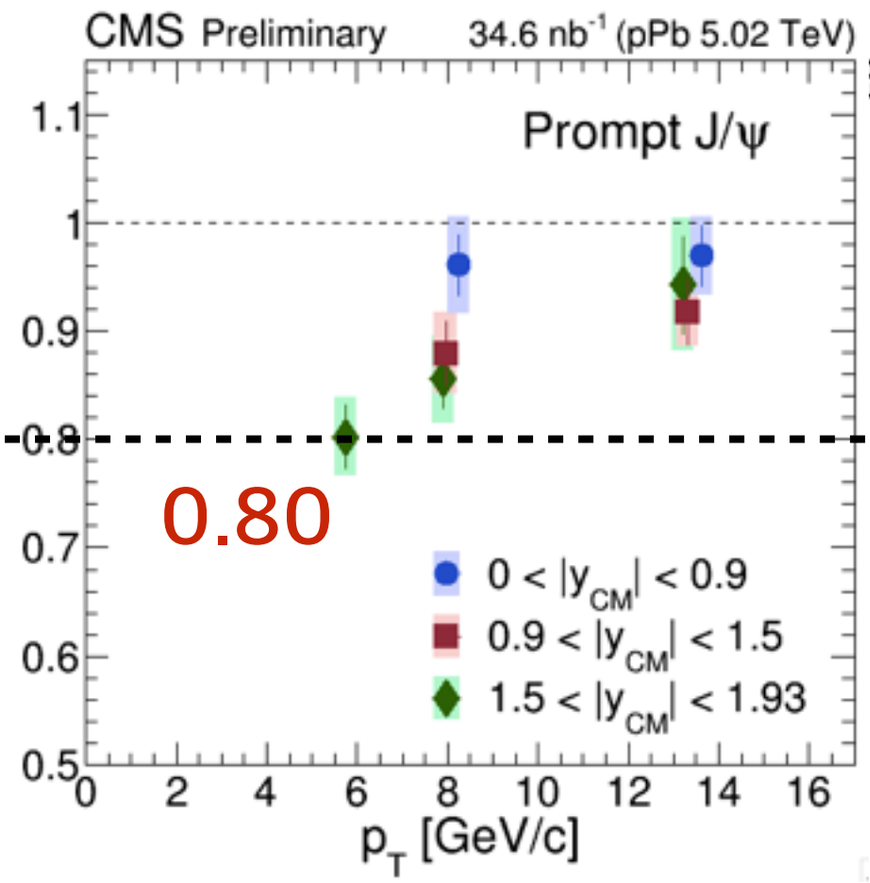


R_{FB} of prompt J/psi

[PAS]



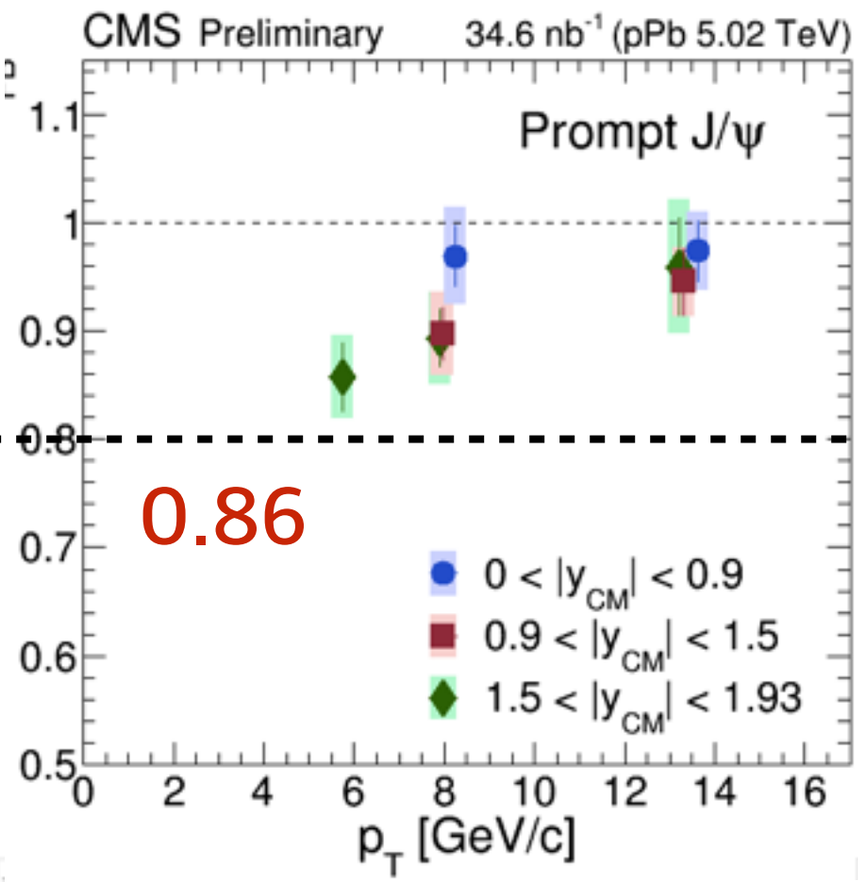
[old acc cut]
with new official MC



0.76 with private MC

0.83 with old official MC

[new acc cut]
with new official MC



0.85 with private MC

0.91 with old official MC

- Note : old/new/private/official MCs are generated from the same parameters.
- Just a matter of statistics : private -> x2 old official -> x4 new official

Plan

- Target : Hard Probes (23th Sep.)
  - ~ 2 months from approval to Journal
  - End of May : organize an ARC meeting
  - End of June / Early in July : Re-approval

- Left items until the ARC meeting
  - Man Power : Songkyo, Yongsun, Kisoo, Jaebeom
  - Top priority : pp TNP (discussion with Camelia)
  - fit systematics (Songkyo)
  - Data vs MC p_T distributions (after TNP)
  - Acc, Eff, and TNP systematics (Songkyo, Kisoo, Yongsun)

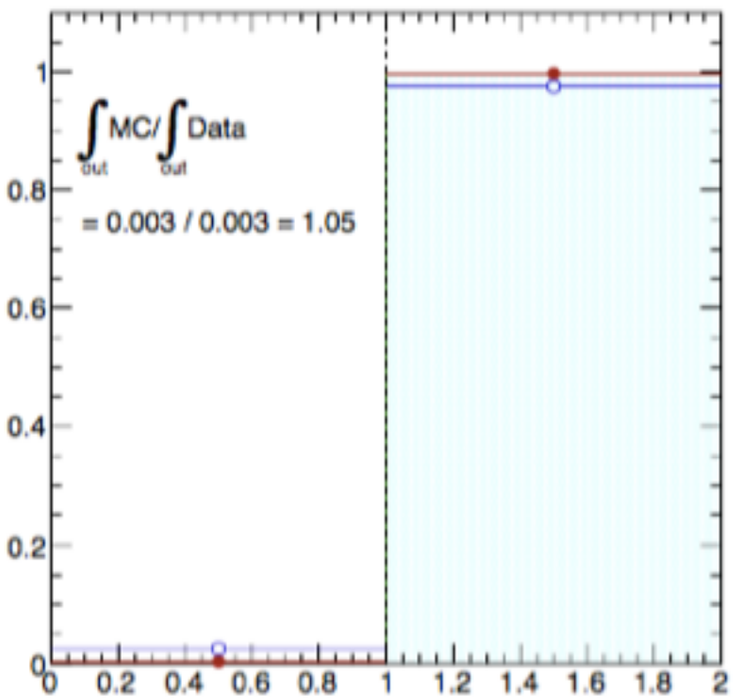
back up

Workflow

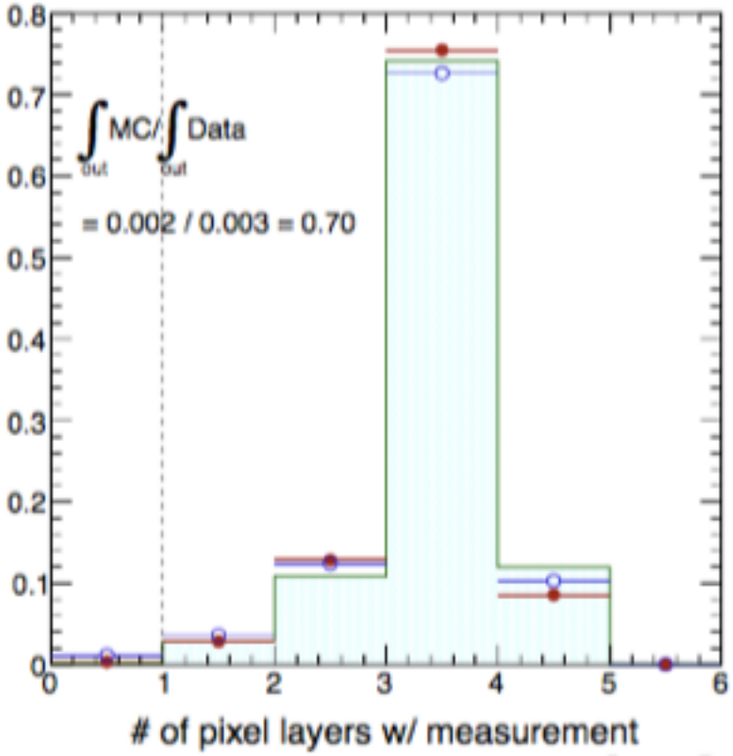
	MC	FIT	pPb TNP	pp TNP
1st week	Onia Tree muon ID distributions Initial Acc. & Eff z vertex reweight		TNP SKIMMING (KISOO?)	co-work with Camelia & Anna
2nd week		nominal fits	SF calculation	
3rd week	Reco pT reweight			
4th week	Final Acc. & Eff Compare old and new single muon cut for Acc, Eff, fit, TNP		muon POG?	
5th week	: try to reproduce and finalize central points of results			
7th week	systematics finalize the results	systematics.	Toy MC	
8th week	: try to finalize AN and PAS and seek for GL			

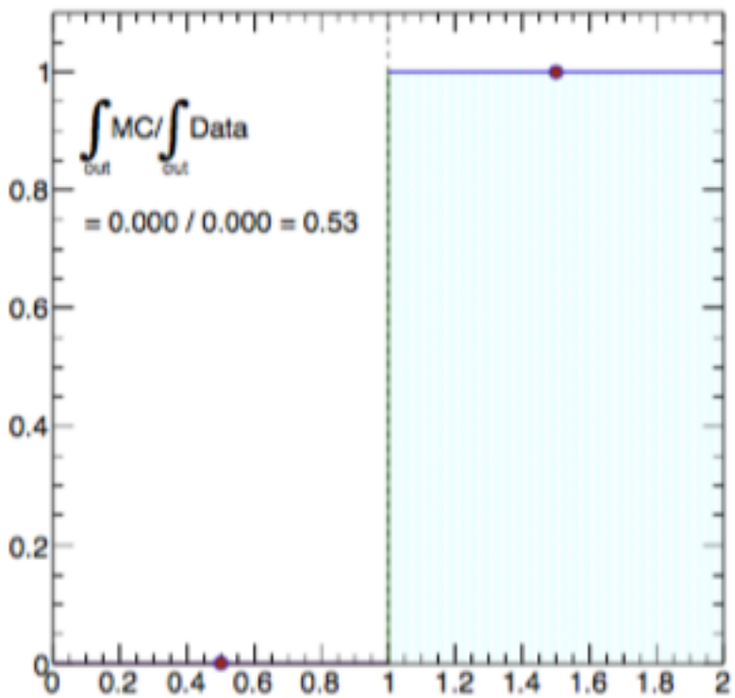
- Total 2-3 months from new MC release to re-approval
- move to the paper publication right after re-approval

muon ID variables – pp

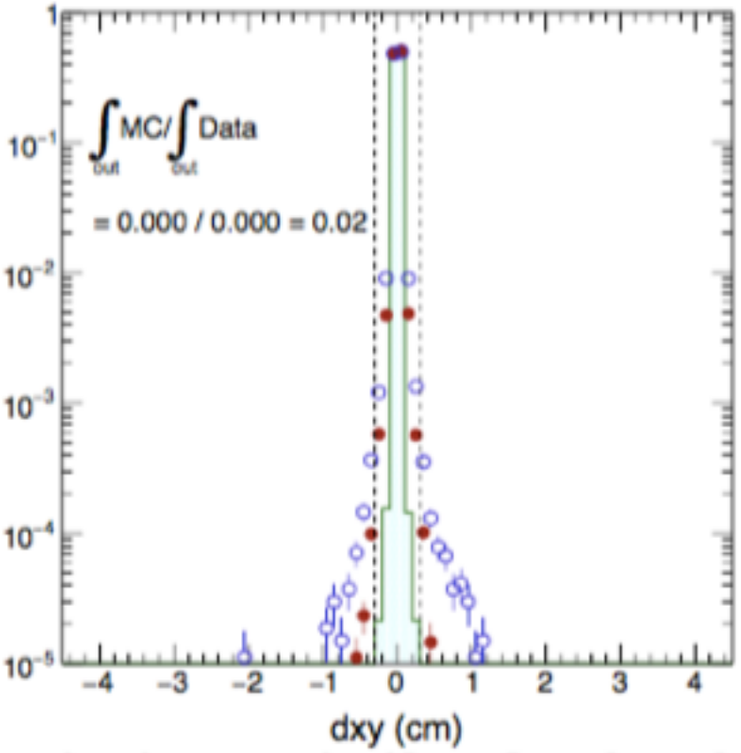


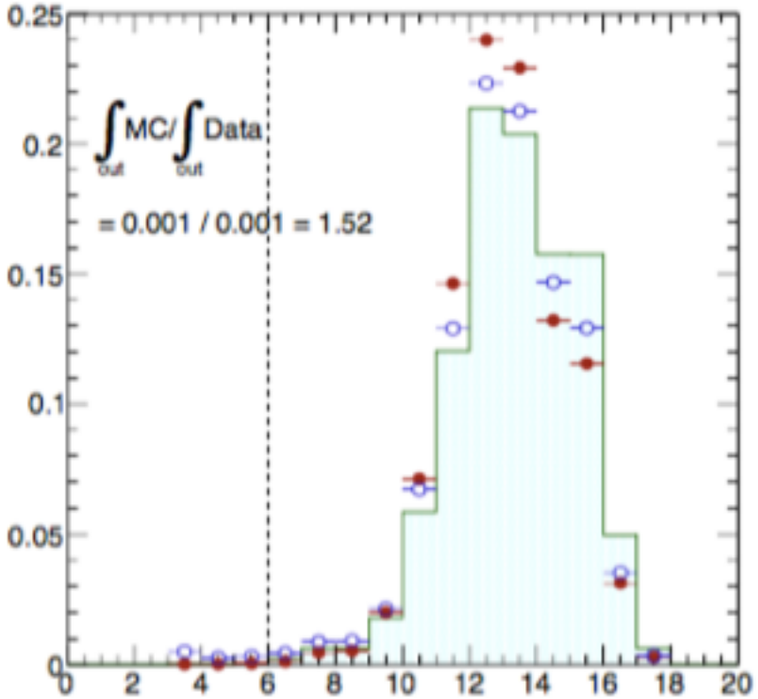
TMOneStationTight flag



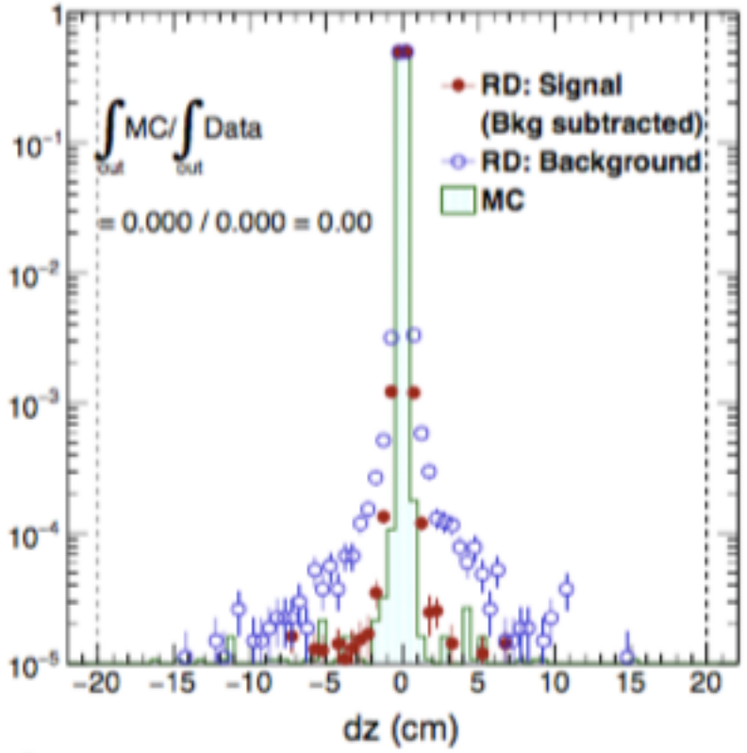


high purity flag

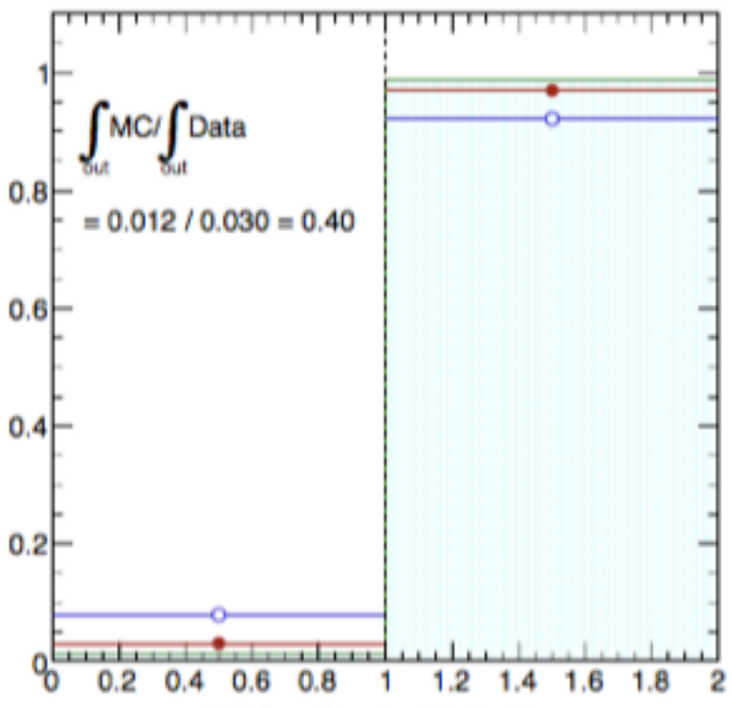


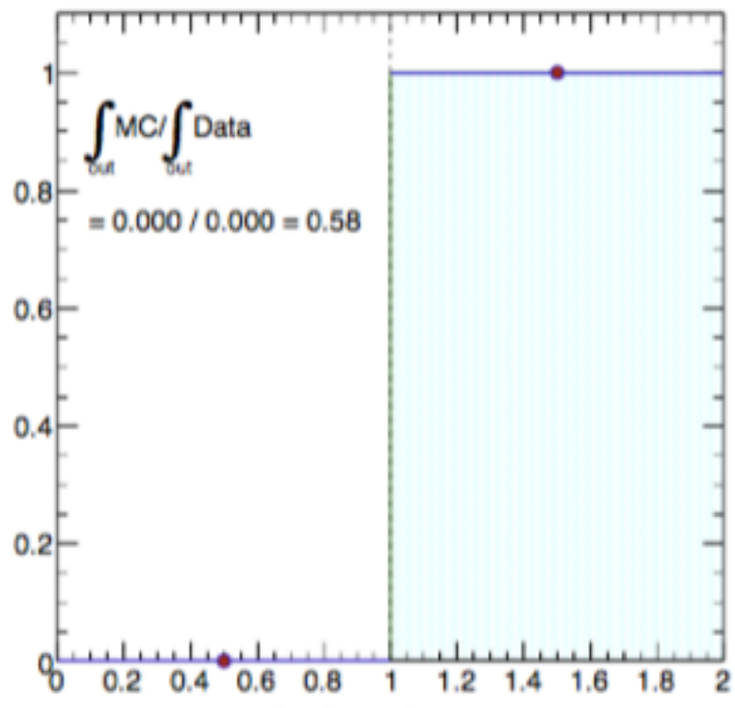


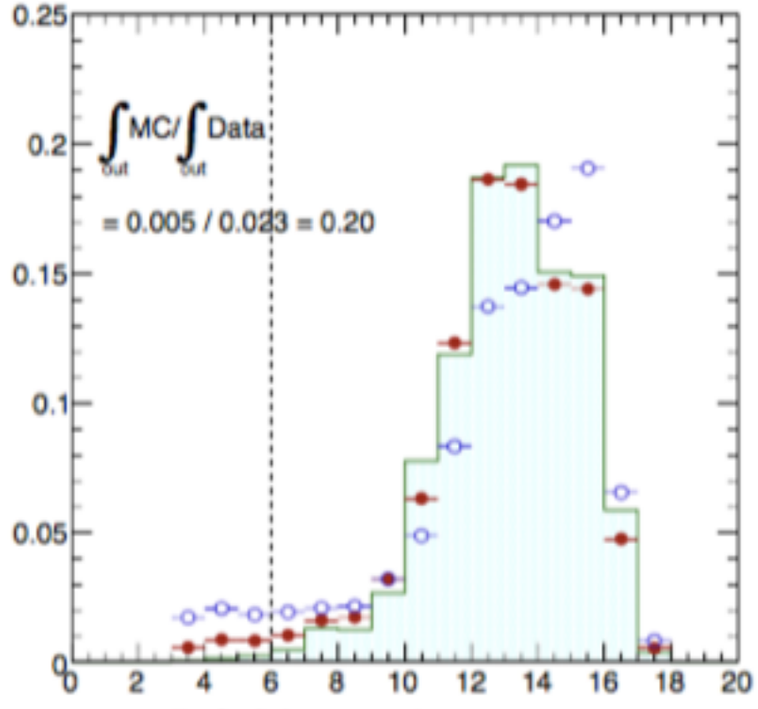
# of trk layers w/ measurement



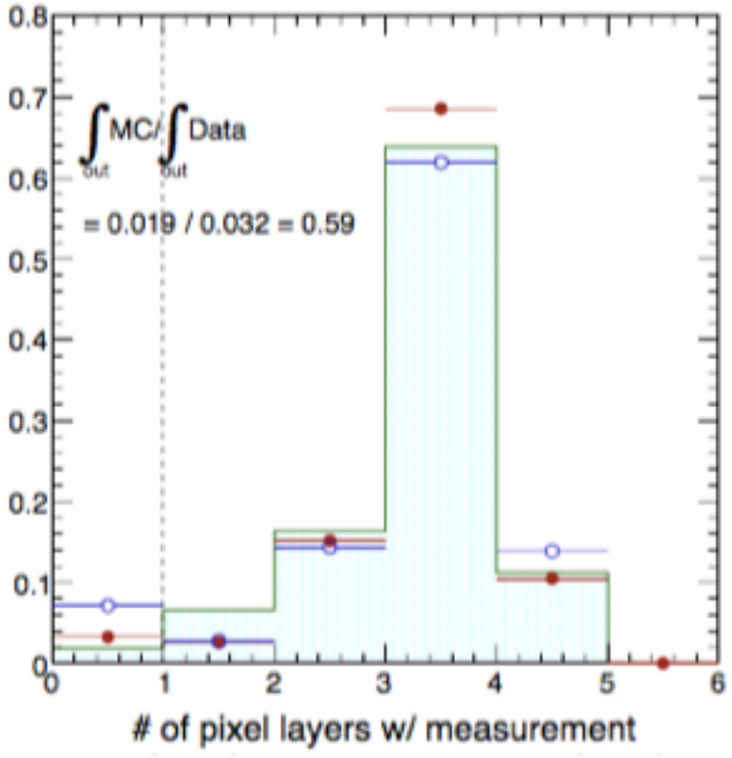
muon ID variables – pPb



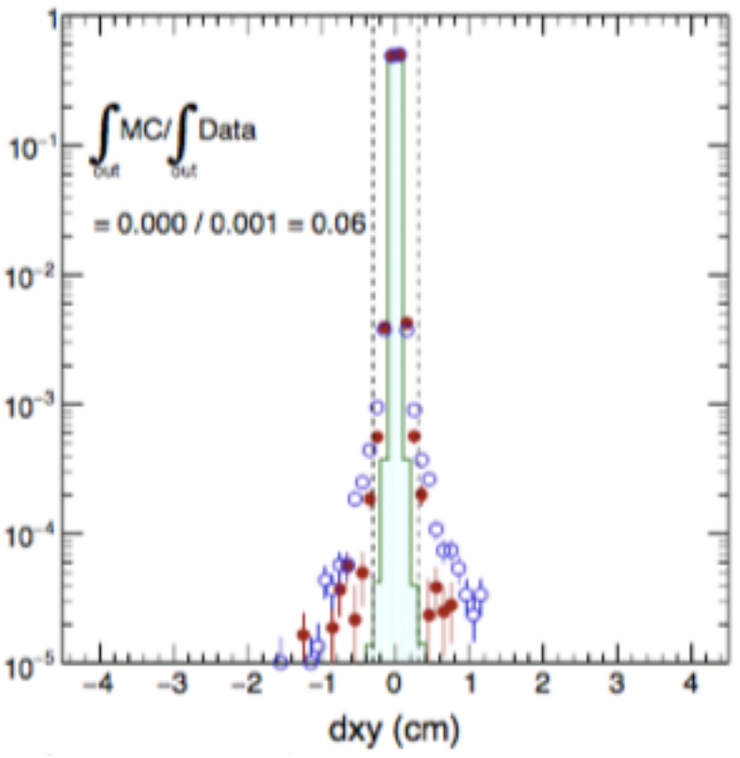




TMOneStationTight flag



high purity flag



# of trk layers w/ measurement