[HIN-14-009]
status

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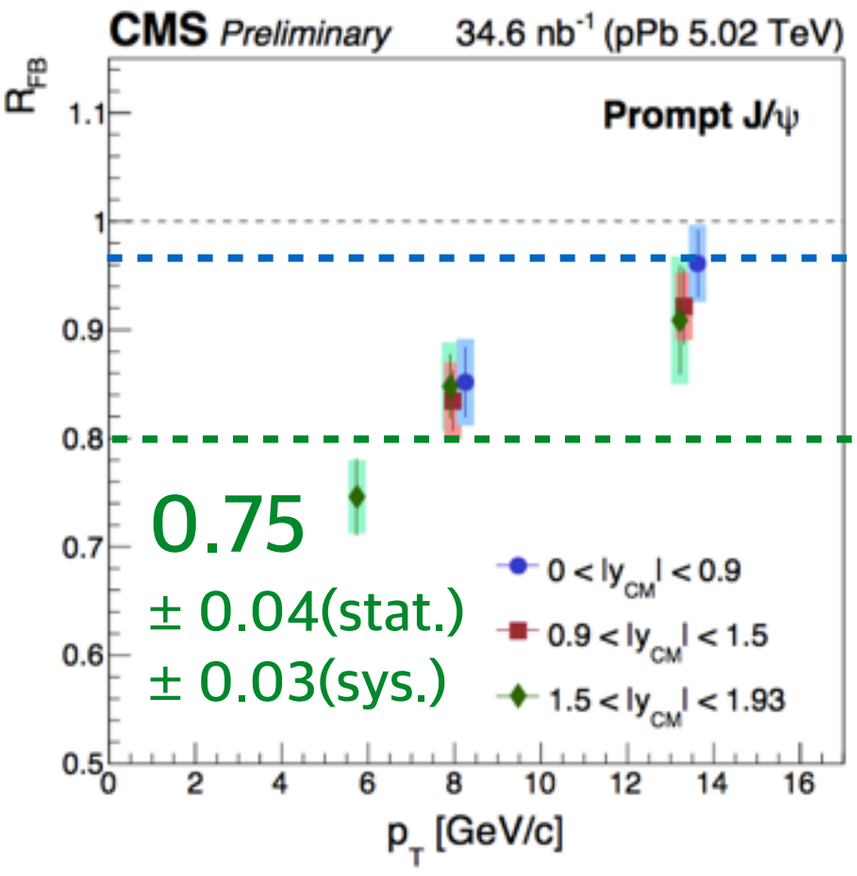
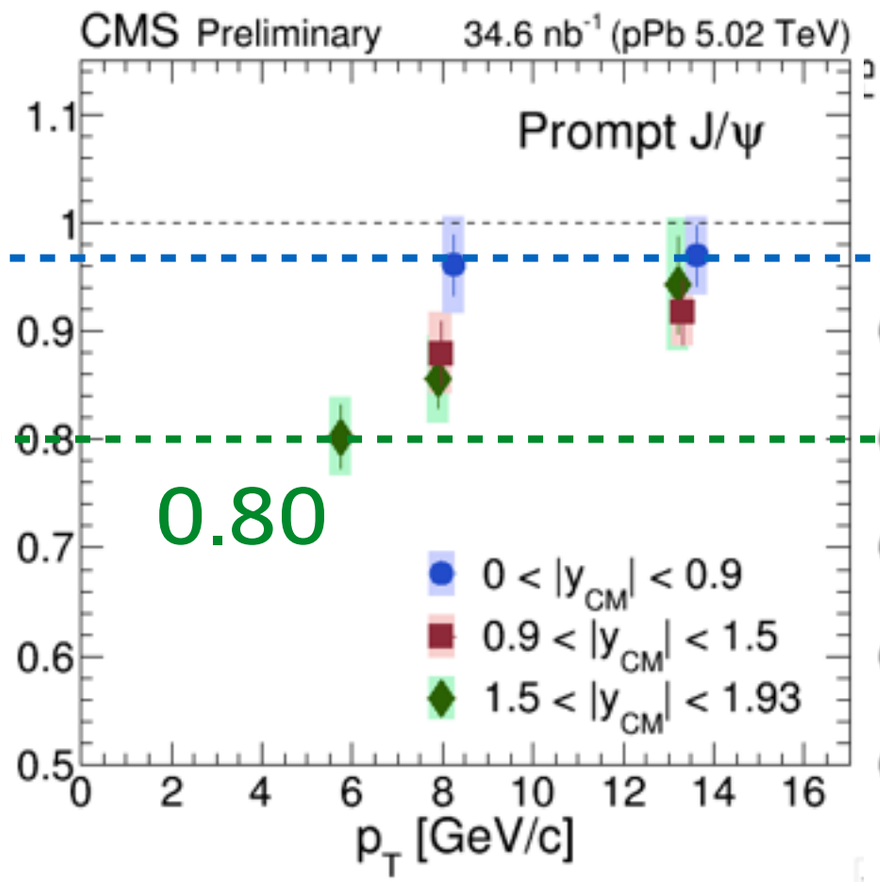
dilepton meeting
11th May 2016

Reminder

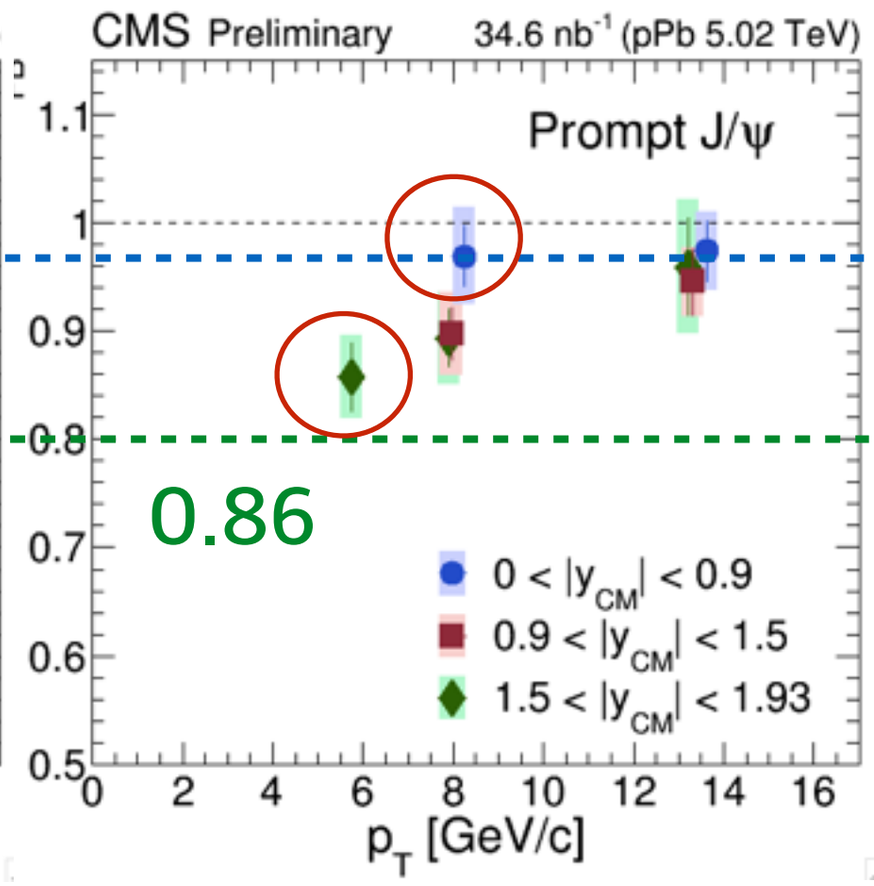
[PAS]



[old acc cut]
with new official MC



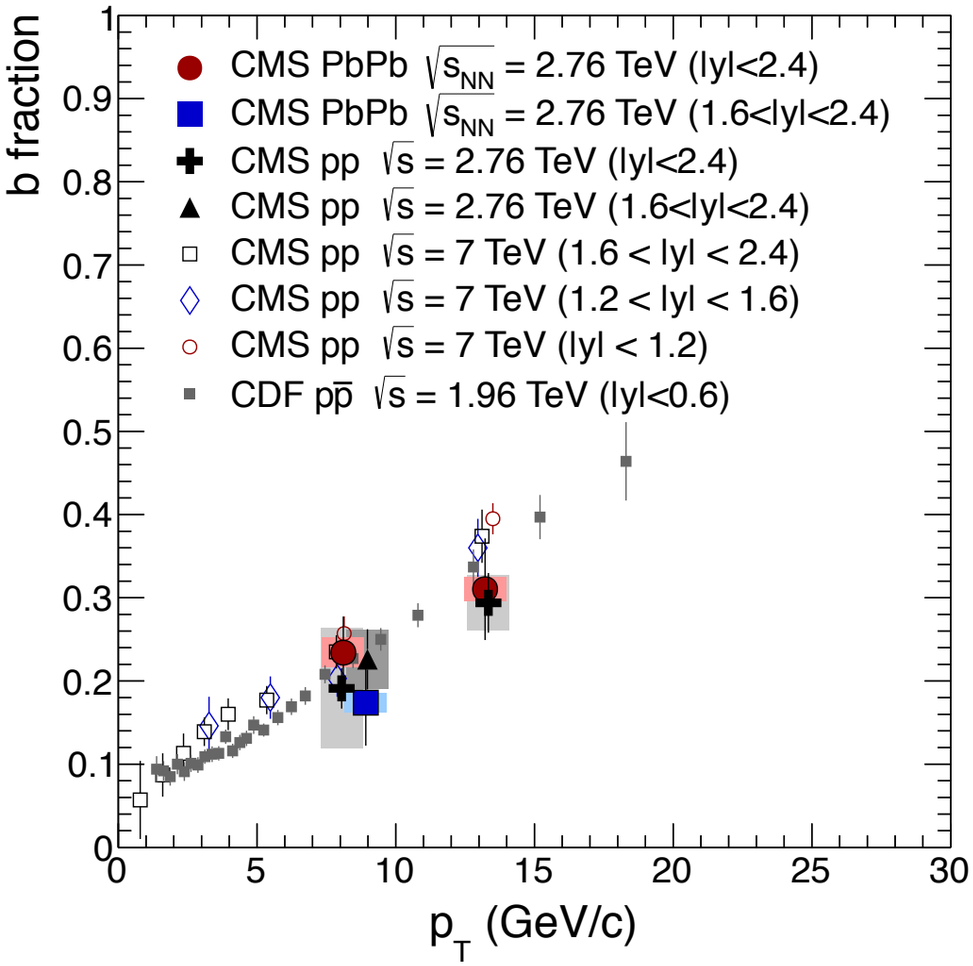
[new acc cut]
with new official MC



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

NOTICE 1 – B fraction

- In the PAS, after the discussion with ARCs, B-fraction was fixed for some bins following the previous measurement due to the unstableness of fits
  - especially for low pT bins
  - and 2nd runs with low stats.

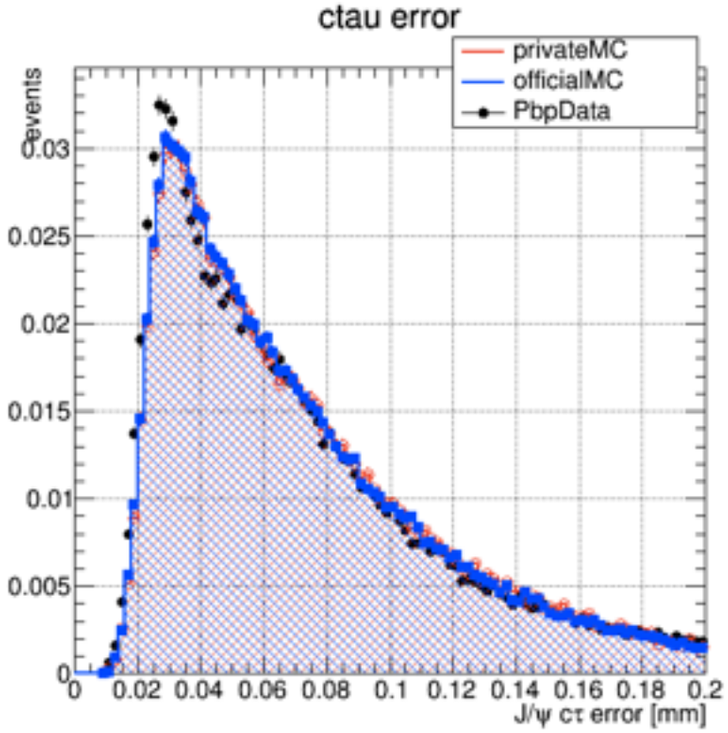


- BUT this can bias the result
- Now we perform 1st + 2nd run merged fit which allows more stable fits, and decided to release B-fraction for all bins

https://twiki.cern.ch/twiki/bin/view/CMS/HIN14009CommentsApproval#Approval_homeworks

NOTICE 2 – ctau error cut

- cτ error range cut applied for 2D fits to prevent empty bins in PDF shape
- So far, we applied the same cut to MC samples
  - Possible bias due to the different distributions b/w MC and Data



20160217 dilepton

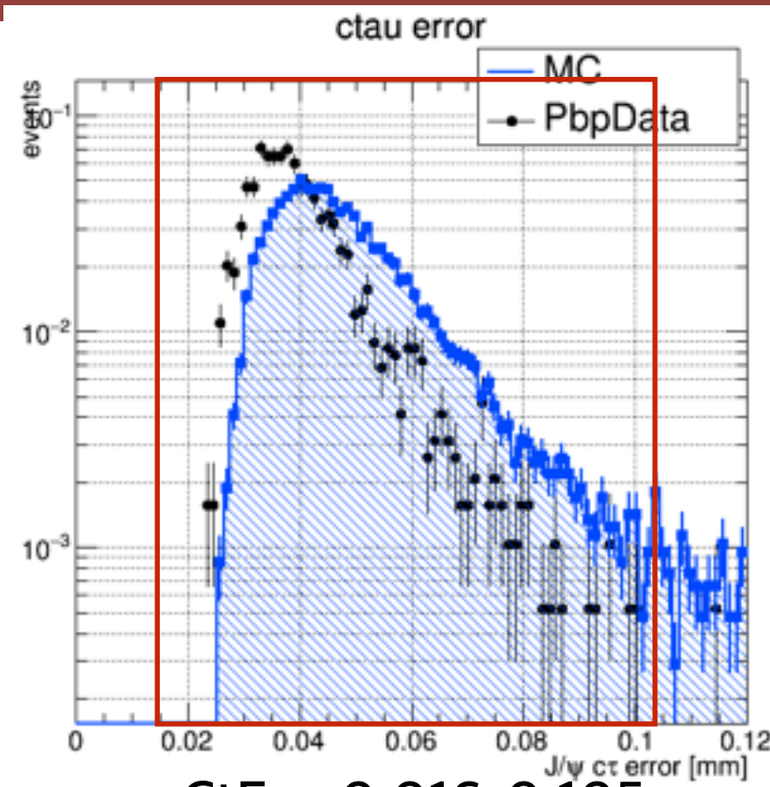
- Now, do NOT correct the effect of this cut
- differences are mostly within statistical uncertainties
- same as HIN-14-005 (J/psi in PbPb)

NOTICE 2 – ctau error cut

- Table : Ratio of efficiency with “cτ error range cut” (old) over without “cut” (new)

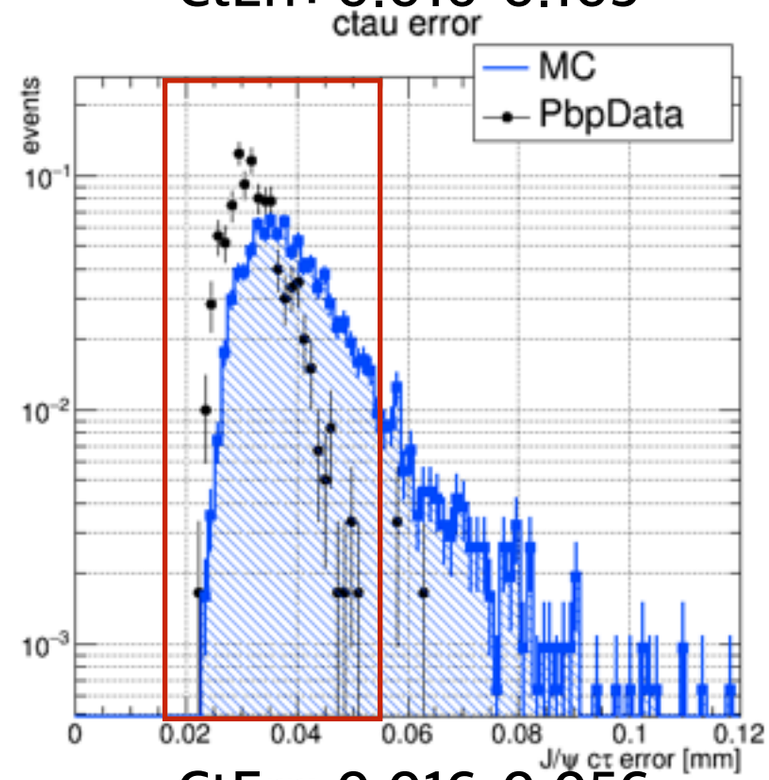
p_T (GeV)	Forward (y_{CM} :0-0.9)	Backward (y_{CM} -0.9-0)
6.5-7.5	0.98	0.87
7.5-8.5	0.97	0.95
8.5-10	0.99	0.97
10-14	0.99	0.99
14-30	0.99	0.99

FW



CtErr: 0.016-0.105

BW

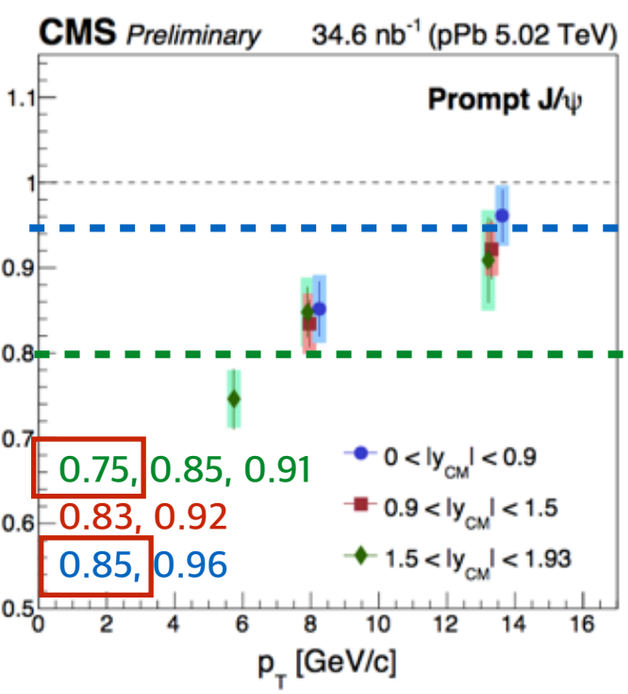


CtErr: 0.016-0.056

- Removal of yields in Data due to this cut
- FW : (4862/4832) = 0.6 %
- BW : (1483/1478) = 0.3 %
- Conclusion : Cr Err cut should NOT be applied to MC

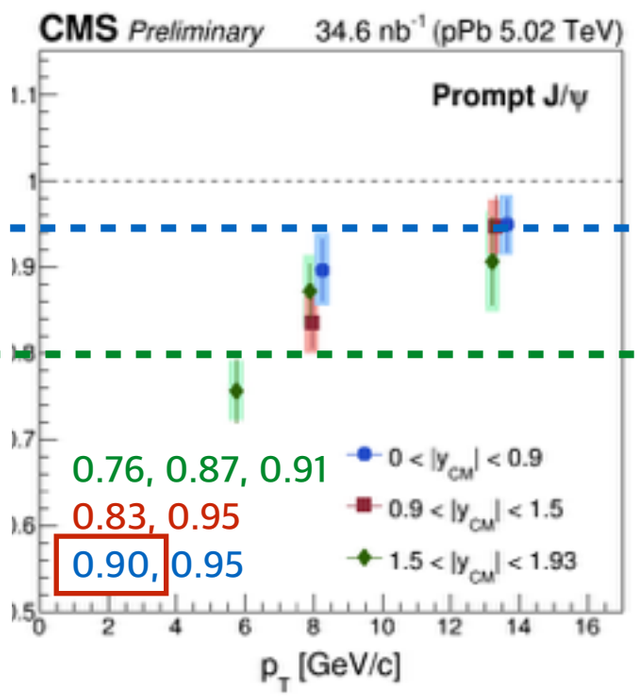
Step-by-step comparison

A (PAS)



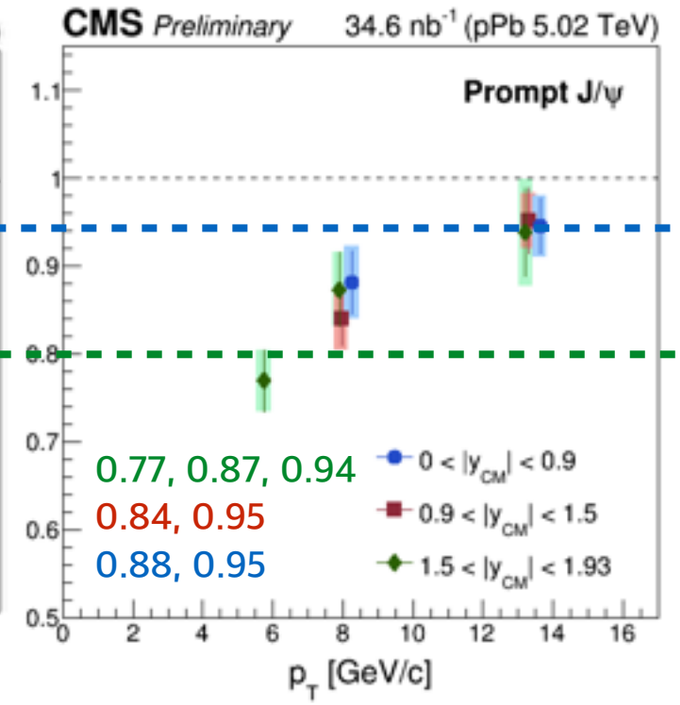
- B frac. fixed
- z vtx cut
- ct err. cut
- separate fit (Pbp,pPb)
- private MC
- old acc. cut

B



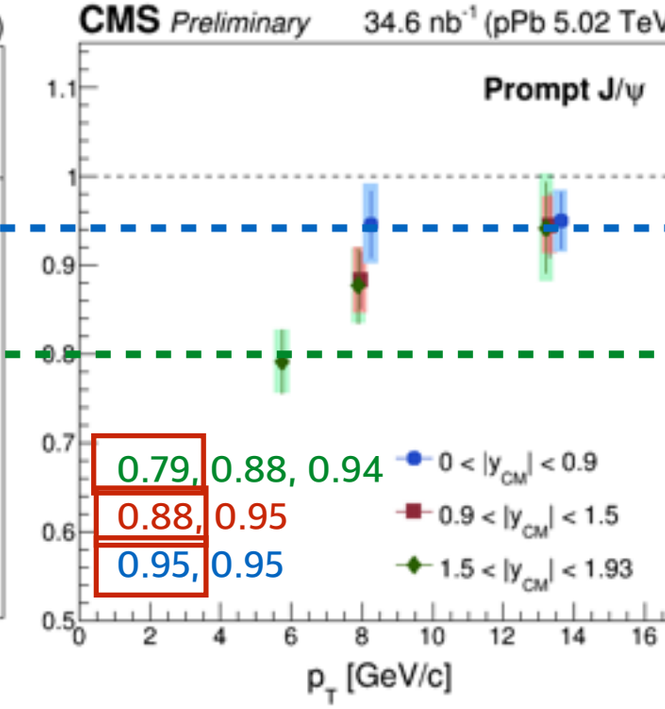
- B frac. free
- z vtx cut
- ct err. cut
- separate fit (Pbp,pPb)
- private MC
- old acc. cut

C



- B frac. free
- No z vtx cut
- ct. err cut
- separate fit (Pbp,pPb)
- private MC
- old acc. cut

D

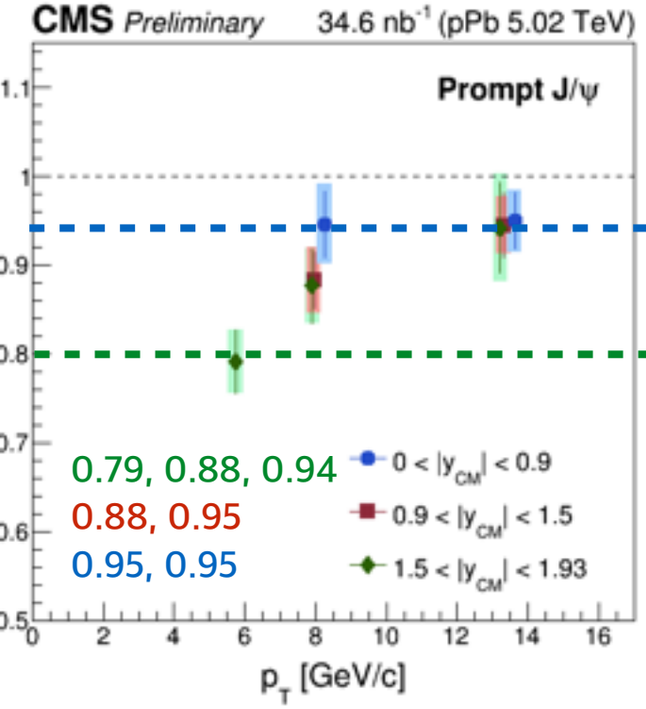


- B frac. free
- No z vtx cut
- No ct. err cut
- separate fit (Pbp,pPb)
- private MC
- old acc. cut

- Difference mostly coming from D, and partially from B

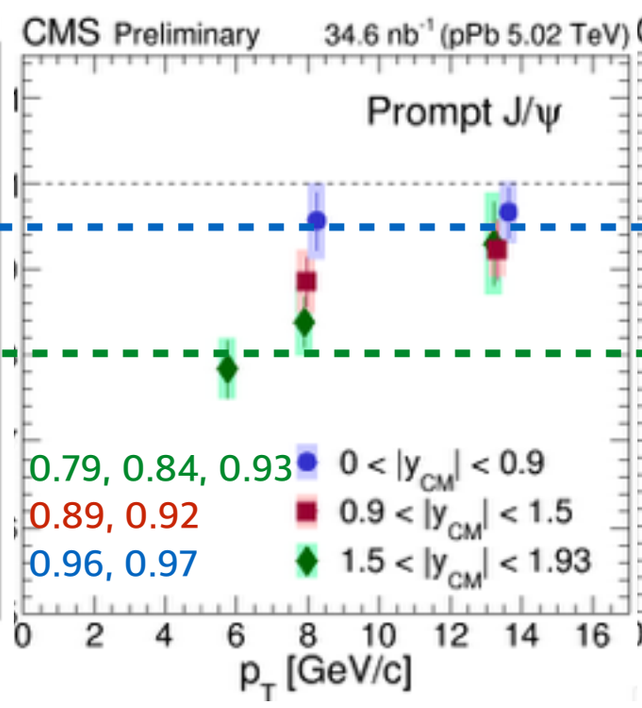
Step-by-step comparison (conti.)

D (conti.)



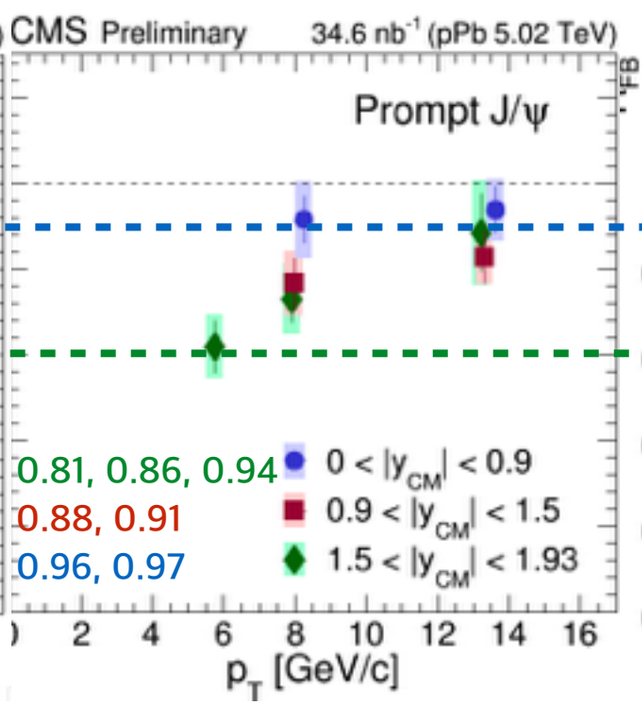
- B frac. free
- No z vtx cut
- No ct. err cut
- separate fit (Pbp,pPb)
- private MC
- old acc. cut

E



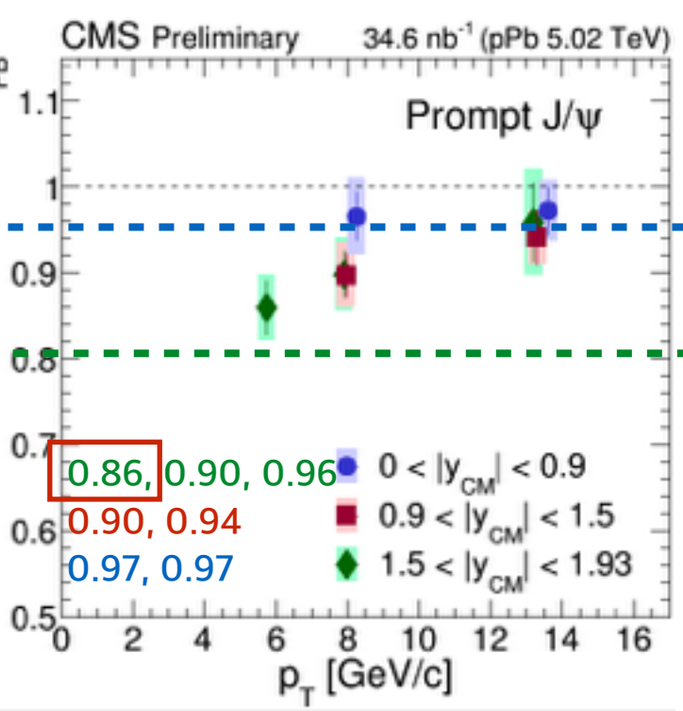
- B frac. free
- No z vtx cut
- No ct. err cut
- merged fit (Pbp,pPb)
- private MC
- old acc. cut

F



- B frac. free
- No z vtx cut
- No ct. err cut
- merged fit (Pbp,pPb)
- new MC
- old acc. cut

G (NEW)



- B frac. free
- No z vtx cut
- No ct. err cut
- merged fit (Pbp,pPb)
- new MC
- new acc. cut

- Difference coming from G, for the lowest p_T bin

Plan

- Fit systematics
  - 1st round fits are done, bin-by-bin check on-going

- TNP
  - pPb : mass fits are tuned bin-by-bin and SFs are finalized (Kisoo)
  - pp :
    - organizing workflow (e.g. trk mu by Kisoo, glb mu by Camelia)
    - systematics will be revisited after Run 1 PbPb method are closed

back up

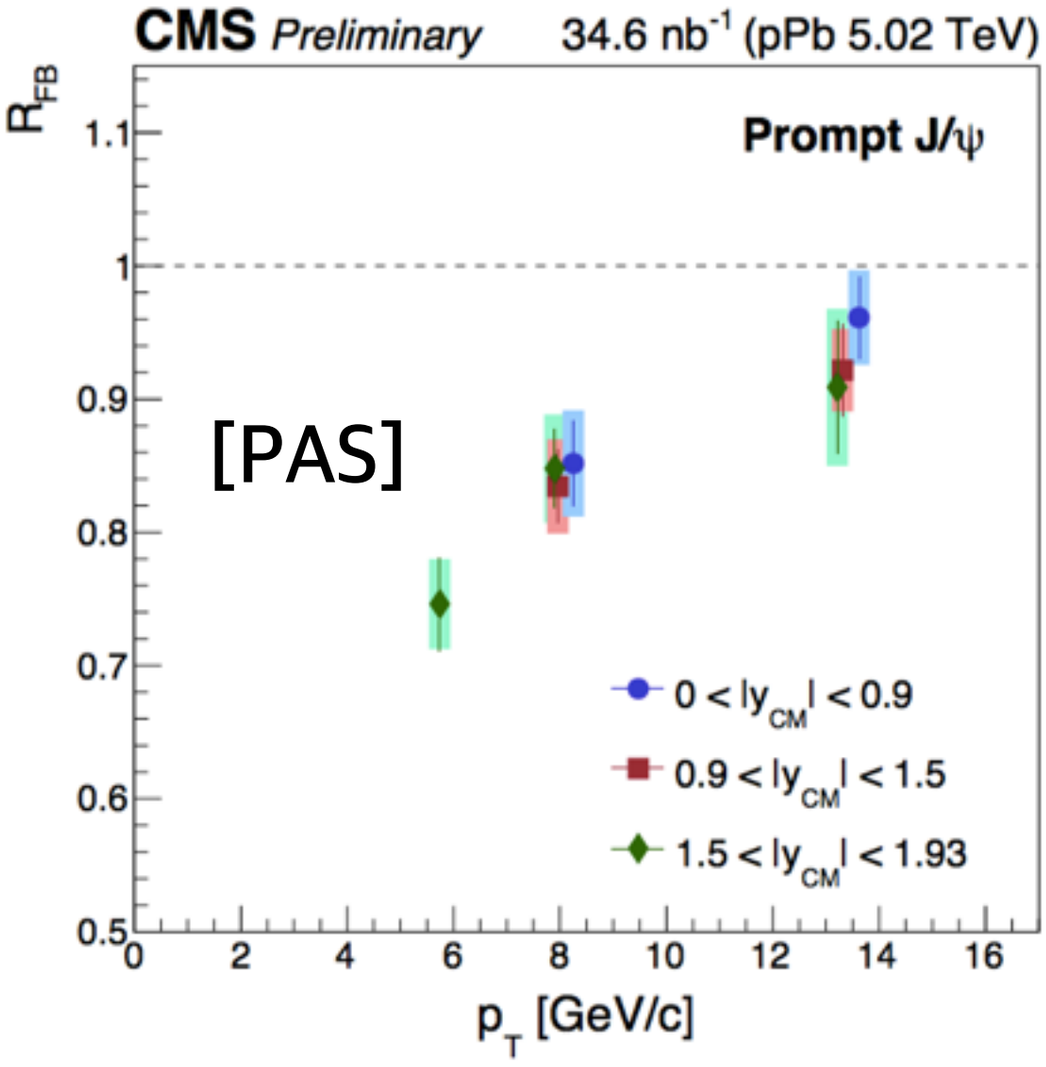
Workflow

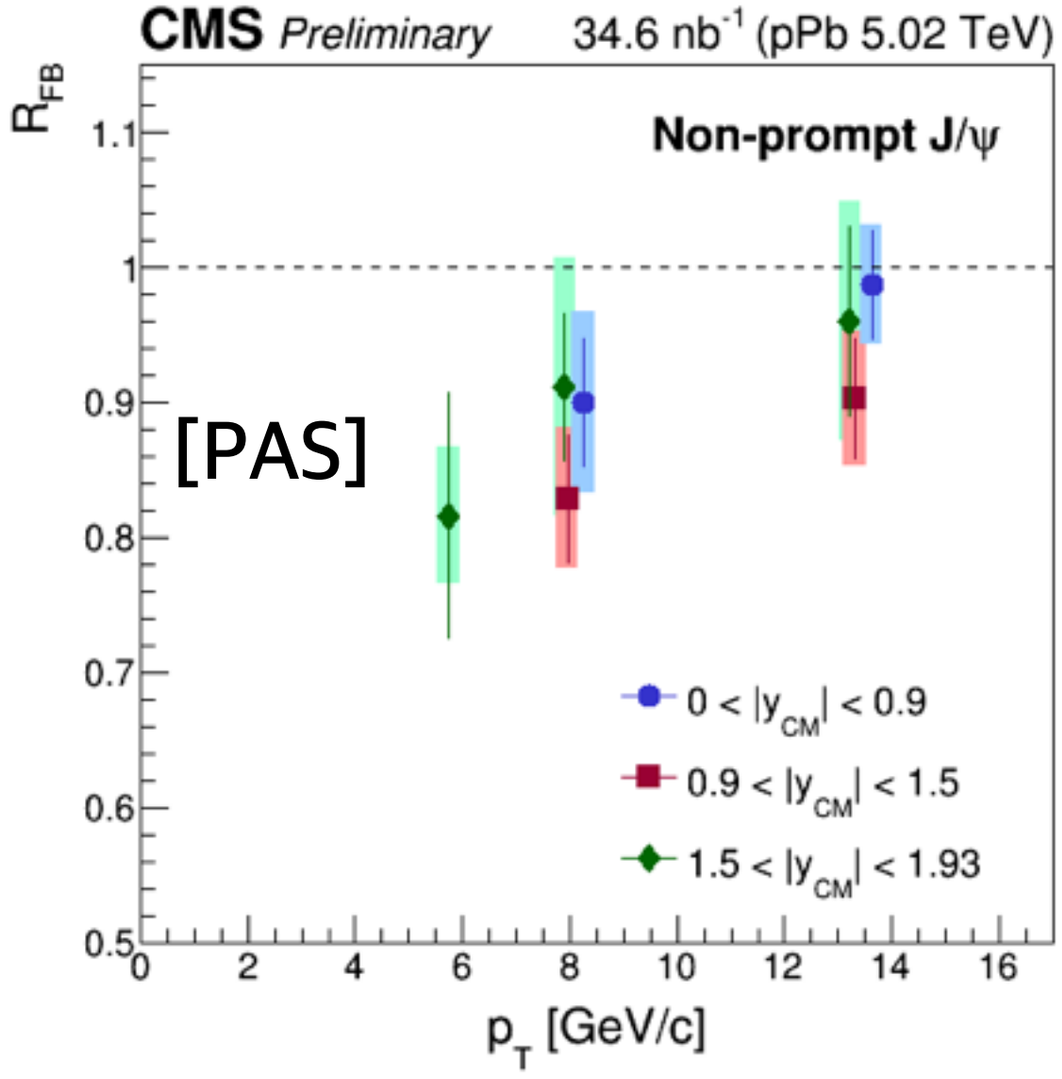
	MC	FIT	pPb TNP	pp TNP
1st week	Onia Tree muon ID distributions Initial Acc. & Eff z vertex reweight		TNP SKIMMING (KISOO?)	co-work with Camelia & Anna
2nd week		nominal fits	SF calculation	
3rd week	Reco pT reweight			
4th week	Final Acc. & Eff Compare old and new single muon cut for Acc, Eff, fit, TNP		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

A. PAS (ptWeighted)

- oldcut, PASfit, PASMC, root5





0.75, 0.85, 0.91

0.83, 0.92

0.85, 0.96

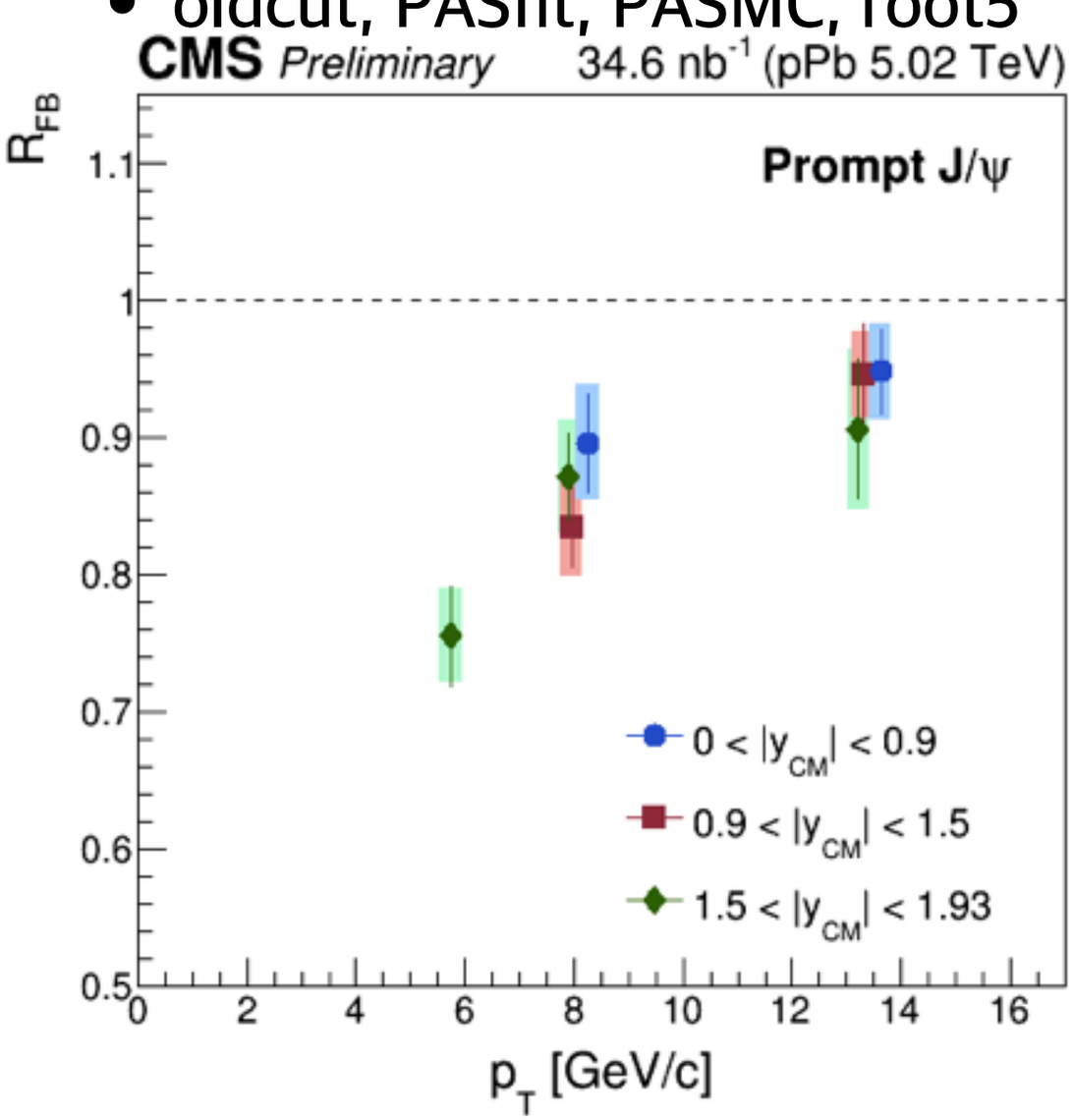
0.82, 0.91, 0.96

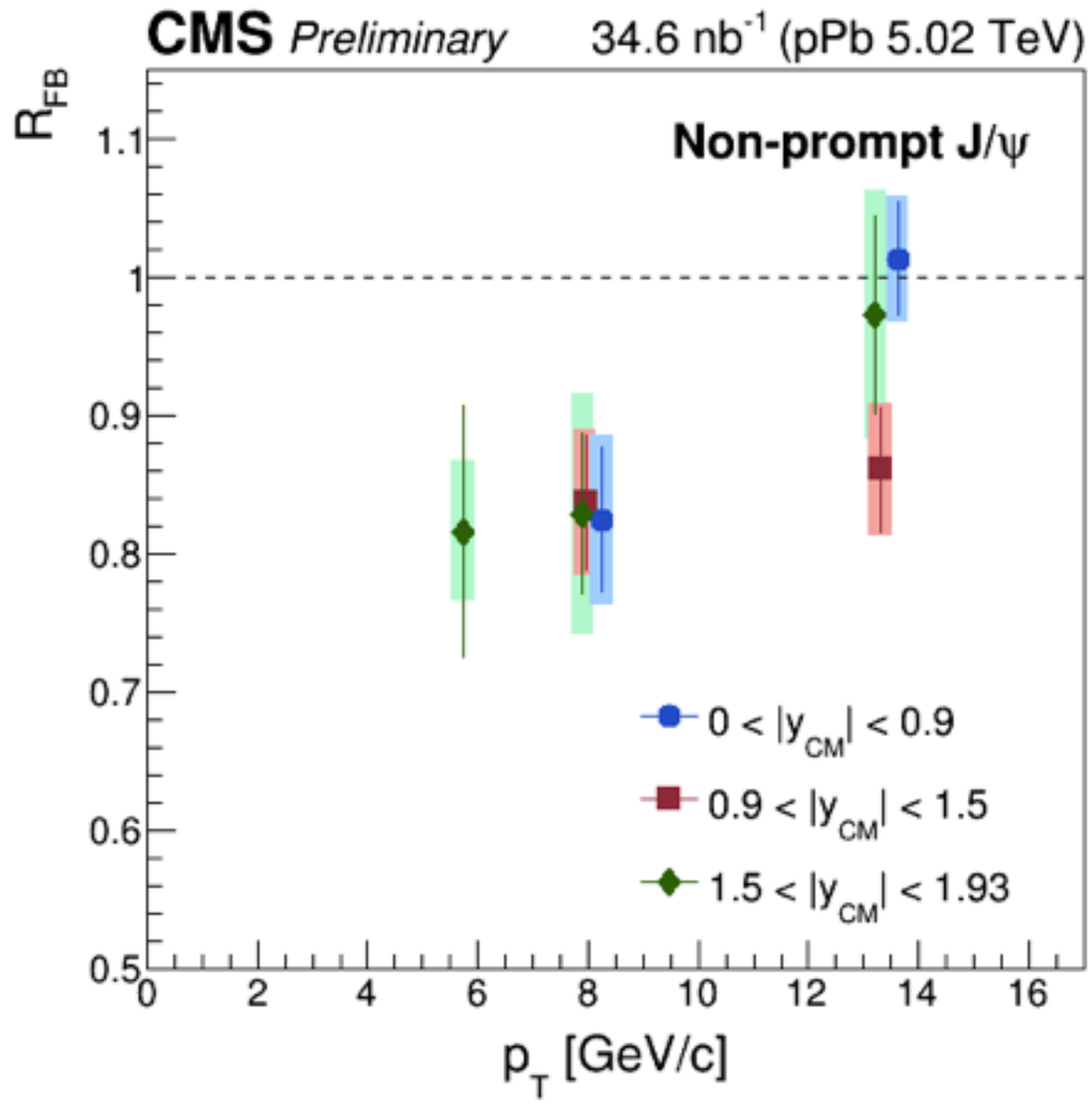
0.83, 0.90

0.90, 0.98

B. noPtW, Brel

- oldcut, PASfit, PASMC, root5





0.76, 0.87, 0.91

0.83, 0.95

0.90, 0.95

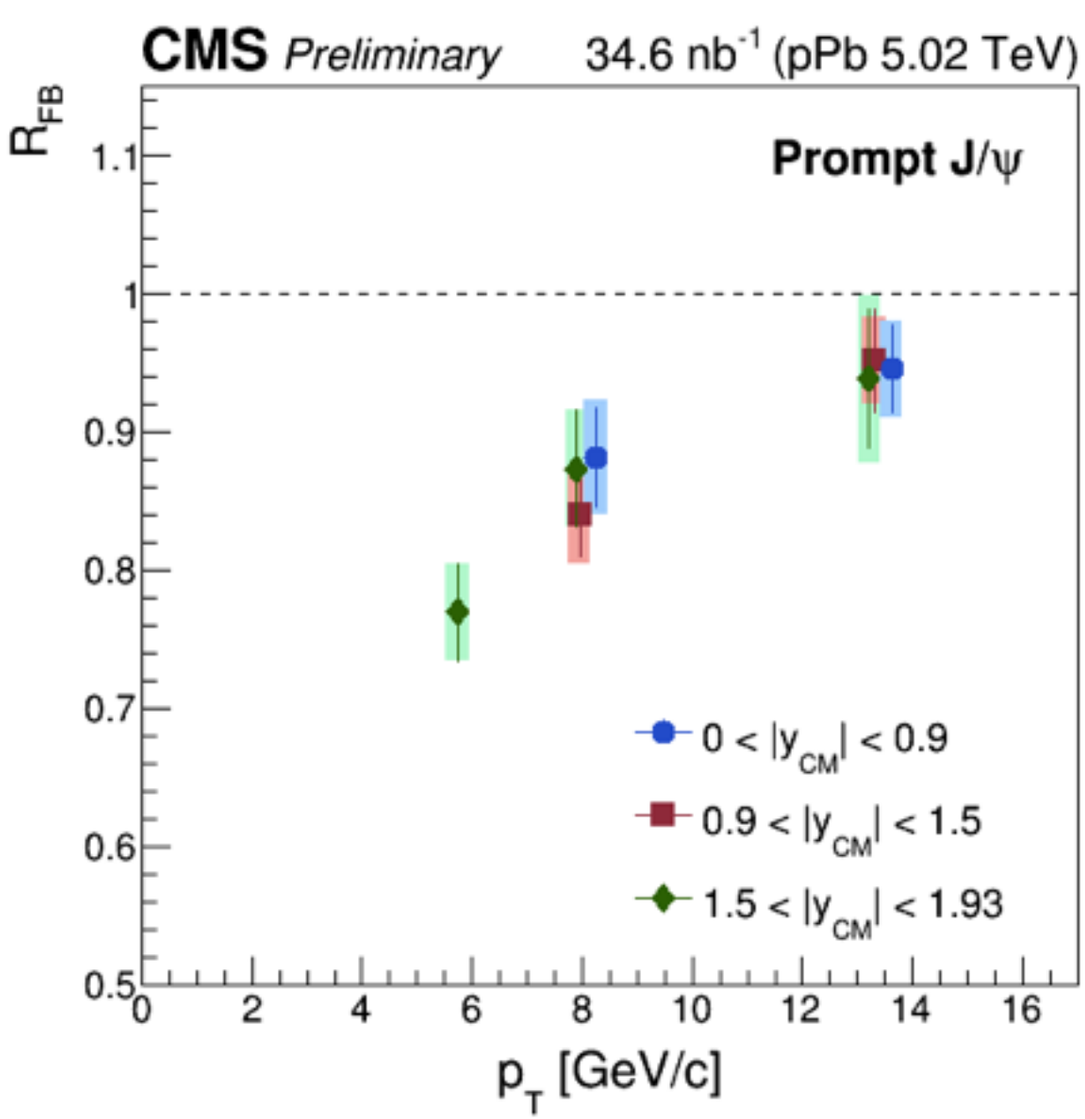
0.82, 0.83, 0.97

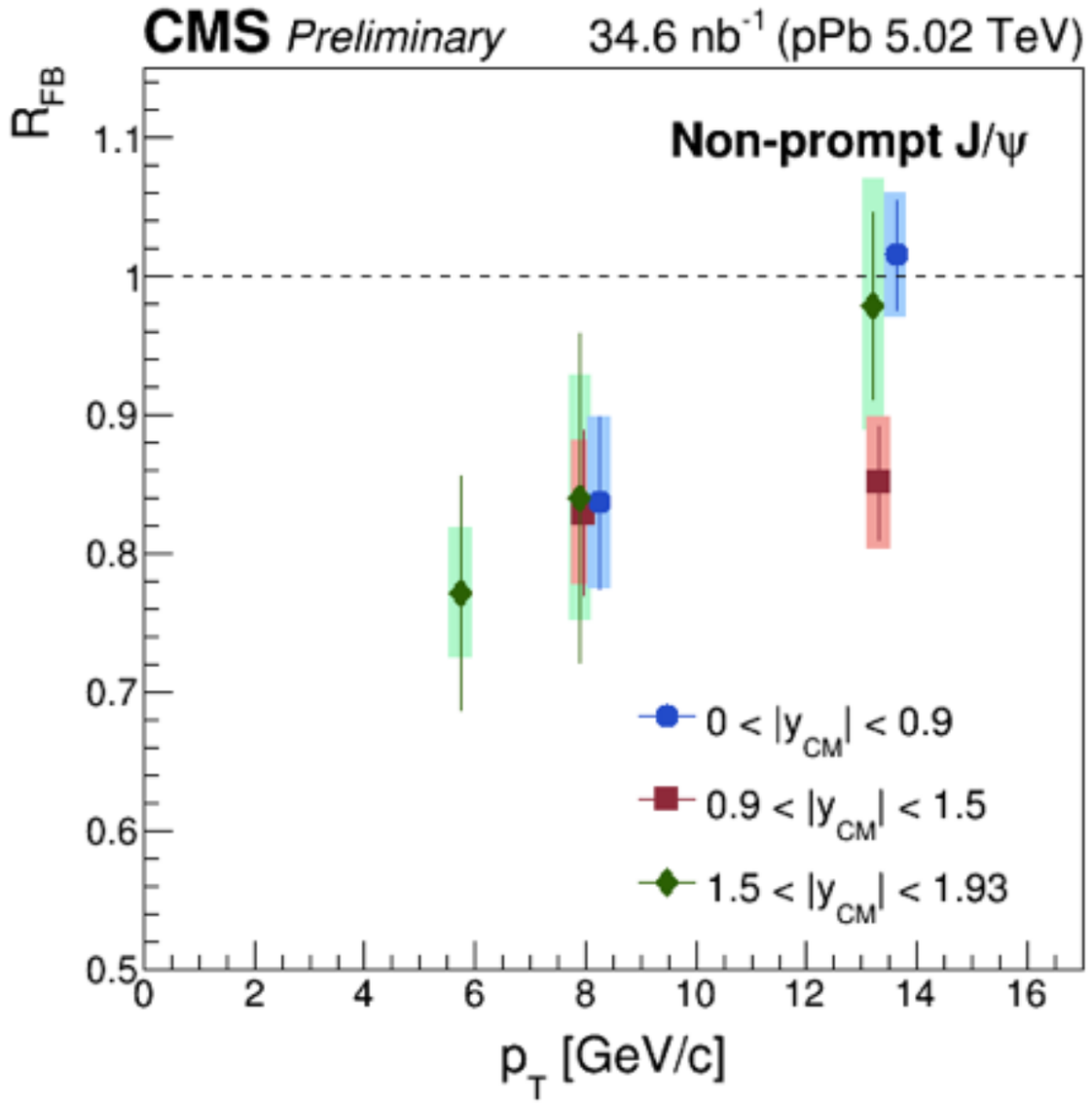
0.84, 0.86

0.83, 1.01

C. noPtW, Brel, no z cut

- oldcut, PASfit, PASMC, root5





0.77, 0.87, 0.94

0.84, 0.95

0.88, 0.95

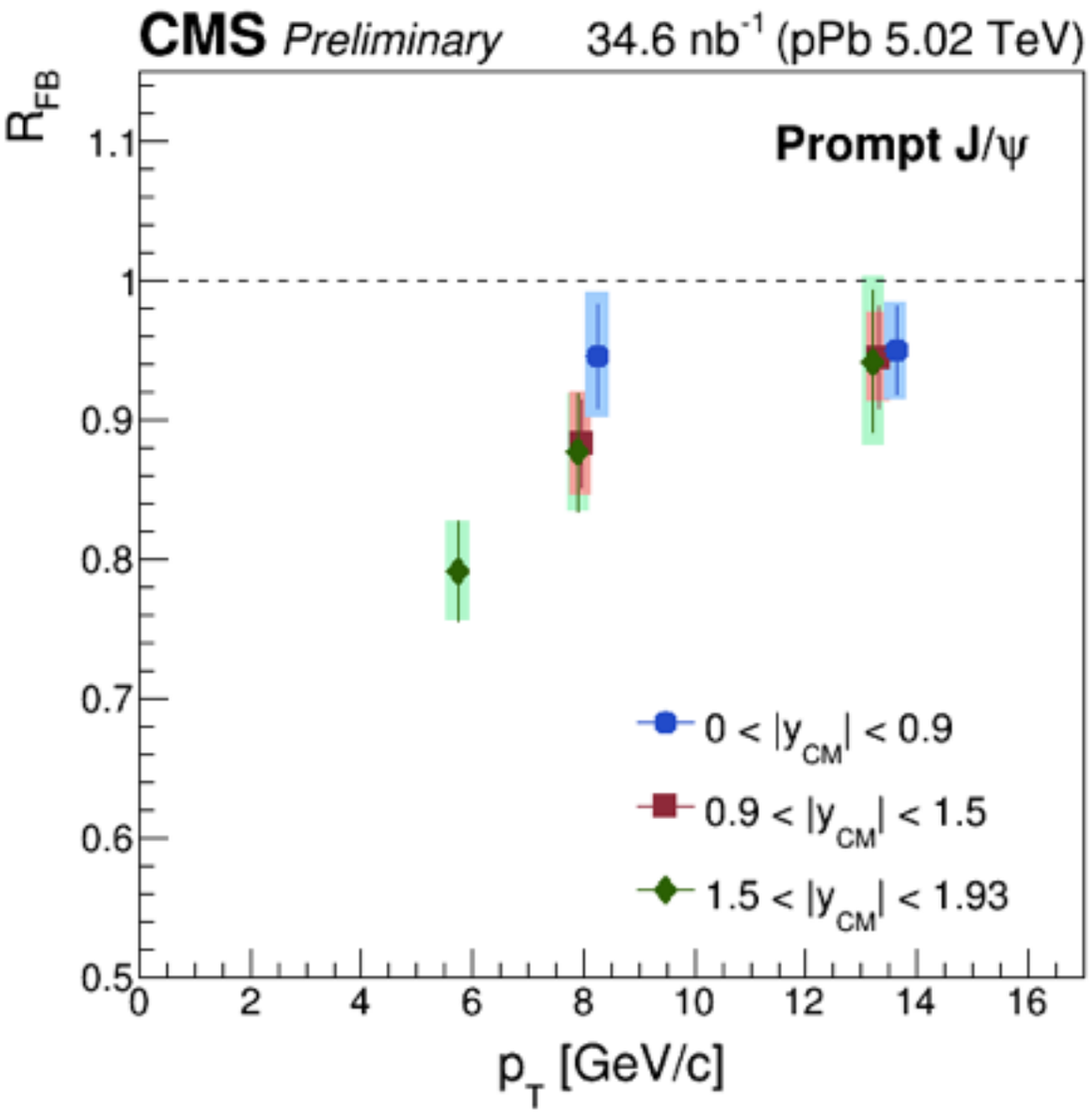
0.77, 0.84, 0.98

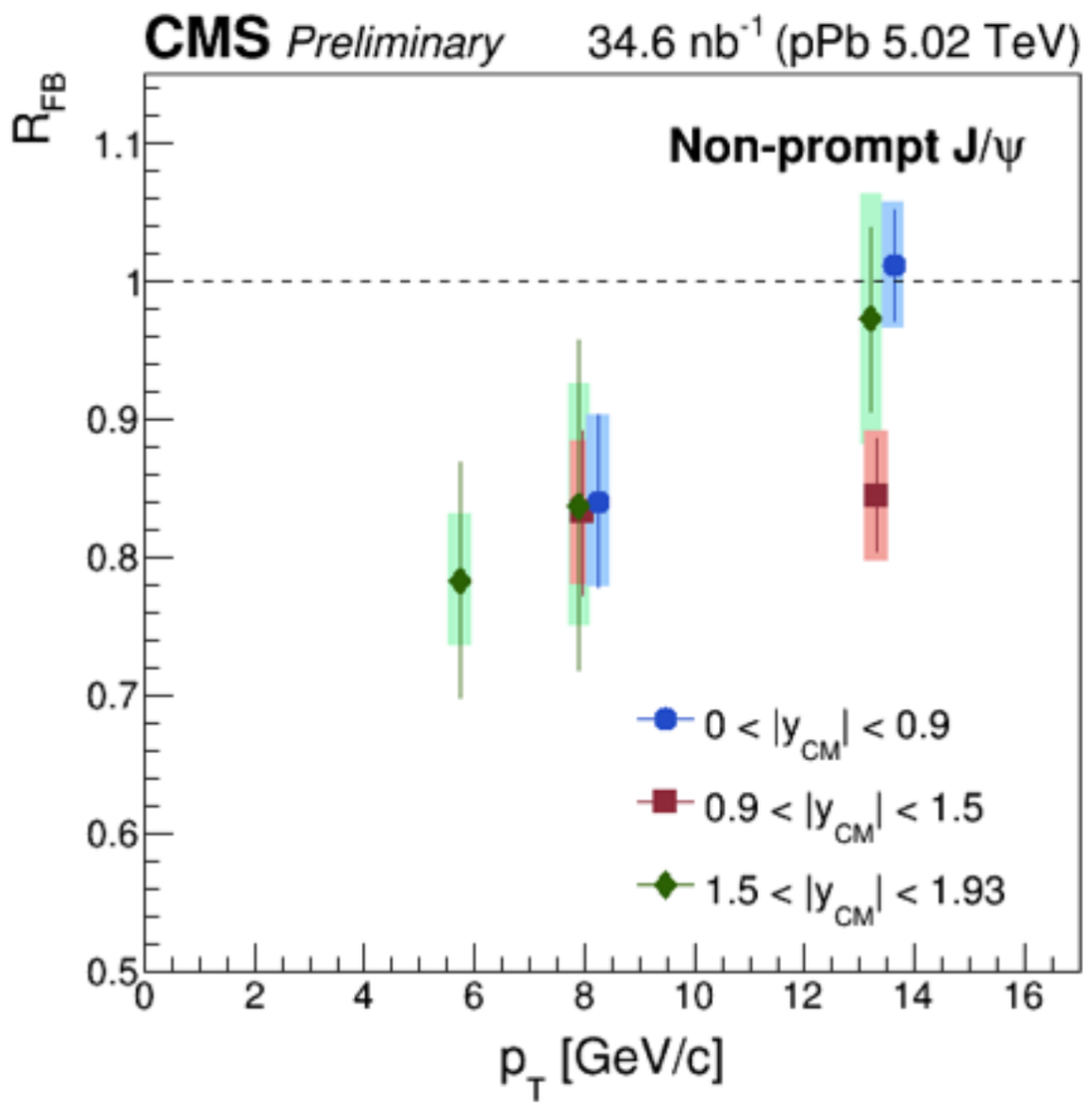
0.83, 0.85

0.84, 1.02

D. noPtW, Brel, no z cut, noCt

- oldcut, PASfit, PASMC, root5





0.79, 0.88, 0.94

0.88, 0.95

0.95, 0.95

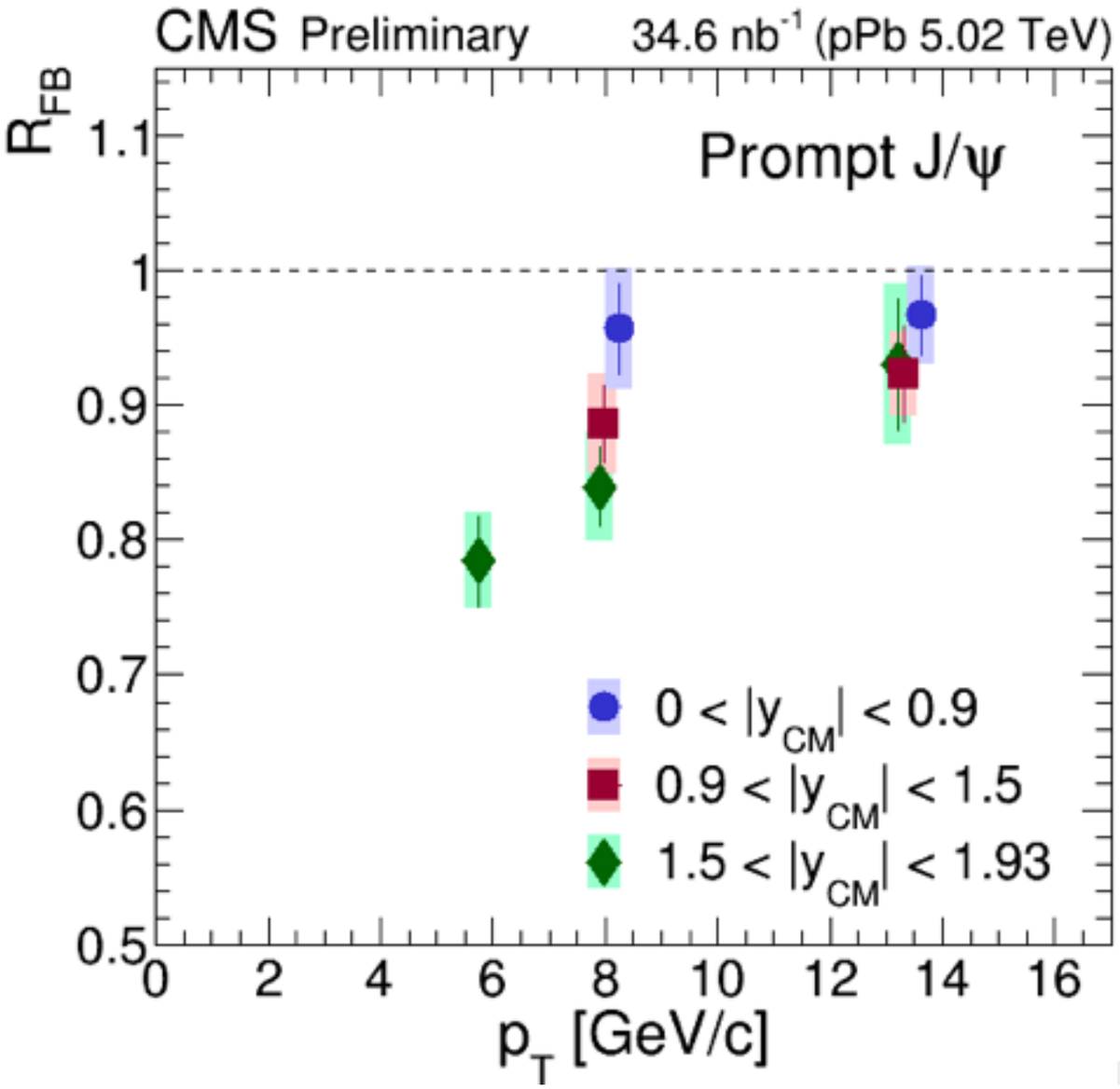
0.78, 0.84, 0.97

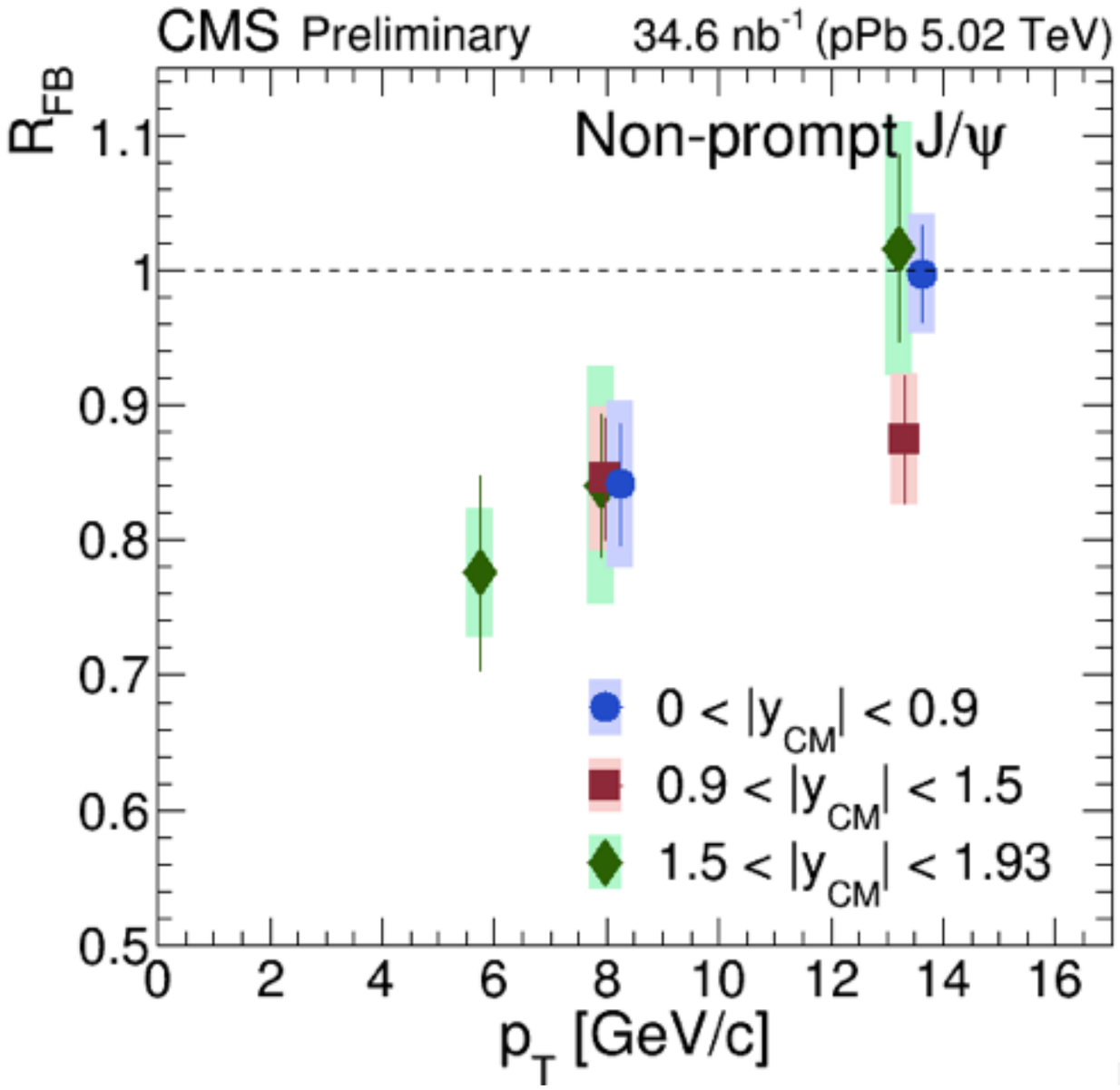
0.83, 0.84

0.84, 1.01

E. Pbp, pPb merged, B release

- oldcut, privfit, privMC





0.79, 0.84, 0.93

0.89, 0.92

0.96, 0.97

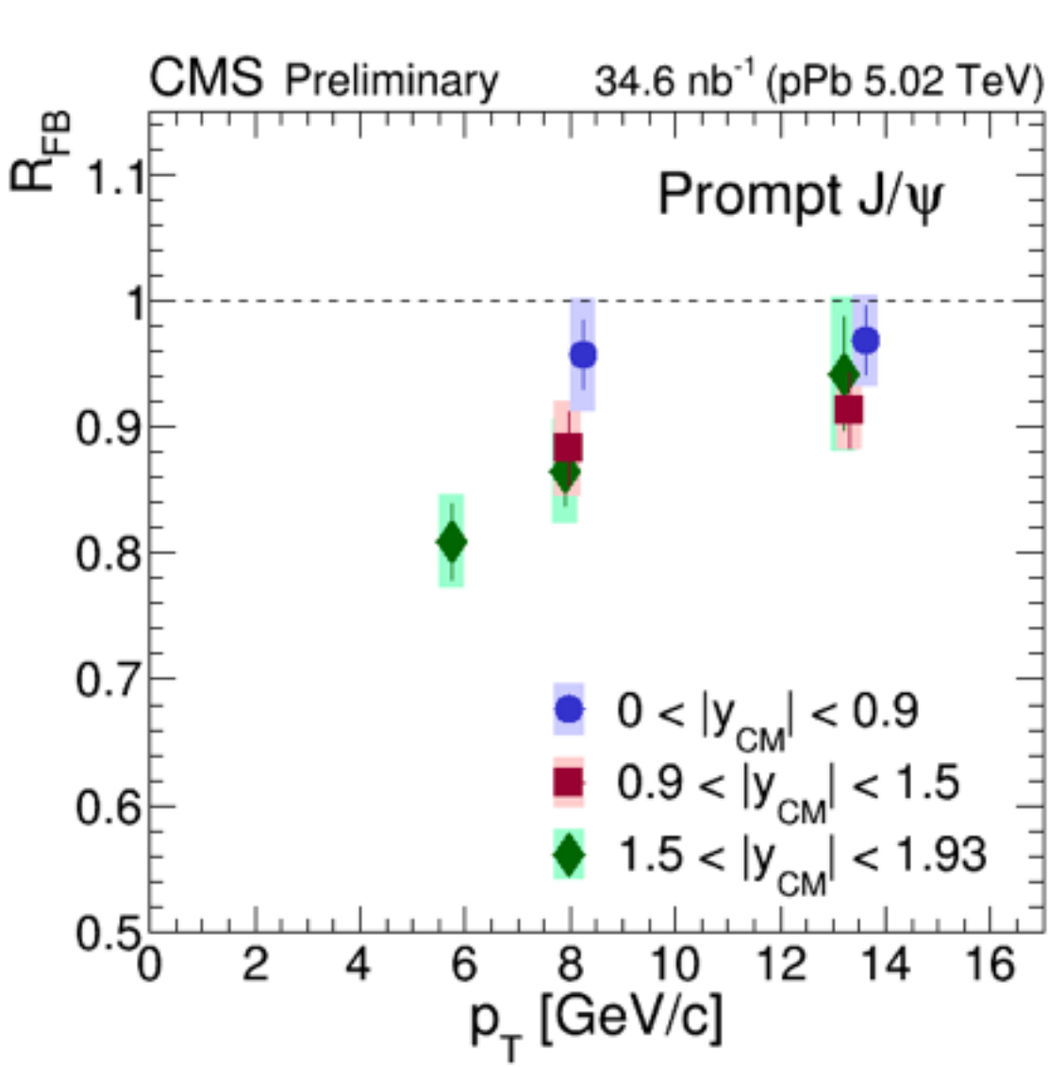
0.78, 0.84, 1.02

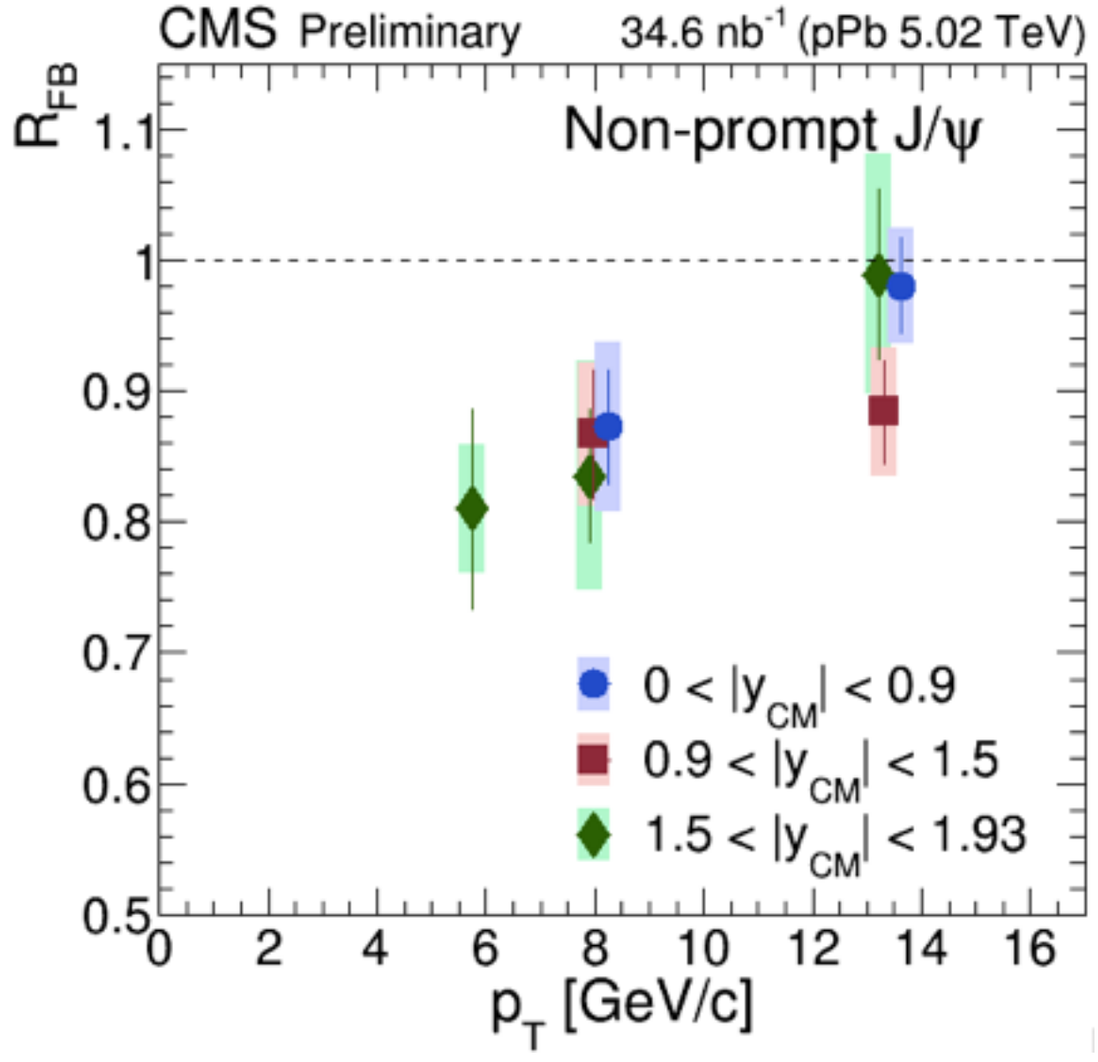
0.85, 0.87

0.85, 1.00

F. Pbp, pPb merged, B release, new MC

[old acc cut, new MC





0.81, 0.86, 0.94

0.88, 0.91

0.96, 0.97

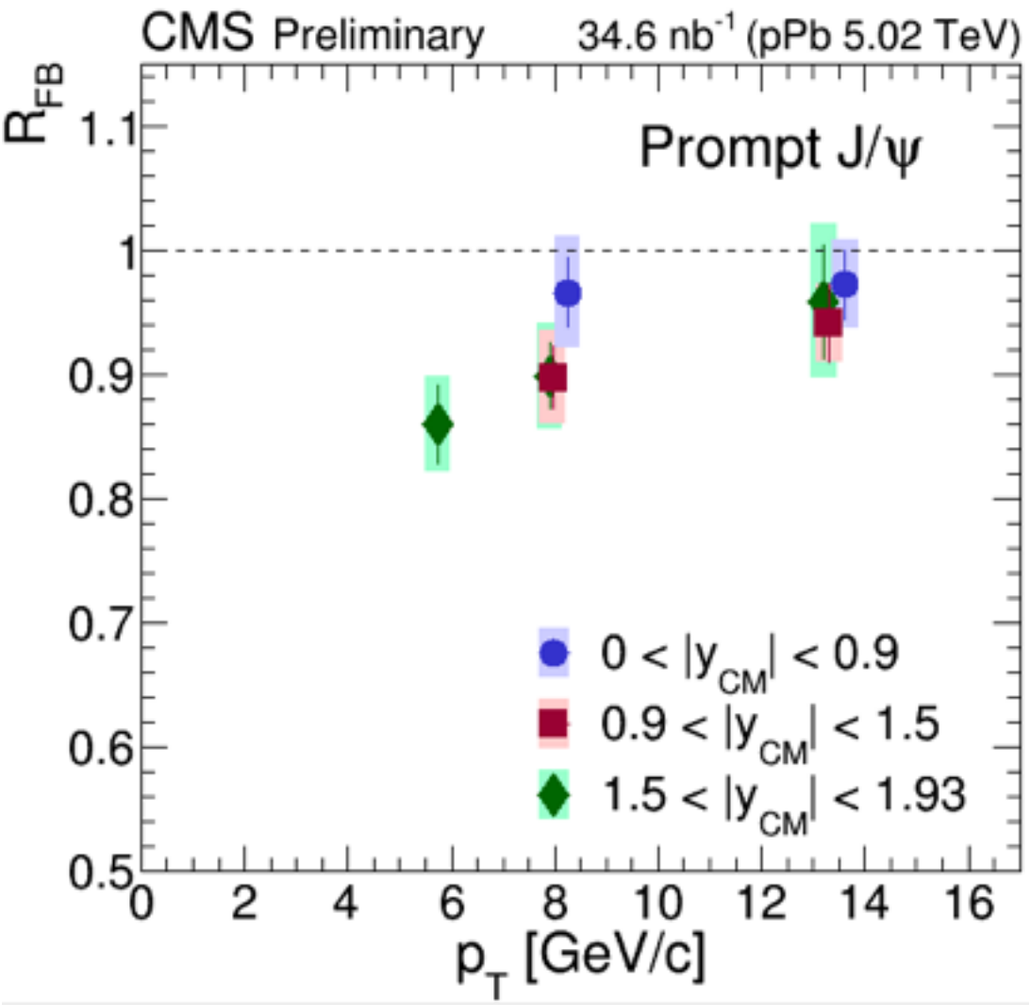
0.81, 0.84, 0.99

0.88, 0.88

0.87, 0.98

G. Final (noPtWeight)

[new acc cut, new MC

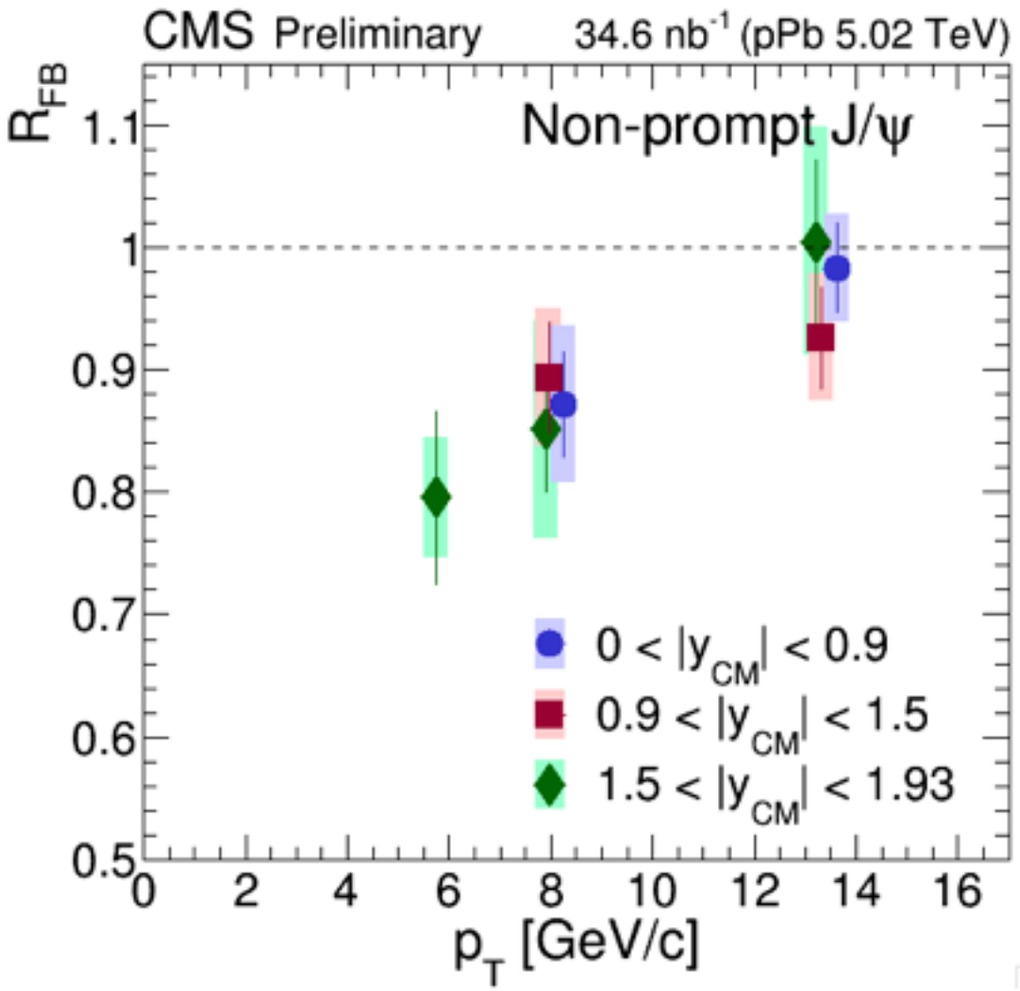


0.86, 0.90, 0.96

0.90, 0.94

0.97, 0.97

[Final]



0.80, 0.85, 1.00

0.89, 0.93

0.88, 0.98