

Status Weekly Ξ_c^0 analysis meeting, Jan. 28, 2021

- **Status**

- Working with Lego Train output

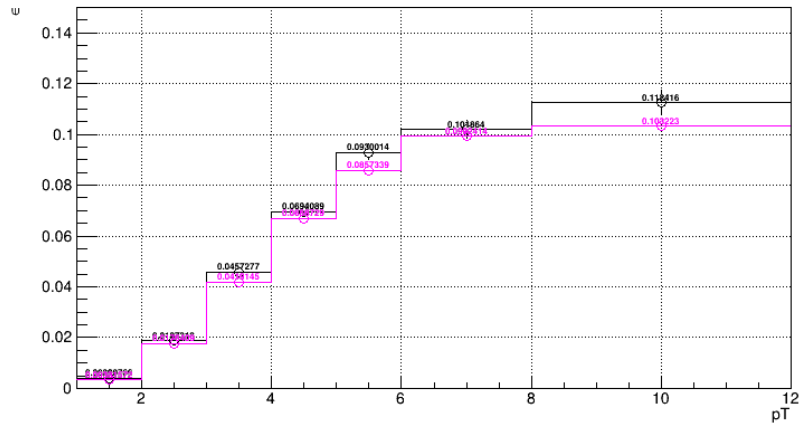
- a. Data trains are finished: year 16, 17, and 18 (* AOD208 processed – NOT AOD234?)
- b. MC trains have minor problems
 - b-1. MC2016 never ends: stuck in status “Train run: All jobs submitted” (submitted in Jan. 20)
 - b-2. Low B-field runs included in MC2017: Jinjoo resubmitted the job, for now I discard events in those runs

- Reviewing analysis flow and parameters

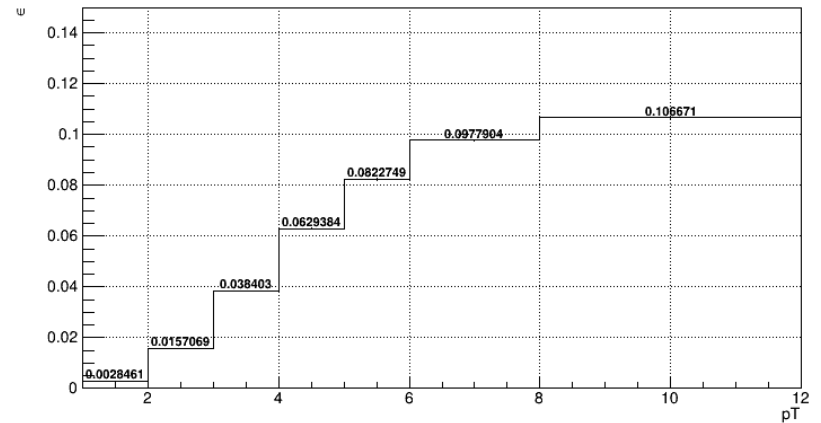
- a. To clarify, let
 - a-1. 1st production: get ROOT output by using AliAnalysisTaskSemiLeptonic... in Grid/LT
 - a-2. 2nd production: get ROOT output for later analysis
 - a-3. Analysis: uses histograms from 2nd production
- b. Trigger + Multiplicity setups:
 - * Currently using all multiplicity percentiles from V0, according to Dr. Beomkyu Kim’s comment (less bias)
 - b-1. MB_0to100, MB_0.1to30, and MB_30to100 – 2nd production results look fine
 - b-2. HMV0_0to1 (Cristina suggested 0 – 0.1) – empty distribution after bottom correction, under debugging
 - b-3. HMSPD_0to0.1
- c. Hard-coded parameters still need to be studied, especially for compatibility among setups

Sanity check Efficiency, MB

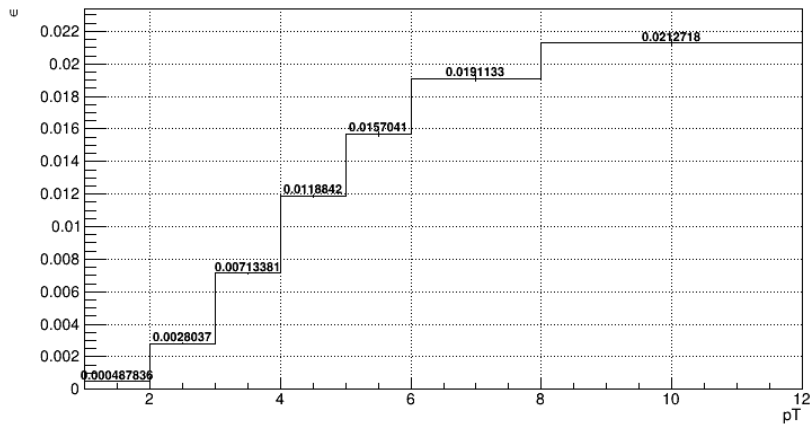
By shlim: PYTHIA6 (black) and 8 (Magenta)



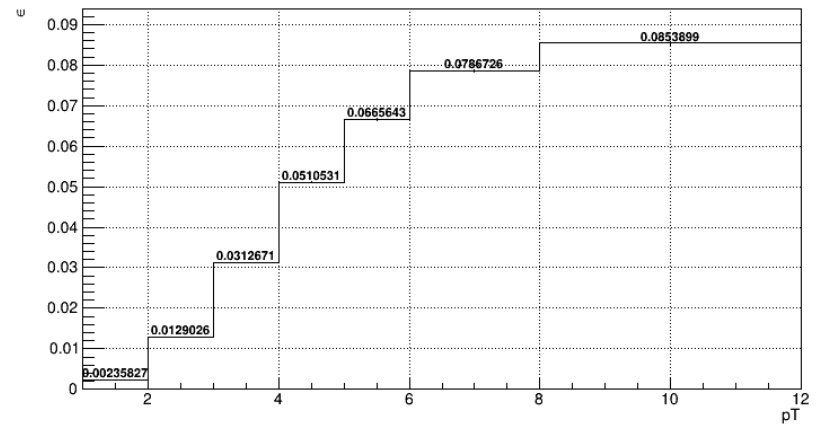
MB_0.0to100.0, Xic0Eff_wgt



MB_0.1to30.0, Xic0Eff_wgt



MB_30.0to100.0, Xic0Eff_wgt



— Results by Prof. Lim ↔ Results by new train output (MC2016 missing):

NOT exactly same, but overall tendency matches

Sanity check # of events processed in MB (data)

```
[AliPhysics/latest] ~/work/Xic0Local $> r1bq Xi0cAnaExecute.C+(true)
Processing Xi0cAnaExecute.C+(true)...
I-TCanvas::Print: png file c1_CMSLb.png has been created
Processing configuration MB_0.0to100.0...
I-TCanvas::Print: png file c1_MB_0.0to100.0_eRec_stand_preFCorr.png has been created

GetBottomCorrSpectrum:: perform fit...
FCN=16.9063 FROM MIGRAD STATUS=CONVERGED 12 CALLS 13 TOTAL
EDM=8.11979e-18 STRATEGY= 1 ERROR MATRIX ACCURATE
EXT PARAMETER
NO. NAME VALUE ERROR STEP FIRST
1 p0 5.53997e-01 1.91378e-02 4.28547e-05 2.10570e-07

I-TCanvas::Print: png file c1_MB_0.0to100.0_eRec_stand_bottomCorr.png has been created
GetUnfoldedSpectrum:: by using out_MCwgt_MB_0.0to100.0.root and method Bayes...
Add truth bin for -153209 fakes
I-TCanvas::Print: png file c1_MB_0.0to100.0_Bayes_stand3_eff.png has been created

Compute nomalization factor for MB_0.0to100.0: [0.0, 100.0] (Bins [1, 1000]): 1.834306332 x 1.e9
Processing configuration MB_0.1to30.0...
W-TCanvas::Constructor: Deleting canvas with same name: preFCorr
I-TCanvas::Print: png file c1_MB_0.1to30.0_eRec_stand_preFCorr.png has been created

GetBottomCorrSpectrum:: perform fit...
FCN=16.9063 FROM MIGRAD STATUS=CONVERGED 12 CALLS 13 TOTAL
EDM=8.11979e-18 STRATEGY= 1 ERROR MATRIX ACCURATE
EXT PARAMETER
NO. NAME VALUE ERROR STEP FIRST
1 p0 5.53997e-01 1.91378e-02 4.28547e-05 2.10570e-07

W-TCanvas::Constructor: Deleting canvas with same name: bottomCorr
I-TCanvas::Print: png file c1_MB_0.1to30.0_eRec_stand_bottomCorr.png has been created
GetUnfoldedSpectrum:: by using out_MCwgt_MB_0.1to30.0.root and method Bayes...
Add truth bin for -25869.6 fakes
W-TCanvas::Constructor: Deleting canvas with same name: eff
I-TCanvas::Print: png file c1_MB_0.1to30.0_Bayes_stand3_eff.png has been created

Compute nomalization factor for MB_0.1to30.0: [0.1, 30.0] (Bins [2, 300]): 0.515254495 x 1.e9
Processing configuration MB_30.0to100.0...
W-TCanvas::Constructor: Deleting canvas with same name: preFCorr
I-TCanvas::Print: png file c1_MB_30.0to100.0_eRec_stand_preFCorr.png has been created

GetBottomCorrSpectrum:: perform fit...
FCN=16.9063 FROM MIGRAD STATUS=CONVERGED 12 CALLS 13 TOTAL
EDM=8.11979e-18 STRATEGY= 1 ERROR MATRIX ACCURATE
EXT PARAMETER
NO. NAME VALUE ERROR STEP FIRST
1 p0 5.53997e-01 1.91378e-02 4.28547e-05 2.10570e-07

W-TCanvas::Constructor: Deleting canvas with same name: bottomCorr
I-TCanvas::Print: png file c1_MB_30.0to100.0_eRec_stand_bottomCorr.png has been created
GetUnfoldedSpectrum:: by using out_MCwgt_MB_30.0to100.0.root and method Bayes...
Add truth bin for -127337 fakes
W-TCanvas::Constructor: Deleting canvas with same name: eff
I-TCanvas::Print: png file c1_MB_30.0to100.0_Bayes_stand3_eff.png has been created

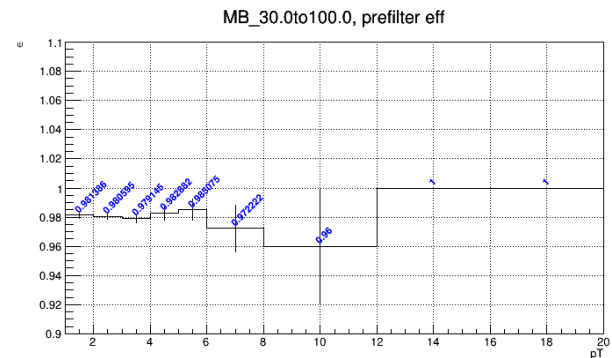
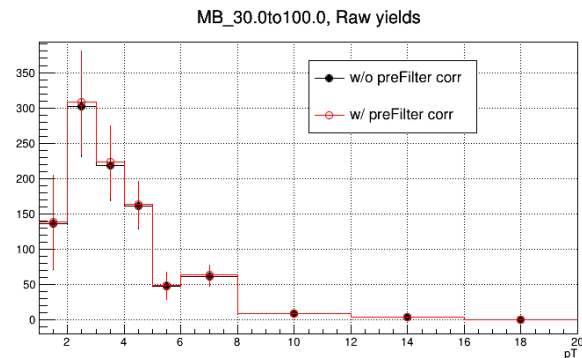
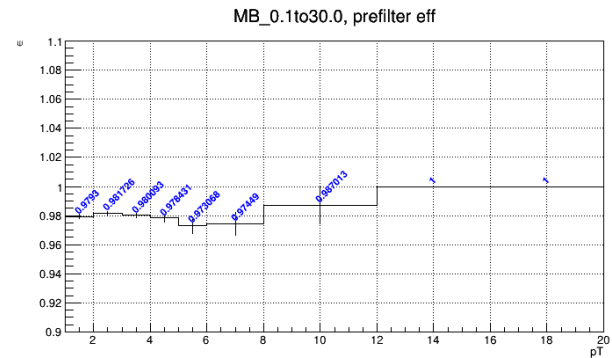
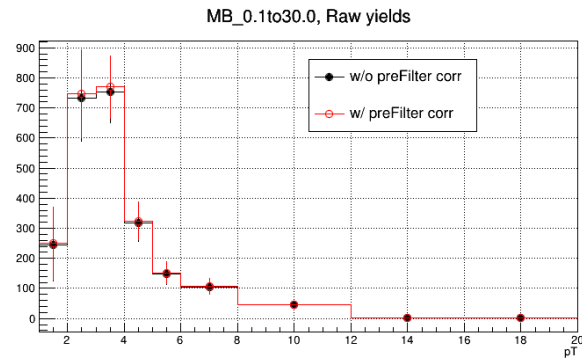
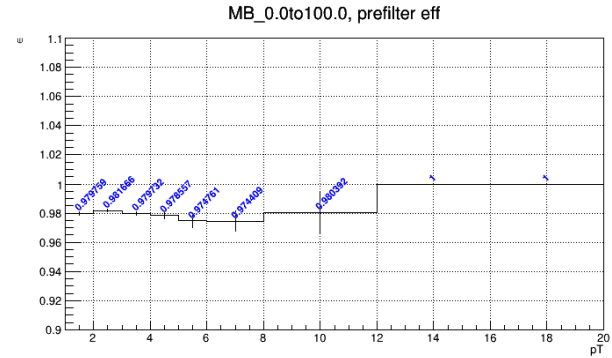
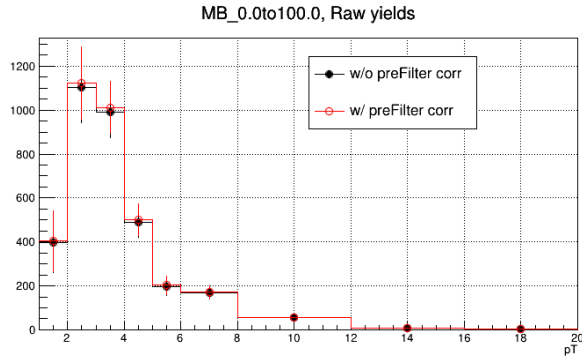
Compute nomalization factor for MB_30.0to100.0: [30.0, 100.0] (Bins [301, 1000]): 1.317432794 x 1.e9
[AliPhysics/latest] ~/work/Xic0Local $>
```

– Previous # of events for normalization

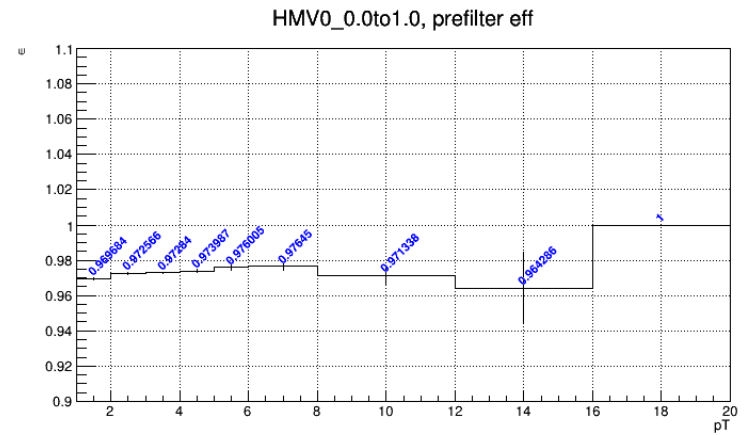
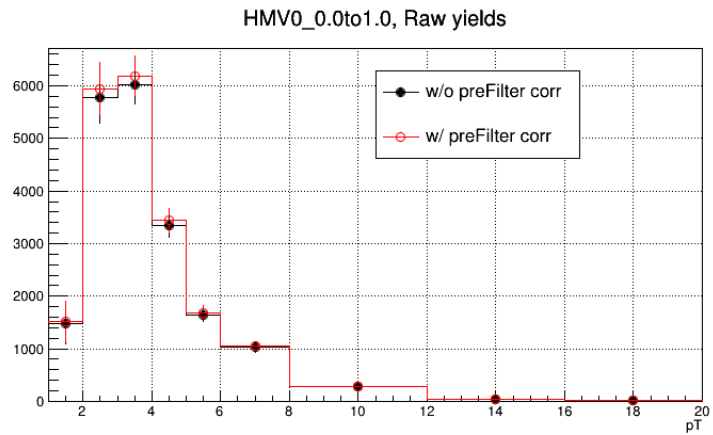
- a. I believe this is MB + goodzvtx
- b. Found in analysis macro by Jinjoo:
1.88554e+09

Backup

Raw yields, MB by multiplicity percentile, prefilter correction

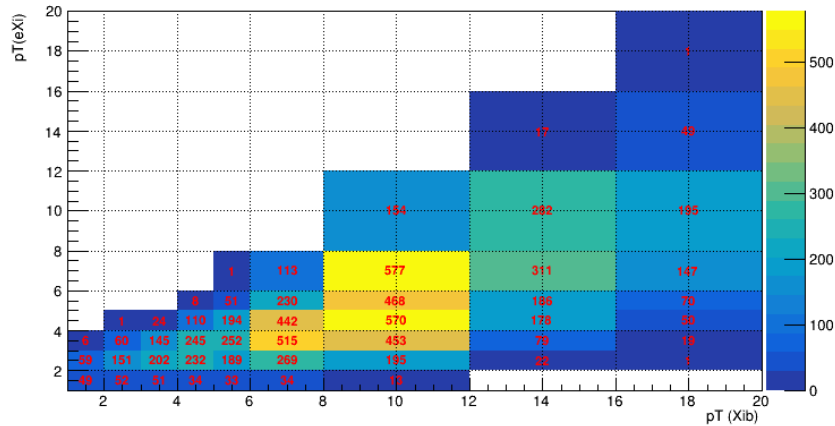


Backup Raw yields, HMV0, prefilter correction

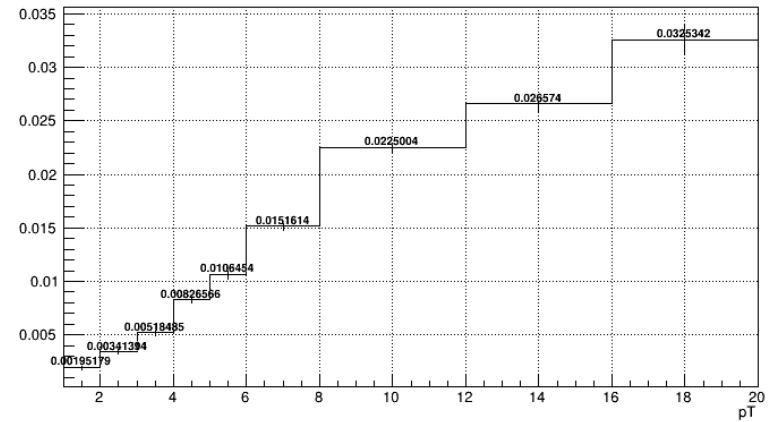


Backup MB, bottom correction, 0 - 100

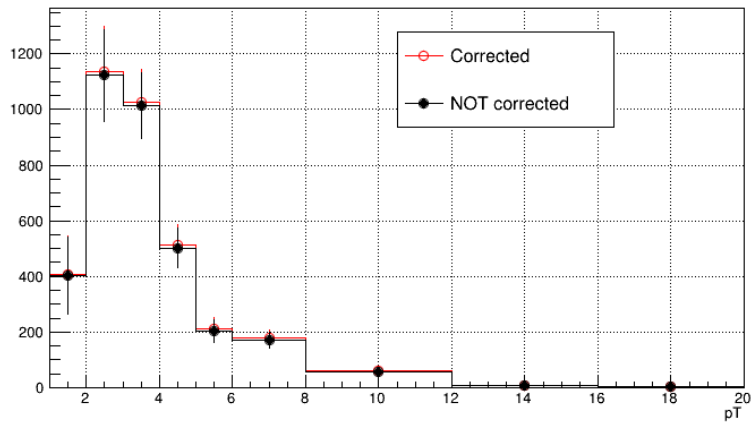
MB_0.0to100.0, Response matrix



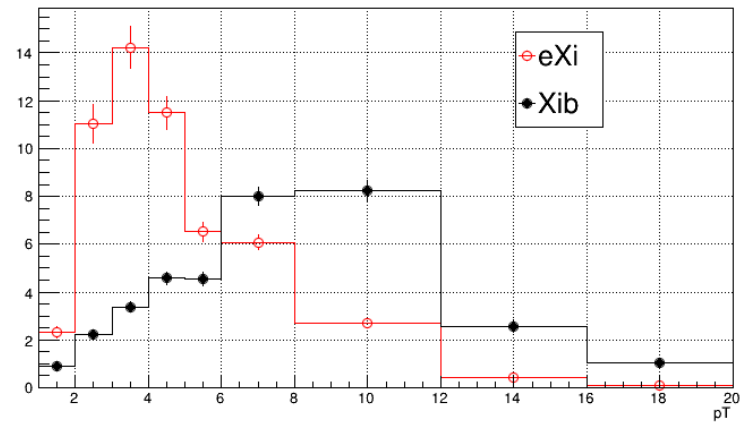
MB_0.0to100.0, Xib eff



MB_0.0to100.0, eXi yields w/ or w/o Xib corr

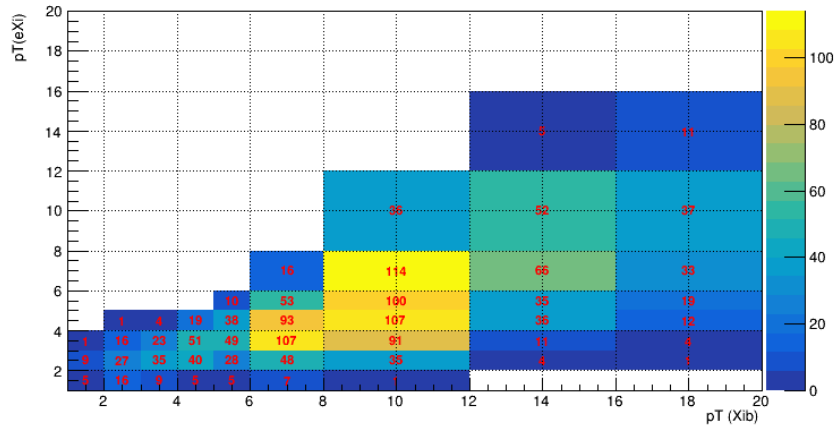


MB_0.0to100.0, eXi from Xib

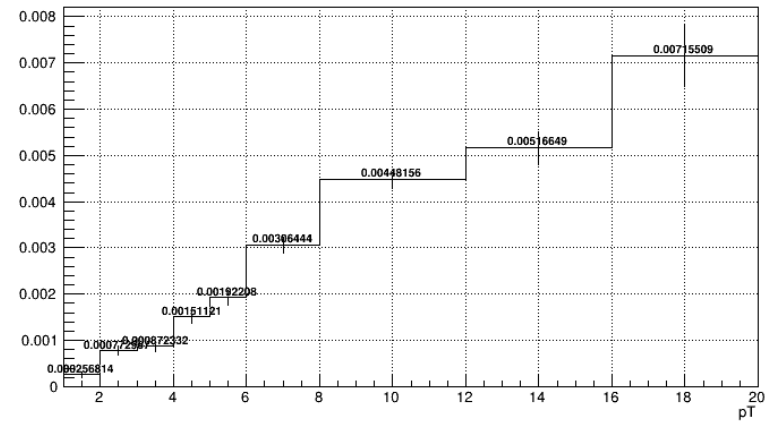


Backup MB, bottom correction, 0.1 - 30

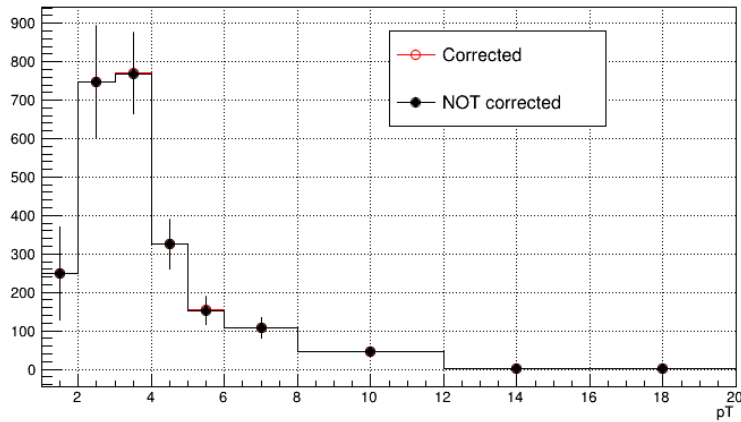
MB_0.1to30.0, Response matrix



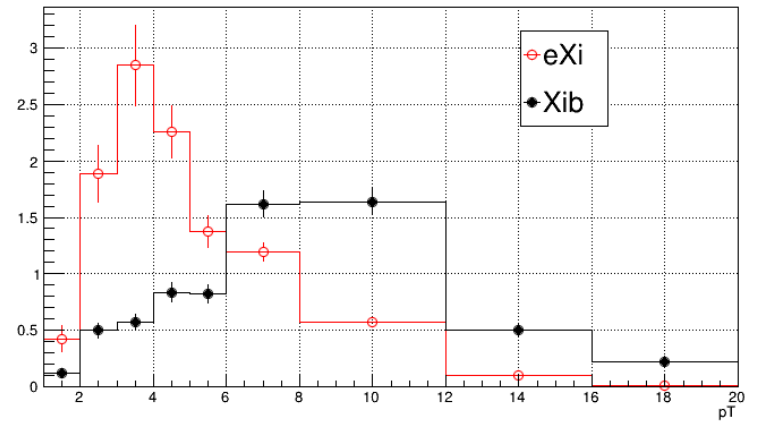
MB_0.1to30.0, Xib eff



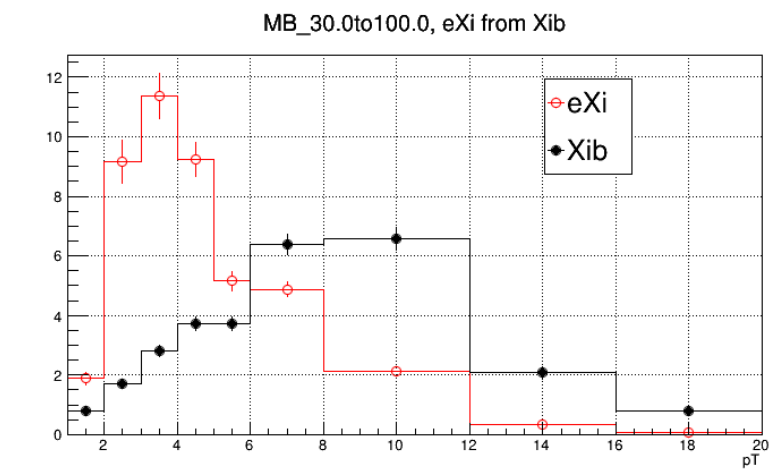
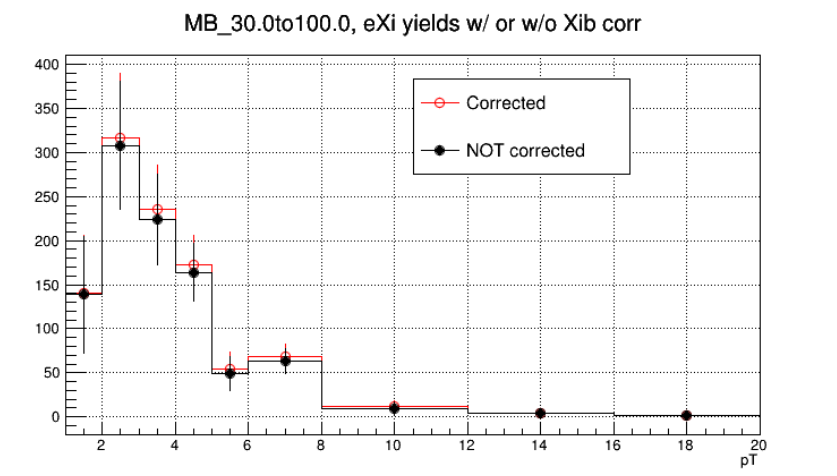
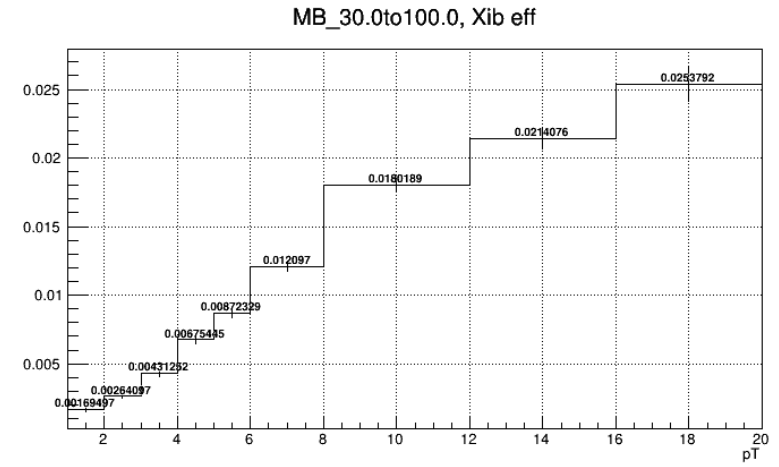
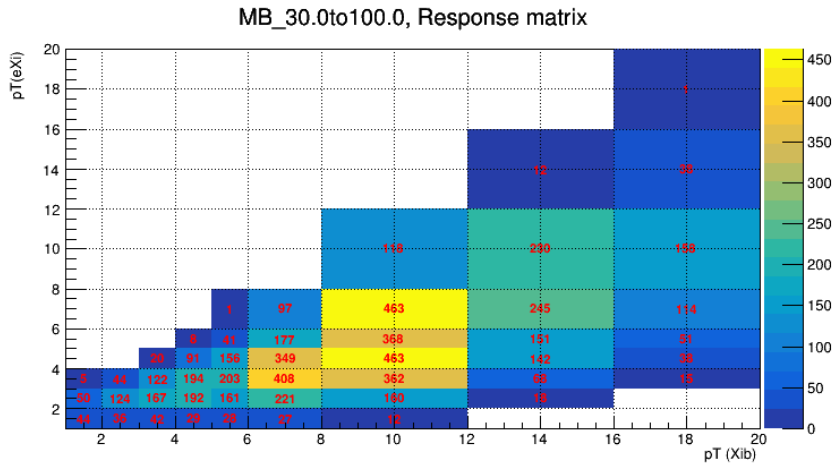
MB_0.1to30.0, eXi yields w/ or w/o Xib corr



MB_0.1to30.0, eXi from Xib



Backup MB, bottom correction, 30 - 100



Backup HMV0, bottom correction, 0 - 1

