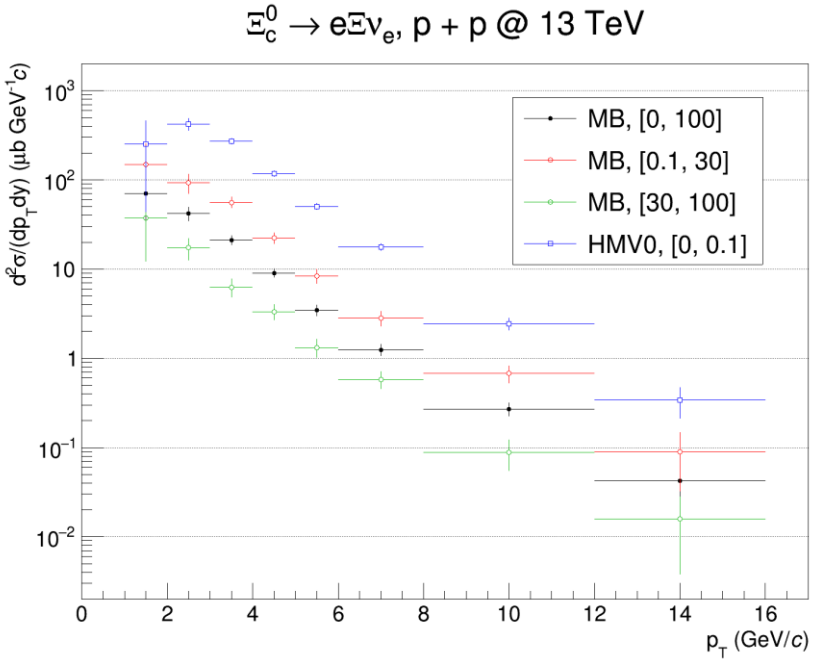
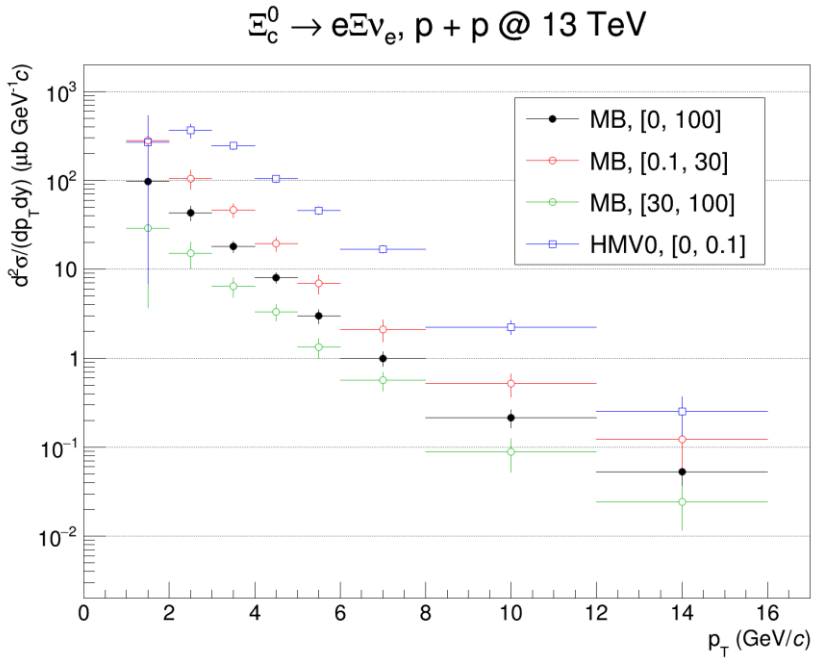
Status Weekly Ξ^0_c analysis meeting, June 30, 2021

- **Status**
  - The analysis has been holds since last D2H meeting in early March
    a. Major comments received
      a-1. Direct comparion to Jinjoo's result by taking ratio (ongoing)
      a-2. Use official normalization method by using ANC (AliNormalizatioNCounter) (done)
      a-3. Saturating final XS for HMV0 + [0, 0.1]: check inv. Mass with separated RS/WS
        a-3-1. Jinjoo confirmed it's an issue related to the opening angle cut's performance
        a-3-2. Intensive cut study is underway by Prof. Lim
    b. Minor updates
      b-1. Restoring analysis chain – reproduce the results at early March (done)
        * Rework is ongoing for xCheck + syst. Error estimation
      b-2. Preparing for applying INEL>0 condition (done)
        b-2-1. Additional ANC update on AliAnalysisTask to handle the # of events w/ INEL>0 cut
        b-2-2. The existing analysis chain can be used directly
  - In this report: added pT weighting factor calculation routine

Reproduction XS w/ recovered analysis chain and May train results



March results



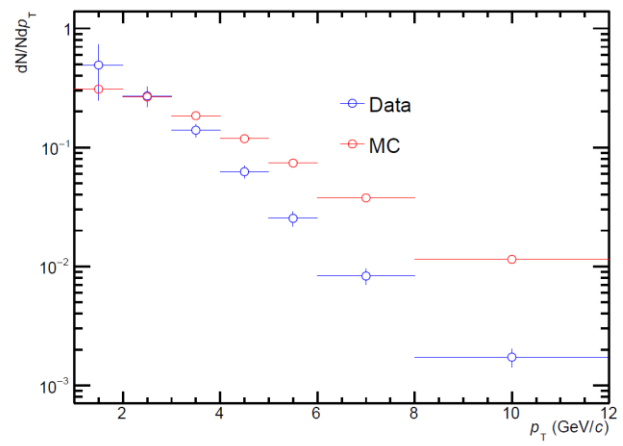
New (marker size enlarged)

pT Weighting Factors

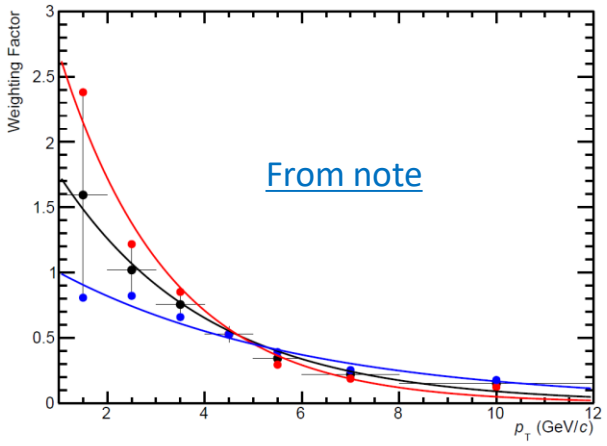
- **Procedures**

1. Raw distributions for reweighting: (* thanks again Jinjoo)
   a. Data: final Xic0 XS
      a-1. Uses unweighted MC (the function set as “1” in Xic0AnaMakeRoot.C)
      a-2. Applied corrections: prefilter, unfolding, and efficiency
      (* correction of bottom oversubtraction is not recovered yet)
   b. MC
      b-1. Uses the unweighted output of “Xic0AnaMakerRoot.C”
      b-2. Histogram “hMCGenInclusive_woW”
2. Normalize each distribution by self integral
3. Get ratio of data/MC (a / b-2)
4. Perform fit by using “expo” function for given pT range (default: [1, 12])

pT Weighting Factors (continue)

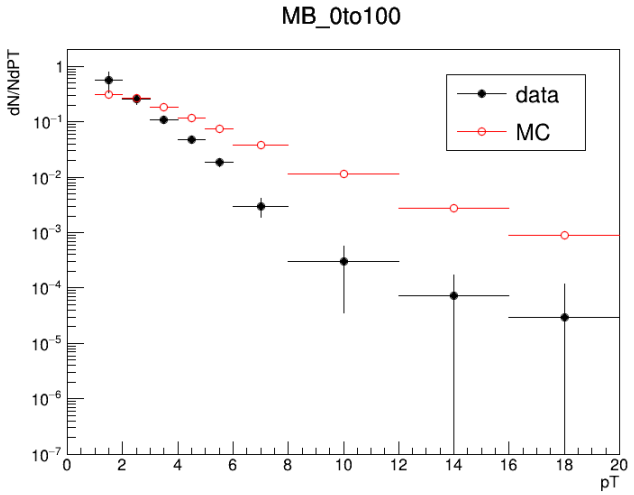


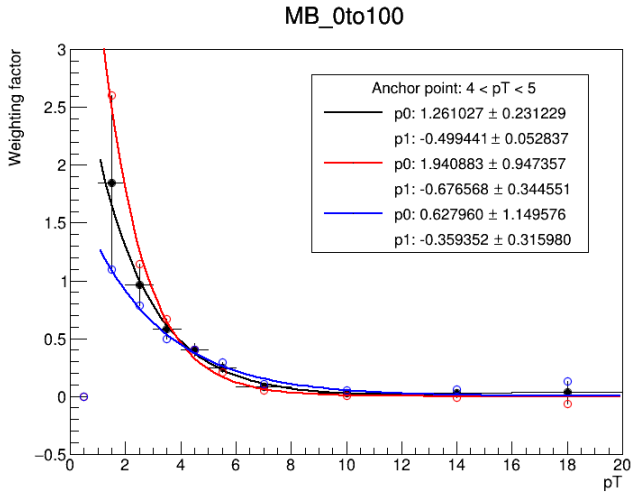
(a) Distribution of p_T: data and Gen-MC



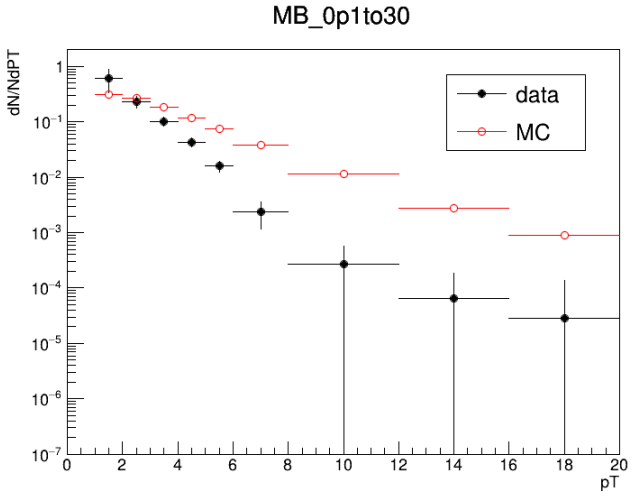
(b) Weights compared with 2 cases

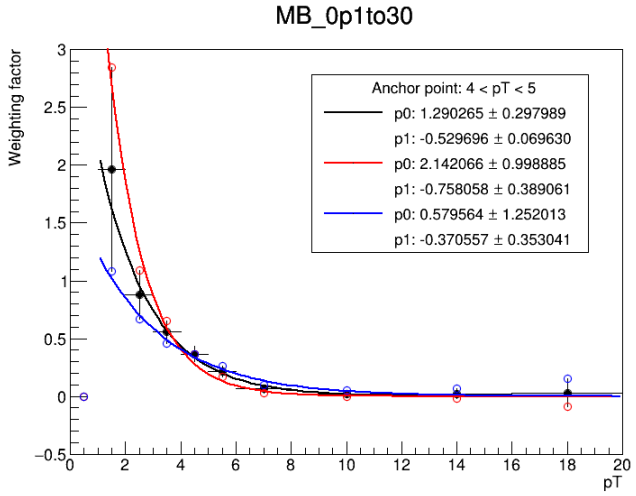
Fig. 23: Weight process at $\sqrt{s} = 13$ TeV .

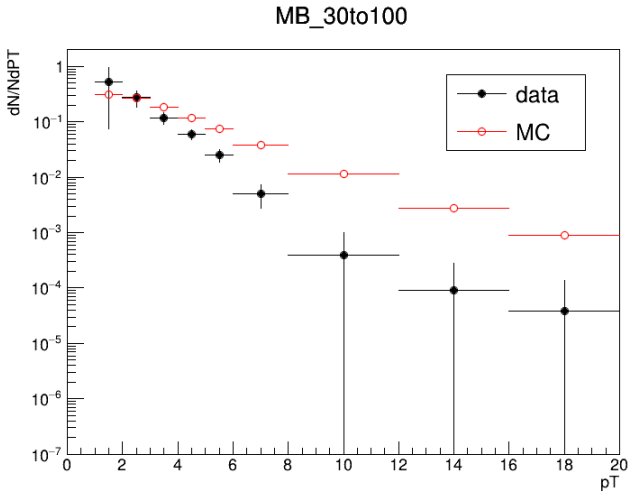


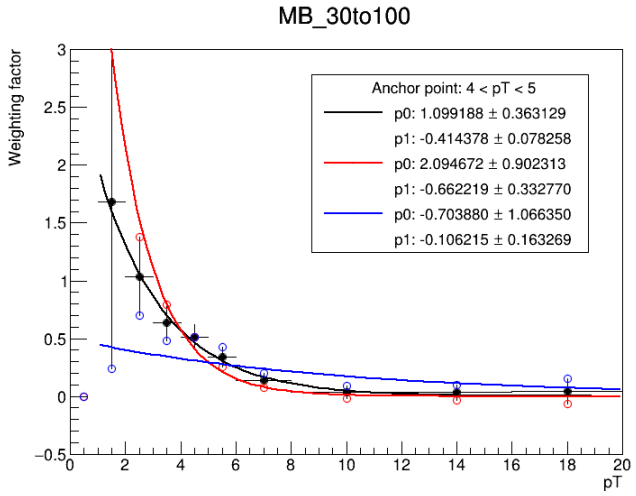


pT Weighting Factors (continue)

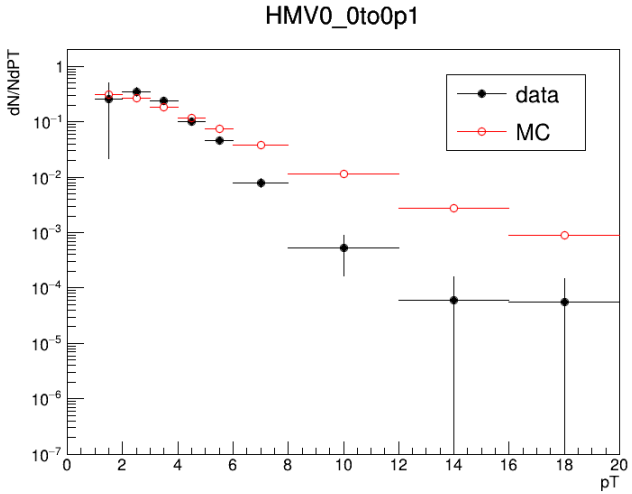


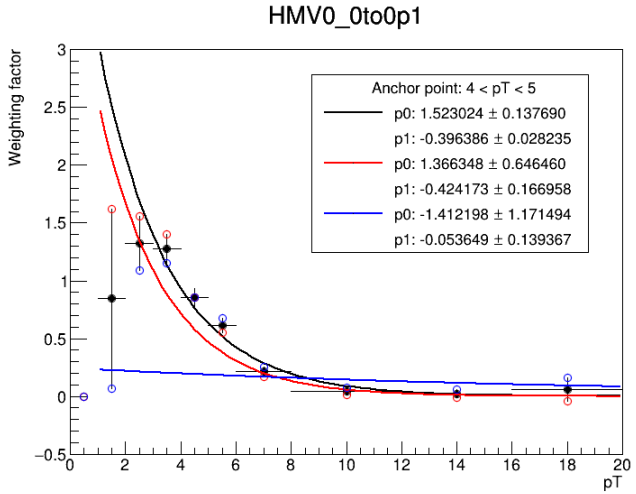




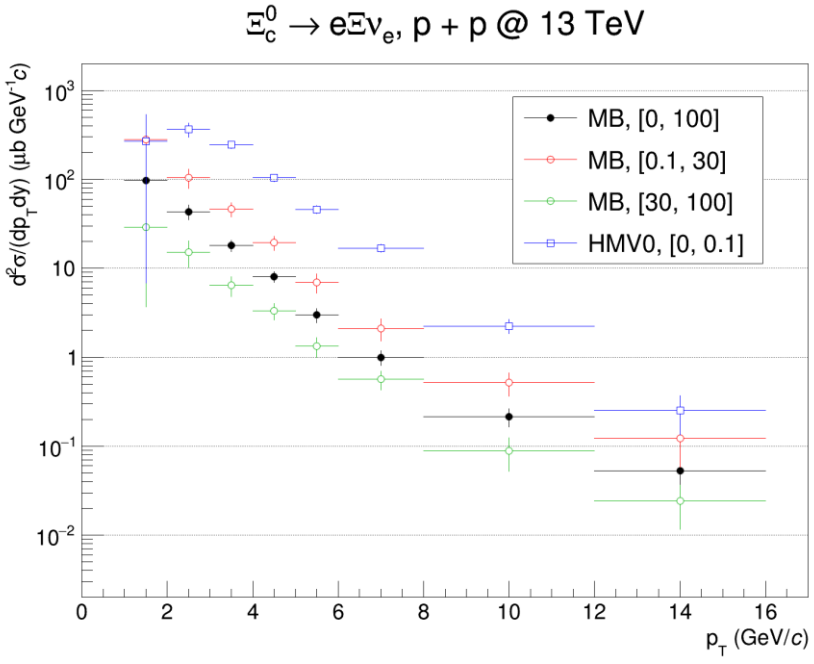


pT Weighting Factors (continue)

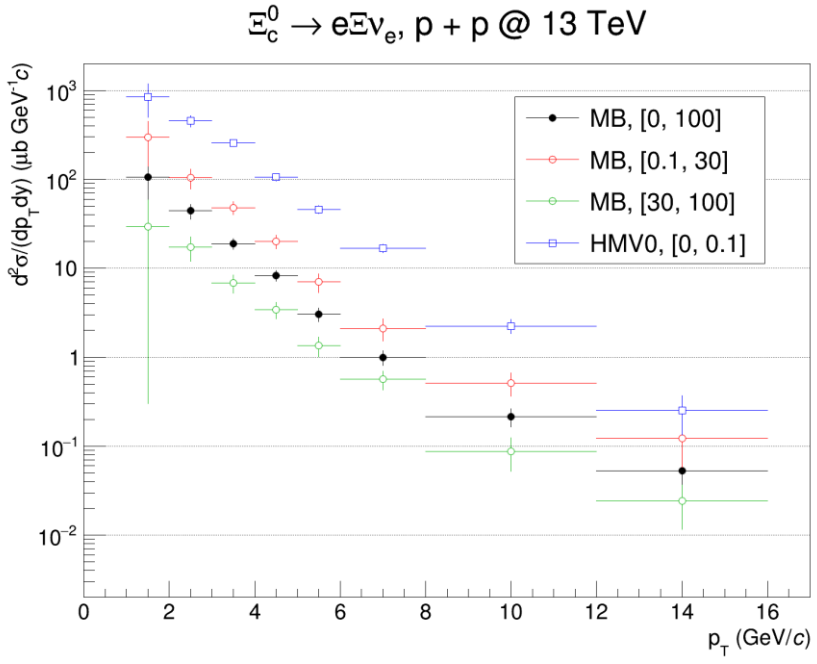




Backup



New



New + tightened OA cut