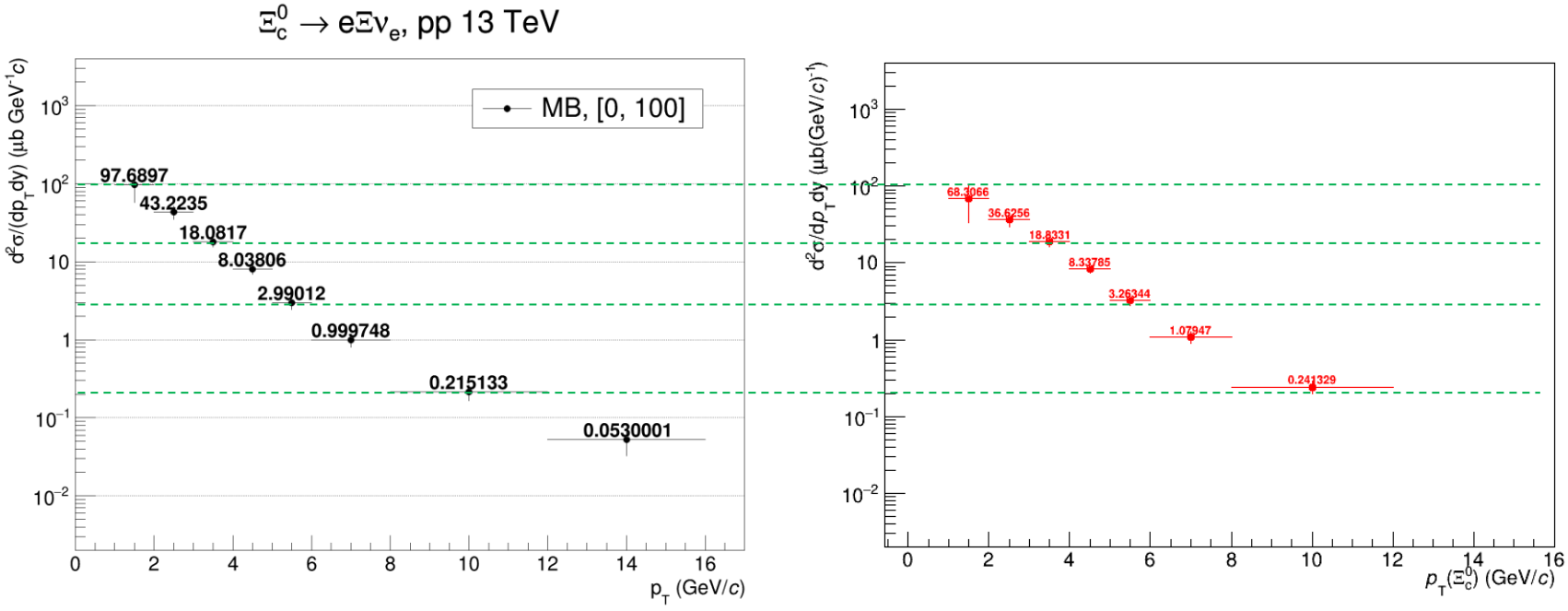
Status Weekly Ξ^0_c analysis meeting, Aug. 11, 2021

- **Status**
  - Code development resumed:
    a. Bottom correction routine added
    b. Still missing “Prompt fraction” routine: need the file
       “ DmesonLcPredictions_13TeV_y05_FFptDepLHCb_BRpythia8_PDG2020.root ”
    c. Preliminary comparison (to Jiinjoo’s results) shows some discrepancy:
       plan to compare each step after all routines are prepared
  - Following slides:
    a. Preliminary comparison (me (prompt correction is missing) vs. Jinjoo)
    b. Review bottom correction procedures w/ a couple of questions

Preliminary comparison

Me (no prompt correction) vs. Jinjoo's result



Me

Jinjoo

- I'll postpone the judgment until prompt fraction routine is added, but…
  a. My results are larger until pT <= 3, but small after that
  b. I don't think the yield will "increase" after prompt correction – thorough comparison will be needed later

Bottom correction

- **Procedures**

1. Get 7 TeV CMS Lb (Lambda_b) spectrum from file
   a. 10 < pT < 50 (GeV)
   b. Scale each bin by " 0.001/4 " ← Why?
   c. Fit the distribution w/ Tsallis function
2. Get the ratio of "13/7 (TeV) FONLL_B meson"
   a. 0 < pT < 20 (GeV)
   b. Binning match to the original eXi distribution (e.g., 1 < pT < 12) by rebinning
3. Scale up "7 TeV CMS Lb" → "13 TeV Lb", by using item 1. and 2.
4. Apply "Xic0 → eXi BR (0.018)" on item 3., and regard it as "13 TeV Xib"
5. Correct item 4. w/ Luminosity, etc:
   a. Luminosity = 1.86437e+09 / (57.8*1000000) (* hard-corded)
      a-1. 1.87 x 1.E9? Currently the yield from ANC is 1.57141e+09
      a-2. 57.8 must be the old V0 xs, what's the 1.E6?
   b. Newly assigned yield after correction = 13 TeV Xib (item 4.) x bin width x Luminosity x 2 (charge)
6. Convert 6. to eXi by using (Xib ↔ eXi response matrix and unfolding)
7. Add item 6. to original (prefilter eff corr) eXi pair yields

Backup Bottom correction processes