

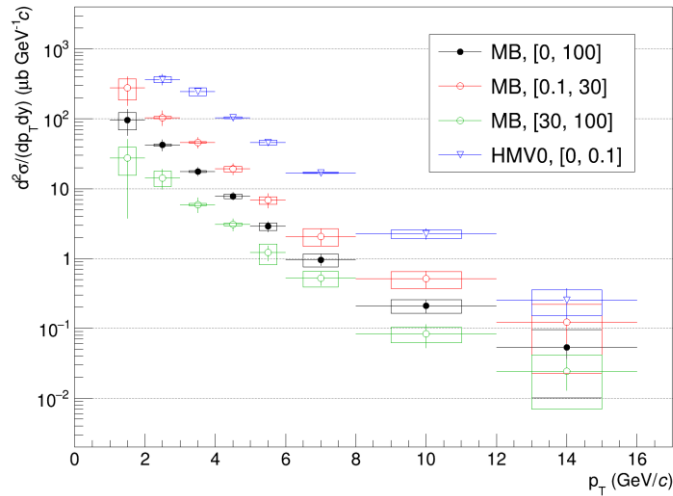
Status Weekly Ξ^0_c analysis meeting, Nov. 11, 2021, CKim

- **Status & Plan**

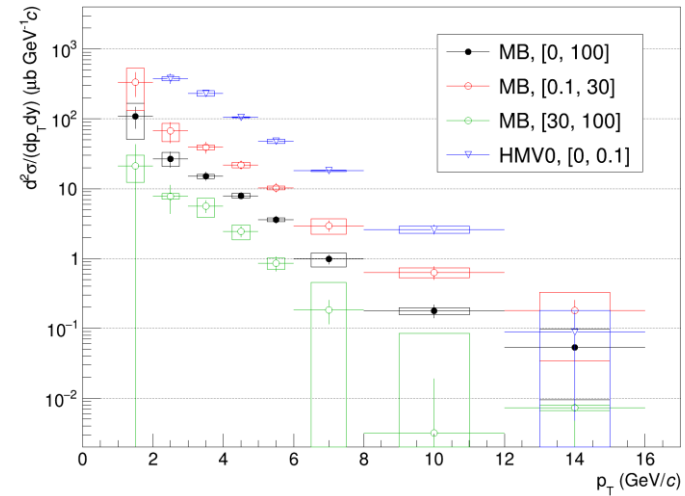
- A new Lego train output (hereafter Nov. train) is available
 - a. **Many thanks to Jinjoo! -_-b (and sorry for pushing you so hard ;;)**
 - b. So far everything (by a few random items and my analysis chain) looks proper and sound
(* major updates: MV based pileup cut, ANC objects, Debug)
- Plan to xCheck w/ Jinjoo and Dr. Bok, in upcoming week
 - a. Target: inclusive MB (= equivalent to MB + [0, 100] in my case), routine by routine xCheck including final flags & syst. err items
 - b. Planned date: Nov. 16-17 (let's finish this once and for all)
 - c. I'll prepare a Google doc, etc before Nov. 16
- Personal plan
 - a. Update to D2H (after xCheck, before end of November)
 - b. Start analysis note writing soon

Nov. train results xSec

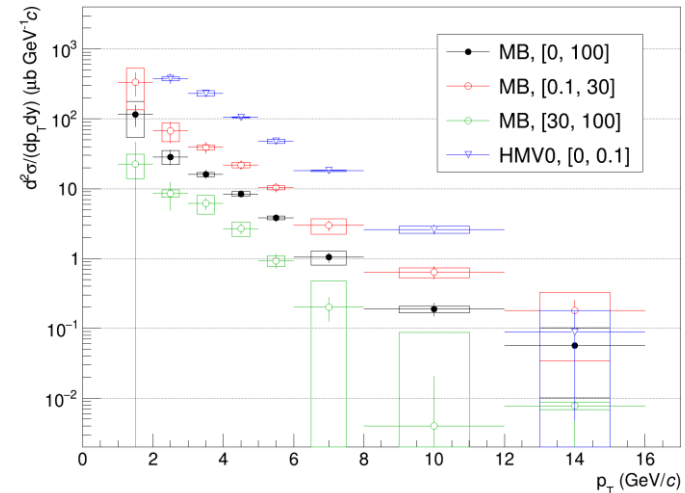
May train



Nov. train



Nov. train, INEL>0



- Looks good enough
 - a. At the very least, the chain works w/o error 😊
 - b. I assume general fluctuation / irregular points (e.g., $8 < p_T < 12$ at MB + [30, 100]) can be improved after tune

Nov. train results # of events by ANC (normalization factor)

- # of events by *ANC*->*GetNEventsForNorm()*

- MB + [0, 100]

- a. Normal (no INEL>0): 1.794 x 1.e9 / Frac: 0.261 (2016), 0.340 (2017), 0.399 (2018) / Weighted V0 xSec: 57.957
 - b. INEL>0: 1.691 x 1.e9 / Frac: 0.262 (2016), 0.340 (2017), 0.398 (2018) / Weighted V0 xSec: 57.958
(* |1.691 - 1.794|/1.794 = 0.057)

- MB + [0.1, 30]

- a. Normal (no INEL>0): 0.502 x 1.e9 / Frac: 0.262 (2016), 0.341 (2017), 0.397 (2018) / Weighted V0 xSec: 57.958
 - b. INEL>0: 0.501 x 1.e9 / Frac: 0.262 (2016), 0.341 (2017), 0.398 (2018) / Weighted V0 xSec: 57.958

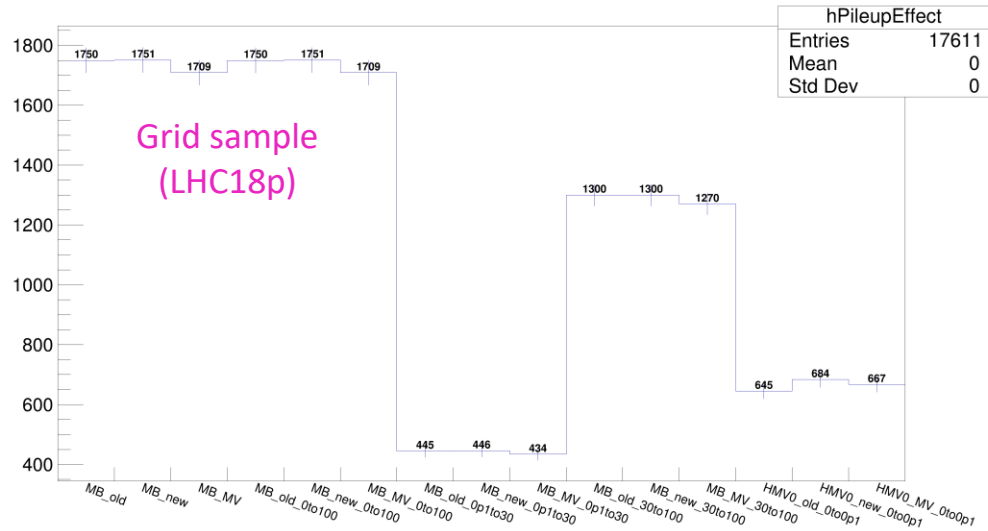
- MB + [30, 100]

- a. Normal (no INEL>0): 1.287 x 1.e9 / Frac: 0.260 (2016), 0.339 (2017), 0.400 (2018) / Weighted V0 xSec: 57.956
 - b. INEL>0: 1.188 x 1.e9 / Frac: 0.262 (2016), 0.340 (2017), 0.398 (2018) / Weighted V0 xSec: 57.958

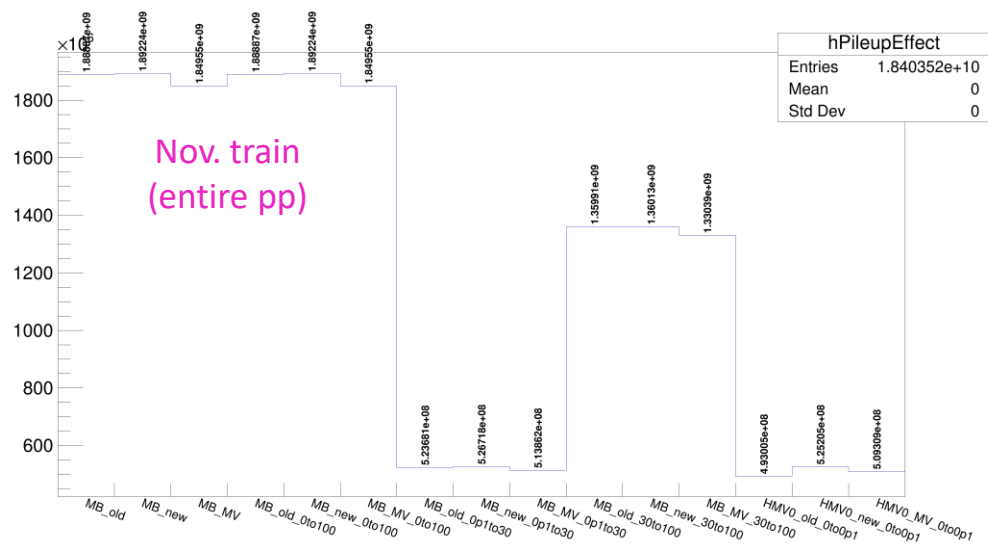
- HMV0 + [0, 0.1]:

- a. Normal (no INEL>0): 0.499 x 1.e9 / Frac: 0.292 (2016), 0.385 (2017), 0.324 (2018) / Weighted V0 xSec: 58.012
 - b. INEL>0: 0.499 x 1.e9 / Frac: 0.292 (2016), 0.385 (2017), 0.324 (2018) / Weighted V0 xSec: 58.012

Nov. train results Pileup cut effect



- # of events accepted by:
 - a. Trig + Mult. Percentile
 - b. Pileup cut
 - b-1. Old: Fixed SPD N contributor (conventional cut)
 - b-2. New: Varying SPD N contributor
 - b-3. MV: multi-vertex (official method at the D2H)



- Comparing patterns
 - a. Top: LHC18p only by Grid
Bottom: whole 2016-2018 pp 13 TeV, Train
 - b. Both plots are results by same AliAnalysisTask... , after update (cannot guarantee the code's sanity itself)

Nov. train results BUG! (debugged before Nov. train run)

```

Terminal
root [3] EventTree->Scan("fNeXiPair:fVtxZ:fPileup:fTrigBit:fINEL");
E-TreeFormula::Compile: Bad numerical expression : "fPileup"
*****
* Row * fNeXiPair * fVtxZ * fPileup * fTrigBit * fINEL *
*****
* 0 * 0 * 4.4277963 * * 65536 * 1 *
* 1 * 0 * 1.9646839 * * 65536 * 1 *
* 2 * 0 * -5.763921 * * 2897154 * 1 *
* 3 * 1 * -5.763921 * * 2897154 * 1 *
* 4 * 1 * 3.1384942 * * 65536 * 1 *
* 5 * 2 * 3.1384942 * * 65536 * 1 *
* 6 * 3 * 3.1384942 * * 65536 * 1 *
* 7 * 0 * -0.797153 * * 65536 * 1 *
* 8 * 0 * 0.6325986 * * 65536 * 1 *
* 9 * 0 * -2.004319 * * 65536 * 1 *
* 10 * 1 * -2.004319 * * 65536 * 1 *
* 11 * 0 * 3.4696517 * * 65536 * 1 *
* 12 * 0 * -4.135564 * * 65536 * 1 *
* 13 * 0 * -2.191599 * * 65536 * 1 *
* 14 * 0 * -1.643001 * * 65536 * 1 *
* 15 * 0 * -4.208321 * * 65536 * 1 *
* 16 * 0 * -3.328530 * * 65536 * 1 *
* 17 * 0 * 5.0443468 * * 65536 * 1 *
* 18 * 0 * 2.6407759 * * 65536 * 1 *
* 19 * 0 * 9.7909936 * * 65536 * 1 *
* 20 * 0 * -1.974993 * * 65536 * 1 *
* 21 * 0 * -9.192751 * * 65536 * 1 *
* 22 * 0 * 3.8108084 * * 65536 * 1 *
* 23 * 0 * -1.040230 * * 65536 * 1 *
* 24 * 0 * 3.4476344 * * 2897154 * 1 *
Type <CR> to continue or q to quit ==>
* 25 * 0 * -2.142440 * * 65536 * 1 *
* 26 * 0 * 6.0486216 * * 65536 * 1 *
* 27 * 0 * 0.5860573 * * 65536 * 1 *
* 28 * 0 * 4.9396815 * * 65536 * 1 *
* 29 * 0 * 0.2243184 * * 65536 * 1 *
* 30 * 0 * 2.0886905 * * 65536 * 1 *
* 31 * 0 * -1.098983 * * 65536 * 1 *
* 32 * 0 * -0.205550 * * 2162898 * 1 *
* 33 * 0 * 6.2323112 * * 65536 * 1 *
* 34 * 0 * -2.495795 * * 65536 * 1 *
* 35 * 0 * -2.514023 * * 65536 * 1 *
* 36 * 0 * -0.432503 * * 65536 * 1 *
* 37 * 0 * -4.599900 * * 65536 * 1 *
* 38 * 0 * -3.550787 * * 65536 * 1 *
* 39 * 0 * -4.907758 * * 65536 * 1 *
* 40 * 0 * 1.5291067 * * 65536 * 1 *
* 41 * 0 * -3.483875 * * 65536 * 1 *
* 42 * 0 * 0.6401866 * * 65536 * 1 *
* 43 * 0 * -1.205653 * * 65536 * 1 *
* 44 * 1 * -1.205653 * * 65536 * 1 *
* 45 * 0 * -5.583957 * * 65536 * 1 *
* 46 * 0 * 2.5794382 * * 65536 * 1 *
* 47 * 0 * 2.2166047 * * 65536 * 1 *
* 48 * 1 * 2.2166047 * * 65536 * 1 *
* 49 * 0 * 4.9182920 * * 65536 * 1 *
Type <CR> to continue or q to quit ==>
* 50 * 1 * 4.9182920 * * 65536 * 1 *
* 51 * 2 * 4.9182920 * * 65536 * 1 *

```

GitHub update log

```

@@ -705,12 +779,11 @@ void AliAnalysisTaskSEXic0Semileptonic::UserExec(Option_t*)
705 779
706 780     if (!trk) continue;
707 781     if (!(FilterTrack(trk,1))) continue; //track cut
708 -     FillPairEleXi(casc, trk);
709 782
710 783     //*****
711 784
712 785     //Fill event tree, rearranged variables' order by kimc - updated at Sep. 2
713 -     for (int a=0; a<6; a++) fEventTreeVariable[a] = -999; //Reset
786 +     for (int a=0; a<7; a++) fEventTreeVariable[a] = -999; //Reset
714 787     fEventTreeVariable[0] = fRunNumber;
715 788     fEventTreeVariable[1] = fCentrality;
716 789     fEventTreeVariable[2] = fCentralSPD;
@@ -722,6 +795,8 @@ void AliAnalysisTaskSEXic0Semileptonic::UserExec(Option_t*)
722 795     fEventTreeVarTrig = 0; //Reset
723 796     if (!IsMC) fEventTreeVarTrig = inputHandler->IsEventSelected();
724 797     //fEventTree->Fill(); //Move this inside FillPairEleXi, to sync entries
798 +
799 +     FillPairEleXi(casc, trk);
725 800     }
726 801     }
727 802

```

- A bug related to event-wise cut info:
 - a. Wrong trigger and multiplicity could be assigned for a track
 - b. Induced in September 2020 (it's likely Jinjoo also affected by this bug...)
 - c. Debugged in Nov. train run (checked w/ new output)

LAST SLIDE