Xic analysis meeting

Mar 17th 2021

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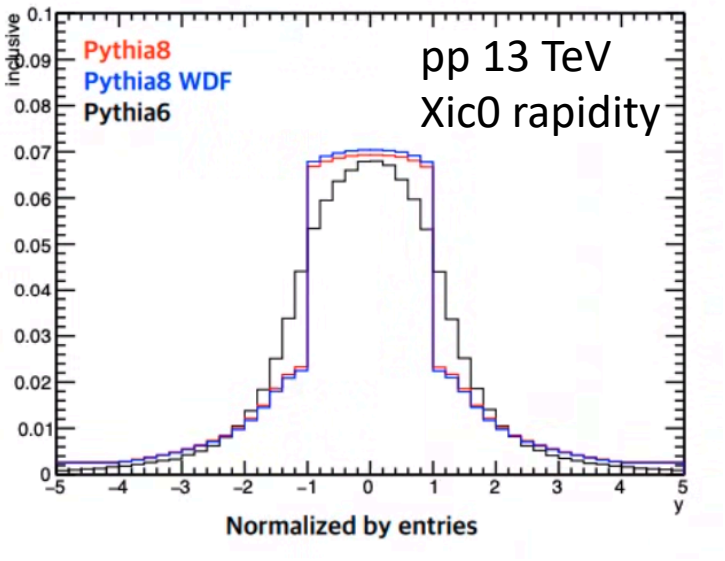
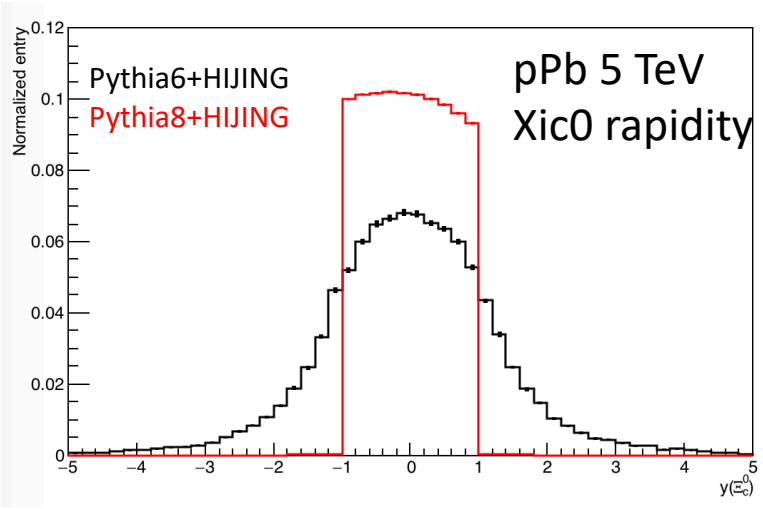
Looking for another possibility



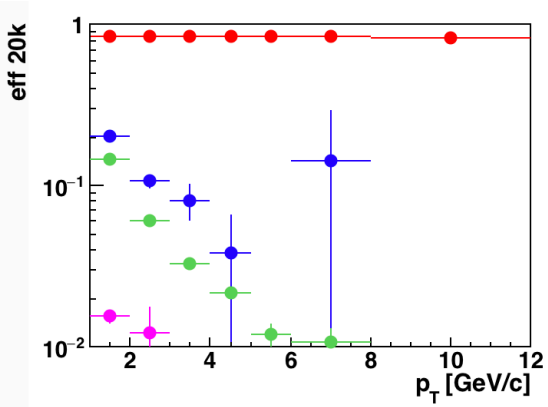


- y_{CMS}= − y − 0.465 in p-Pb
  - E.g. using −0.5<y_{CMS}<0 Xi(1530), −0.96< y_{CMS}<0.04 (Lc+ pPb)
  - Boost is applied in Xic0 (centered~−0.465) in Pythia8+HIJING
    - while Pythia6+HIJING is centered at y=0

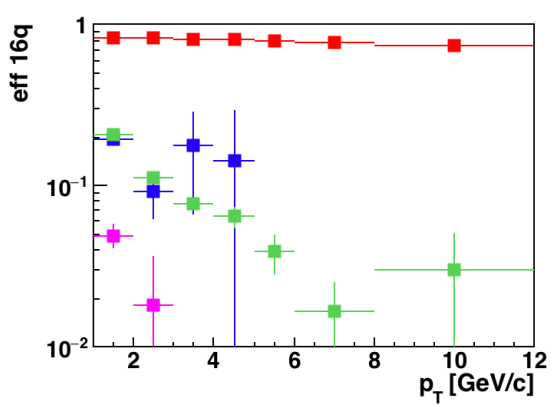
- Francesco mentioned
  - the Lorentz boost is switched off in GeneratorPythia6Heavy, because with old aliroot versions it was affected by a bug, **which was biasing the efficiencies**.
  - The bug was fixed (this is the relevant commit https://github.com/alisw/AliRoot/pull/642/commits/88ab2401bd1debfc9f4511a03225f1714d3d34d7), **but since we verified that the Lorentz boost does not affect the efficiency (see ALIROOT-7933), we continued to simulate w/o boost.**
  - By the way, in the AliDPG version (v5-08-XX-24) used **for LHC17d2b the Lorentz boost was not yet implemented** in GeneratorPythia6Heavy.
  - Instead, PYTHIA8 always applies the boost.

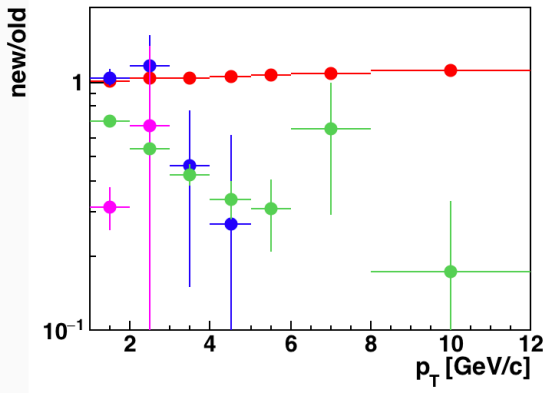
Xi efficiency

New efficiency



Old efficiency





New/Old

Primary pion
Pion from Xi-
Pion from Lambda
Proton from Lambda

- Xi efficiency drop comes from
- Each daughter shows efficiency drop in new MC

Xic0 status

- Looked over all steps
  - 1. Default cut in the code
    - Electron rapidity cut applied in old sim → make efficiency lower in new MC
    - Xi default cut cuts more fraction → make efficiency lowe in new MC
      - Looking at detail : proton, pion
      - But they contribute efficiency drop partially.
  - 2. standard cut in the macro
    - Before standard cut, the ratio of efficiency (new/old) is already very low