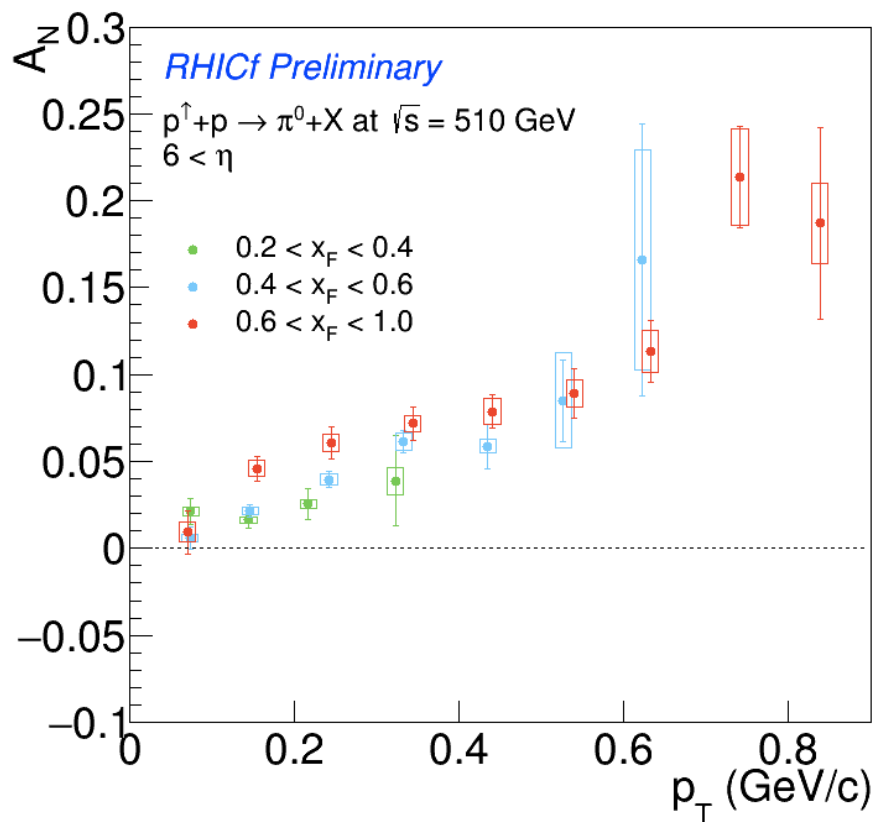


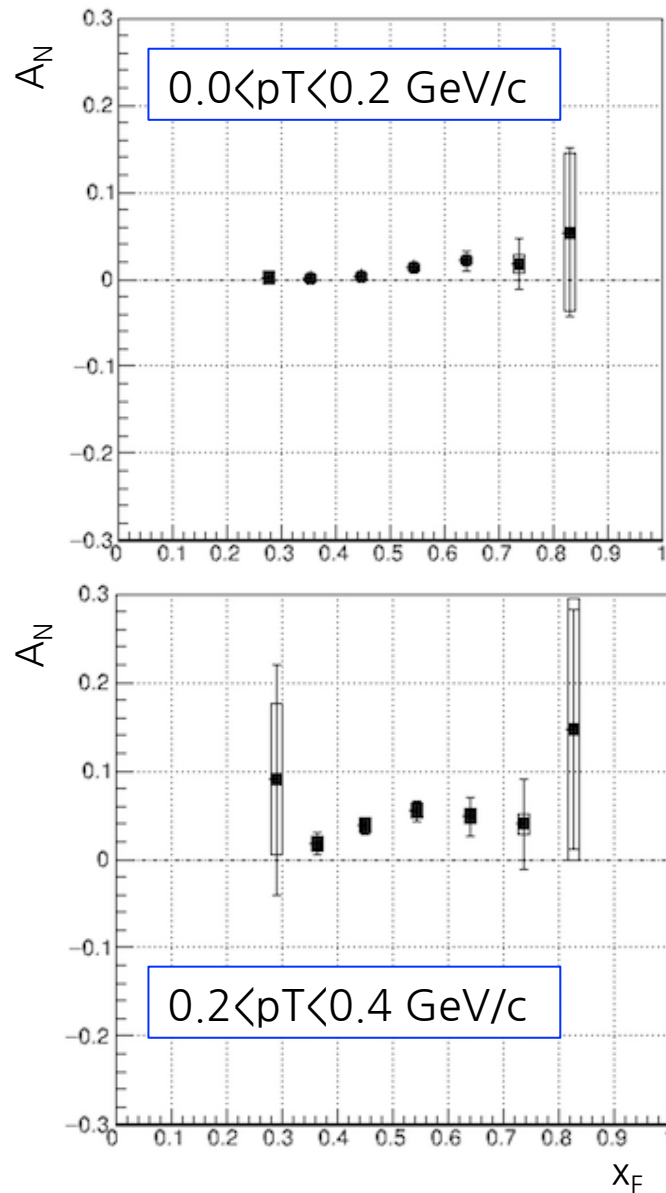
Status of RHICf π^0 analysis: A_N of very forward π^0 production

20 Nov. 2018
Minho Kim

Preliminary result

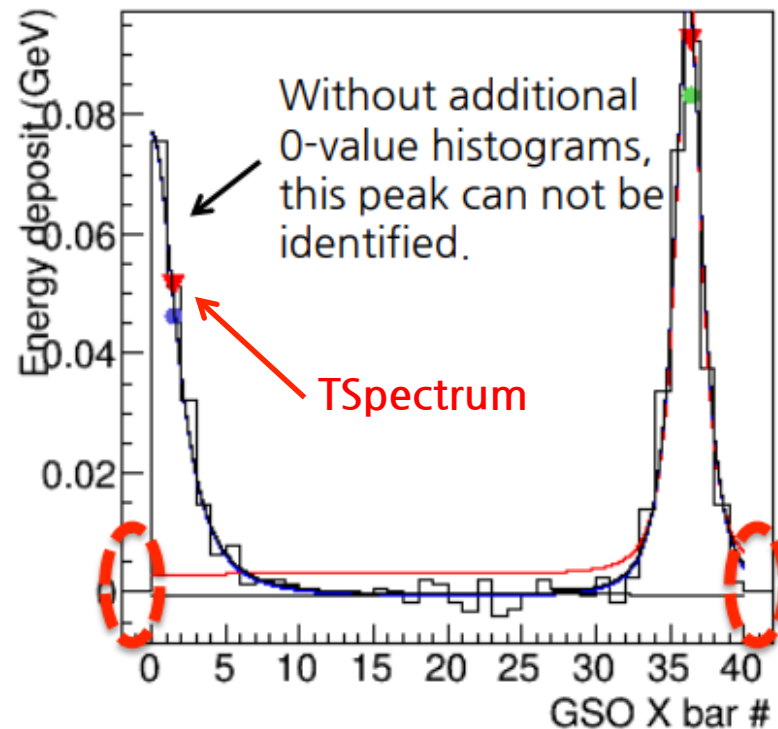


- A_N of very forward π^0 looks increasing as functions of both x_F and p_T , but more sensitive to p_T .
- Its x_F dependence is also being studied now.

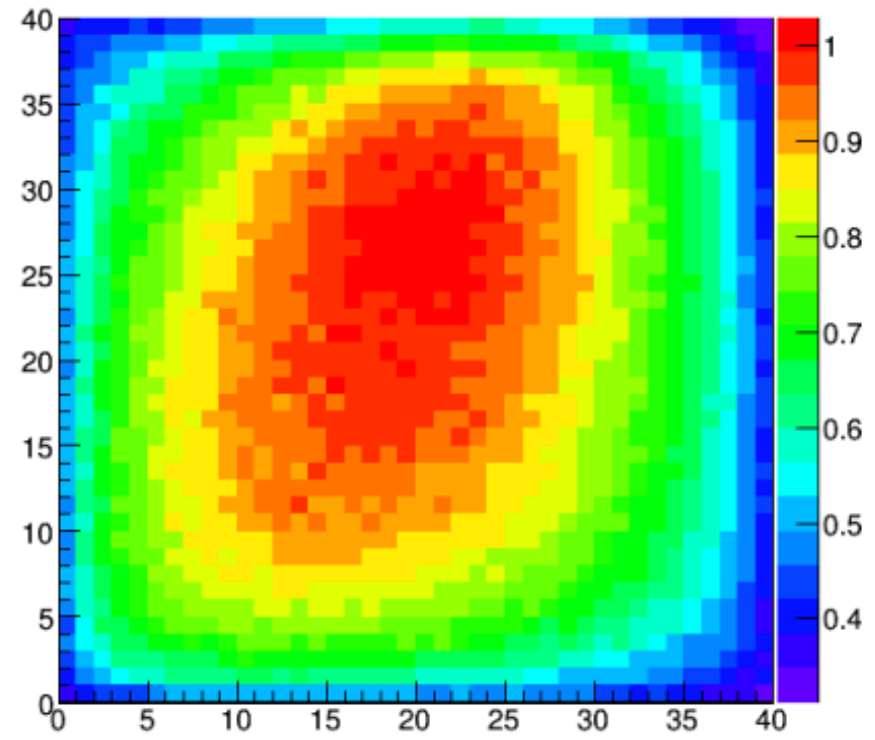
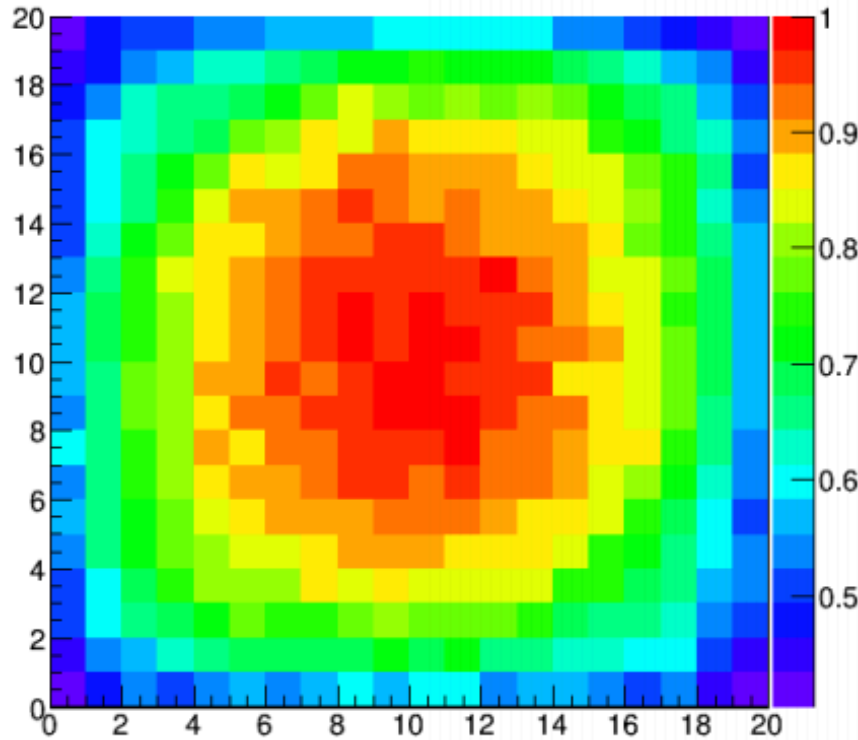


Update: Get better fitting result

- See the fitting result by eye → Modify wrong parts → Check if it gives right fitting result. was repeated to get better fitting result.
- Threshold values for peak search and cut condition for Type-I and II π^0 selection were optimized by simulation.

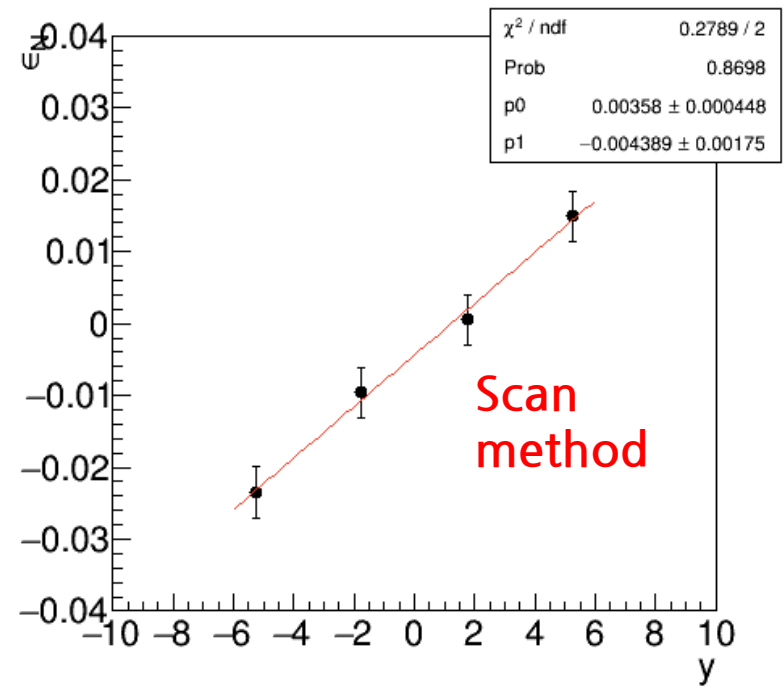
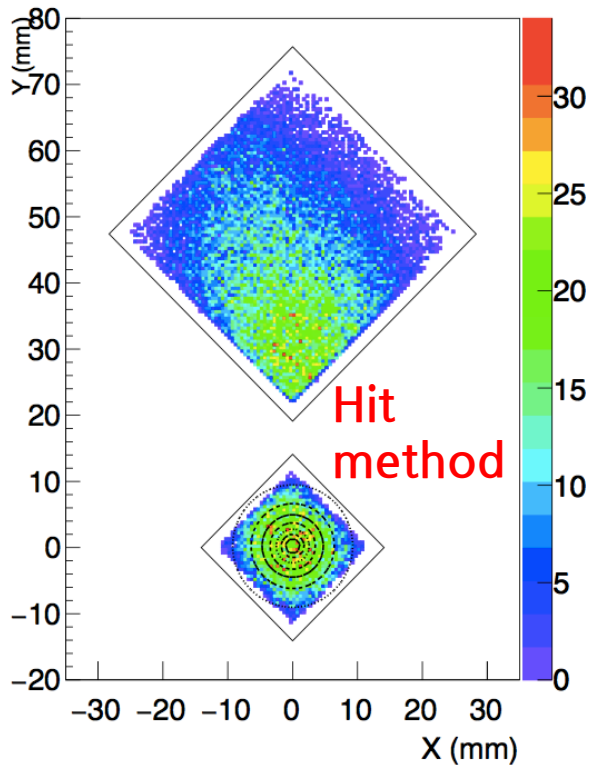


Update: Neutron leakage-out correction



- $Edep(x, y)$ is converted to $Edep(0, 0)$ by studying their ratio with simulation.
- This correction was applied to neutron case as well.

Update: Neutron leakage-out correction

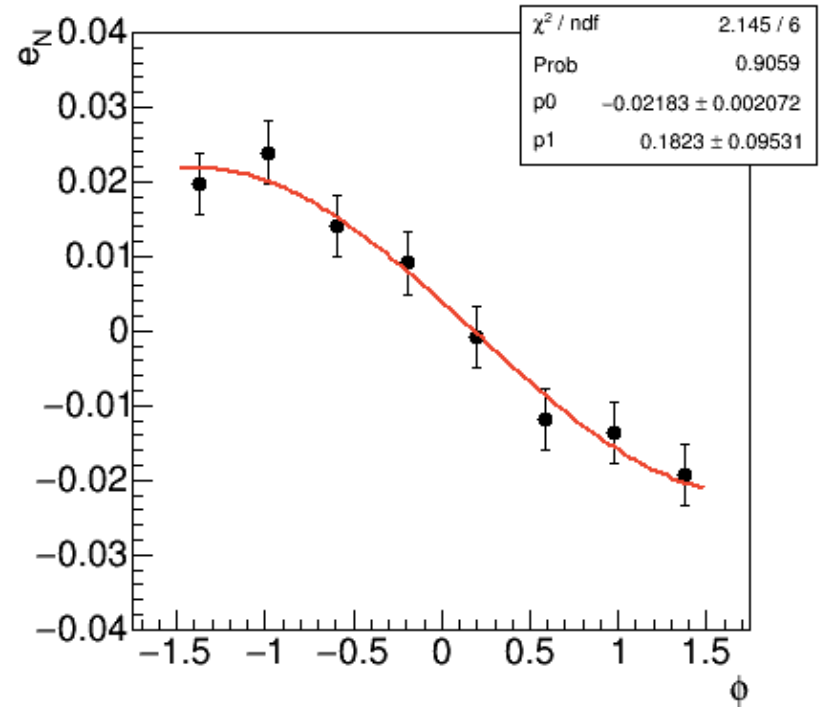
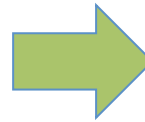
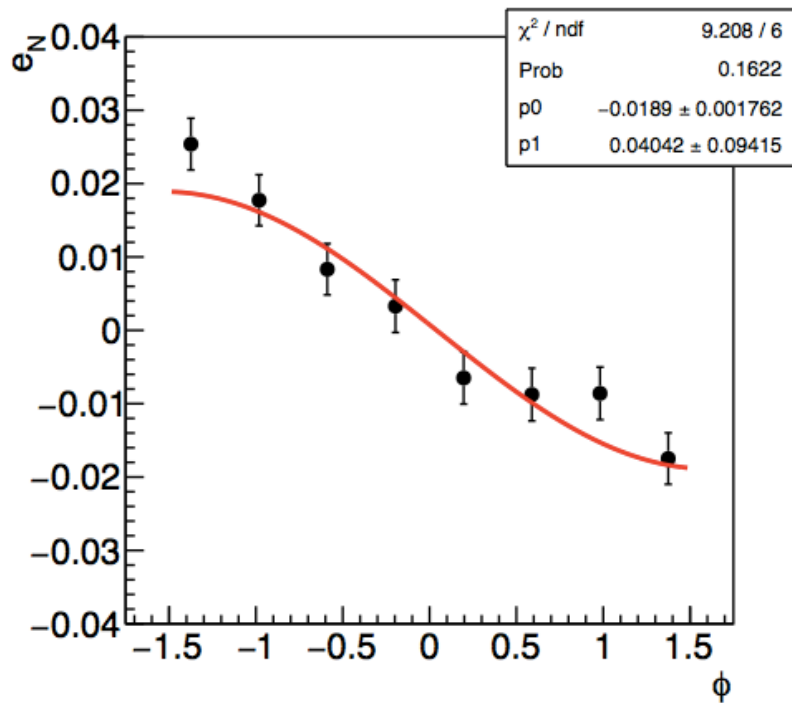


- Y beam center discrepancy between hit and scan method decreased.

Fill No.	21148	21150
By scan (mm)	(N/A, 2.6 ± 0.8)	(N/A, 2.7 ± 1.0)
By hit (mm)	(0.0 ± 0.4, 0.2 ± 0.7)	(0.0 ± 0.5, 0.3 ± 0.5)

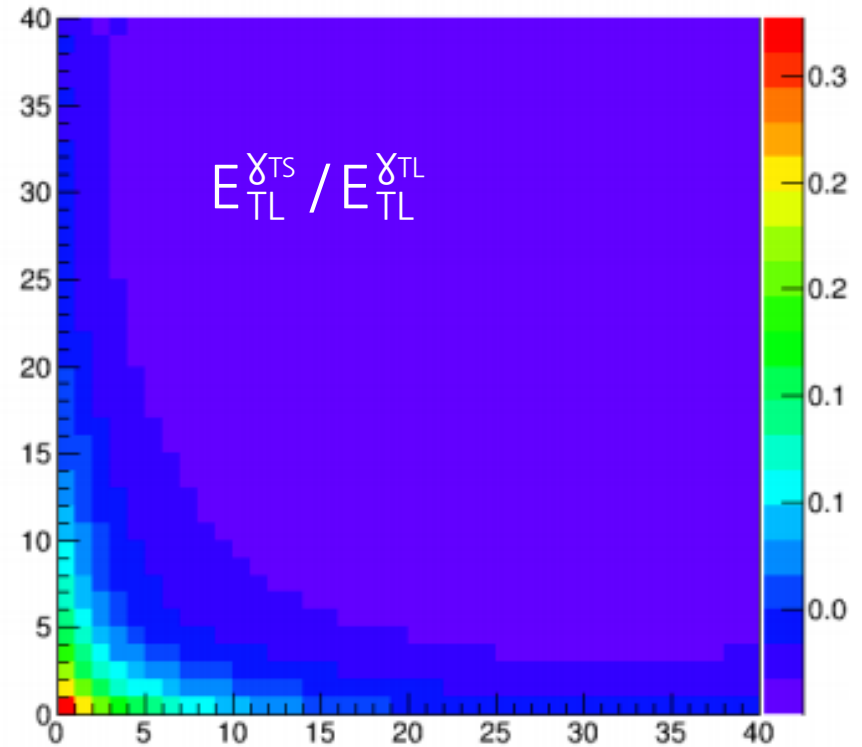
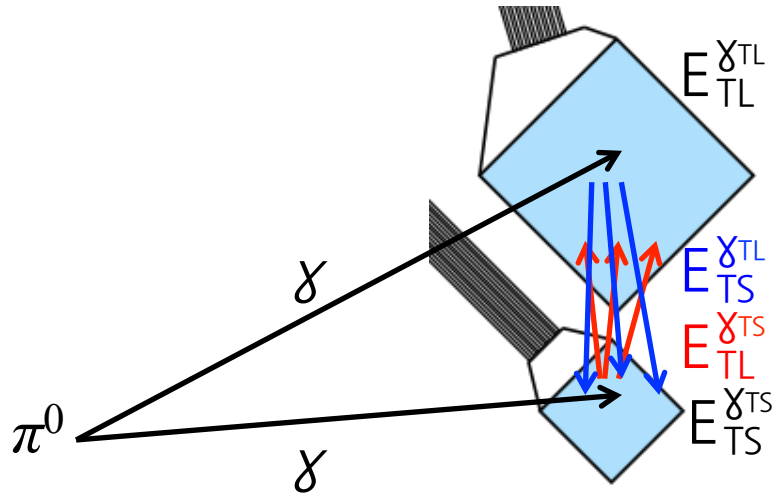
Update: Neutron leakage-out correction

Azimuthal angle dependence of neutron A_N



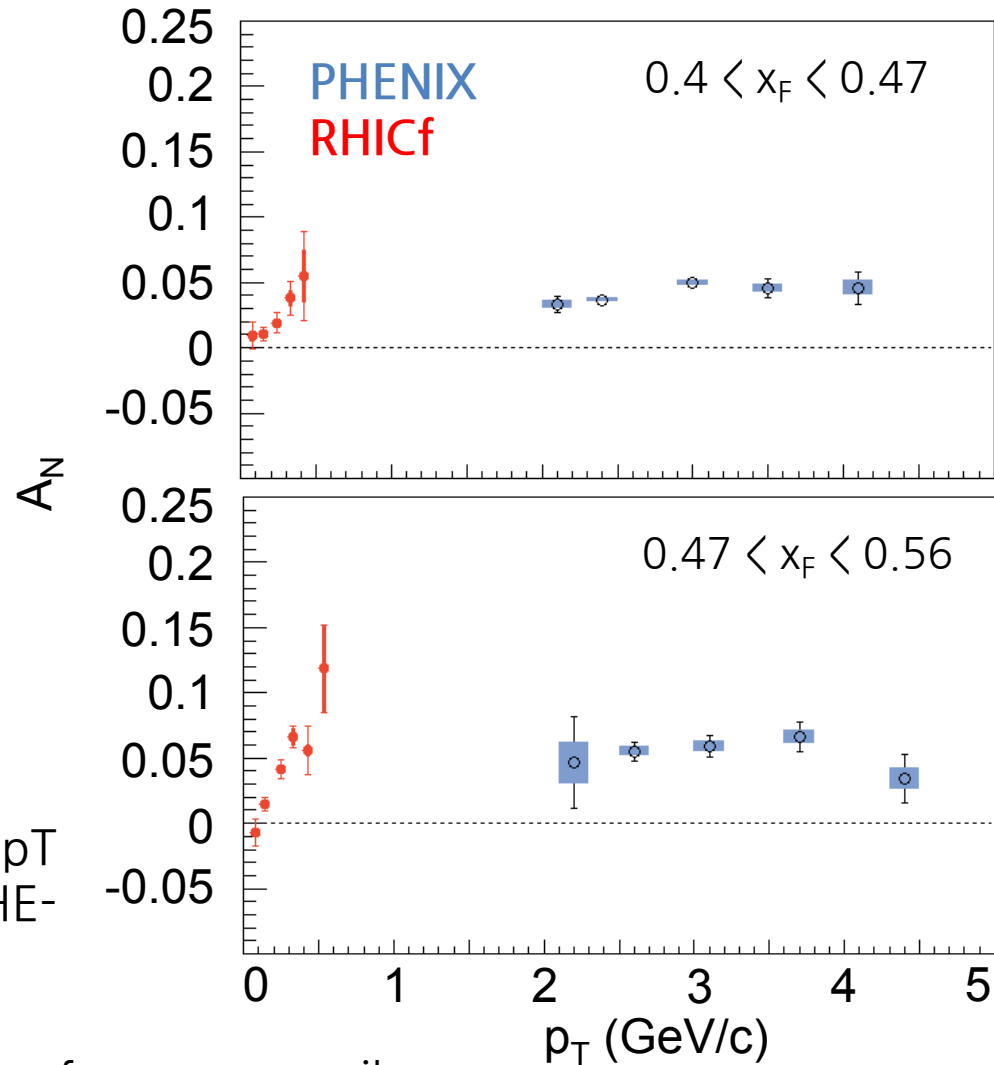
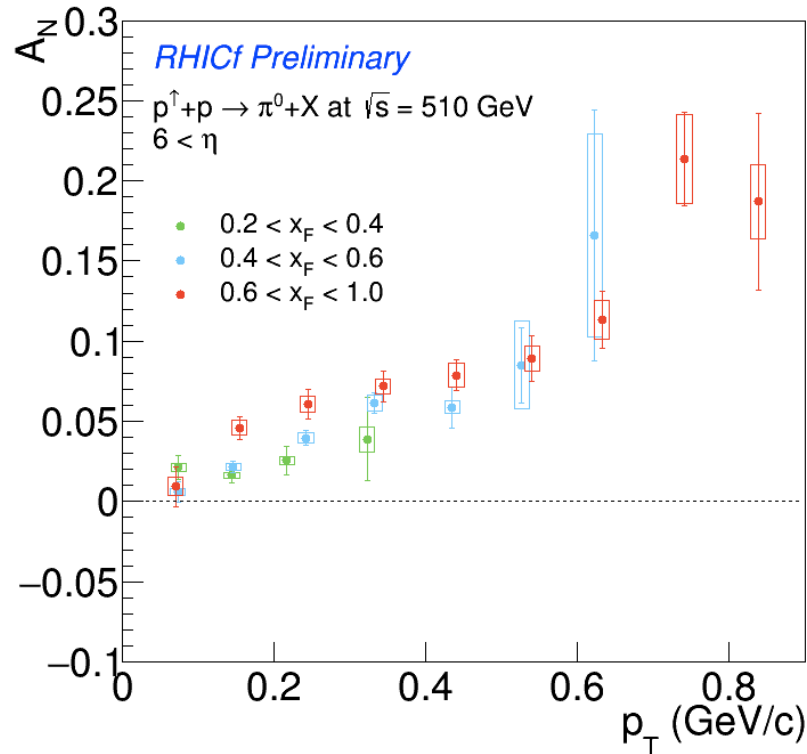
- ϕ dependence of neutron A_N looks more reasonable after additional corrections.

Update: Type-I π^0 leakage-in correction



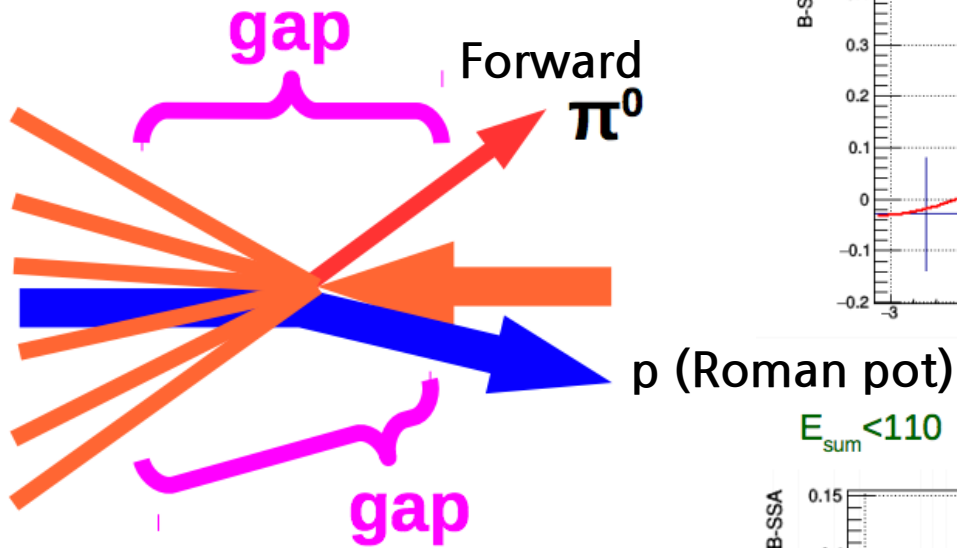
- In case of Type-I π^0 , there is not only shower leakage-out effect but also leakage-in effect which is energy contamination from the other tower photon.

Comparison of preliminary result

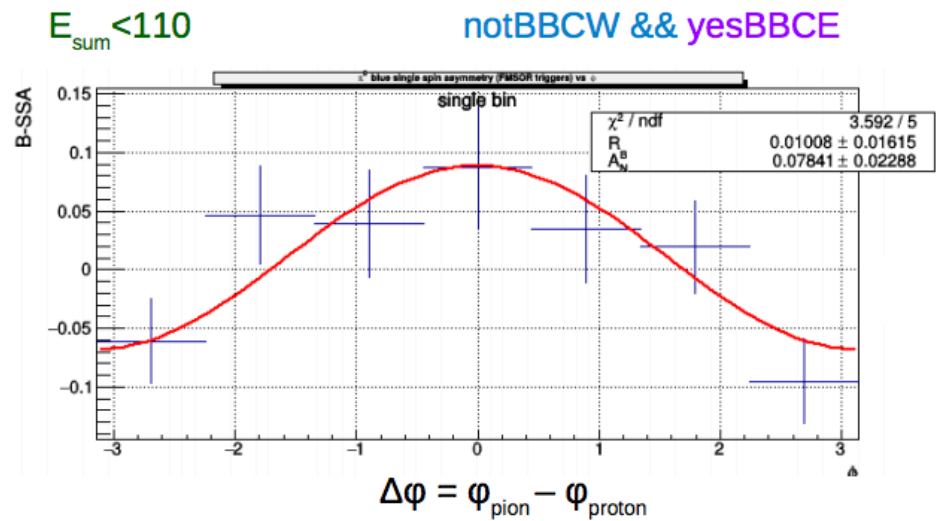
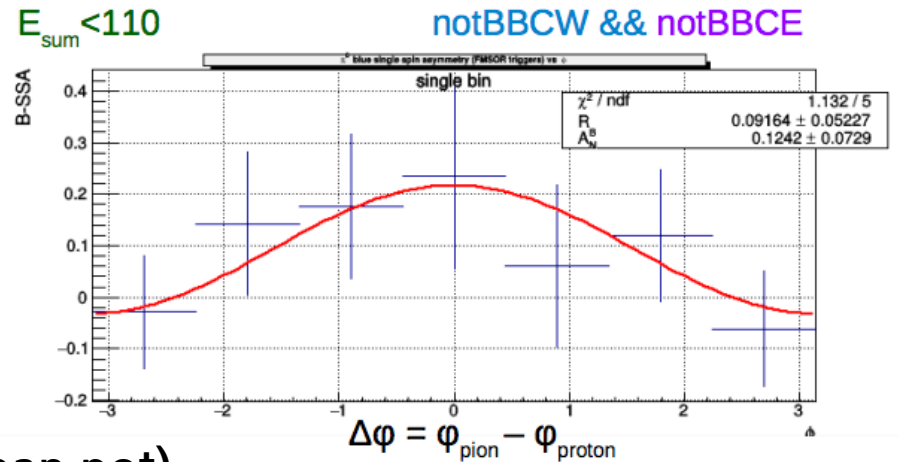


- A_N tendencies as a function of p_T looks different from previous PHENIX measurement.
- Different η range: Different types of events contribute differently. Event type dependence study is necessary with STAR detectors.

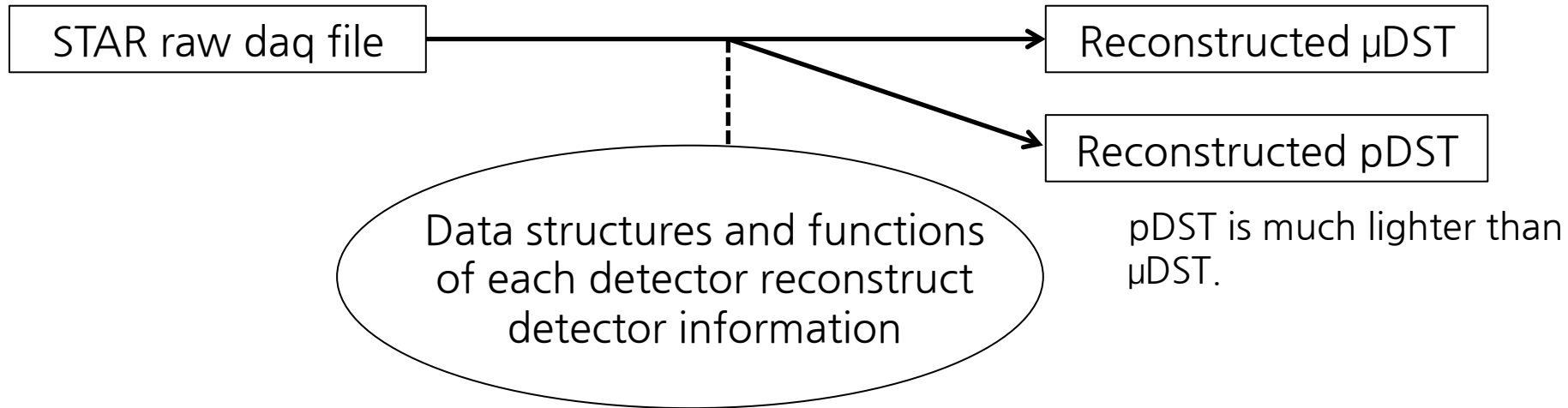
Example: One of ongoing studies at STAR



- Larger A_N with more diffractive-like event?
- This kind of study will be done by RHICf detector as well.

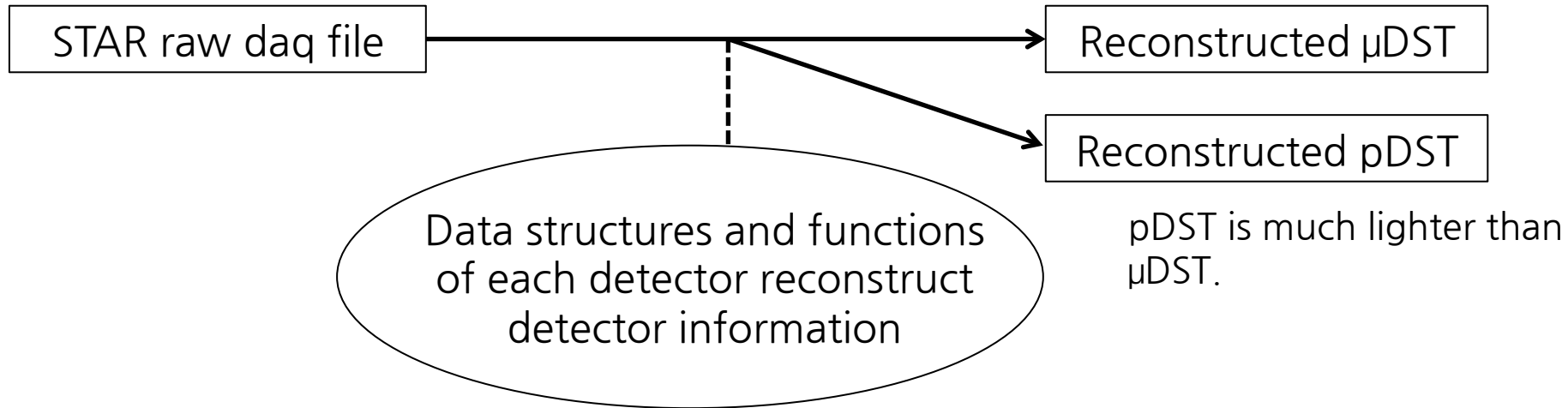


Status of RHICf-STAR combined analysis



- Because there is no RHICf data structure in STAR library, we can not get RHICf information from current μ DST.
- RHICf code to fill at least the energy deposit of each RHICf detector channel at μ DST will be completed by this week.

Status of RHICf-STAR combined analysis



- STAR wants to save all RHICf reconstruction code in STAR library for possible analysis of RHICf detector from other people before making μ DST.
→ This will be convenient for combined analysis.
- But Nagoya members want to analyze the μ DST and local RHICf data separately due to frequent update of our reconstruction code.

Plan

- 11/19~11/25: Complete of basic RHICf production code in STAR library.
- 11/25~12/2: LHCf-RHICf joint meeting (data production).
- 12/2~12/16: Analyze the correlation between RHICf π^0 and different event type defined by other STAR detectors. Will have a discussion with Chris who is studying similar correlation with forward π^0 .