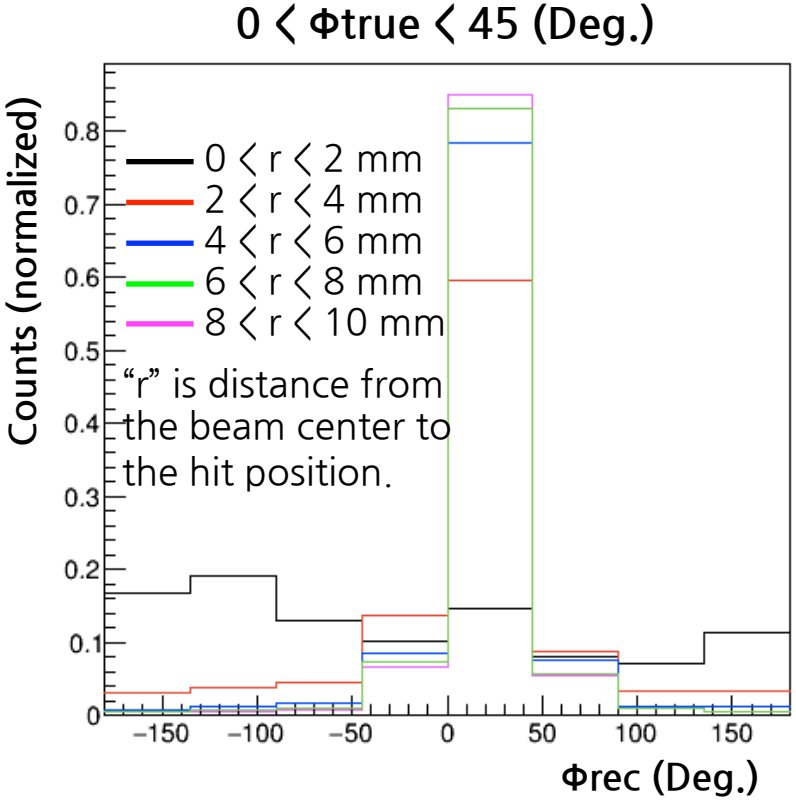
Status report

12 May 2022
Minho Kim

Activities summary

- Three-dimensional unfolding including Φ.
- Front counter analysis.
- DIS conference (a question about multi-dimensional analysis).
- A student from Sejong University.
- Making compile environment for SL7 in ccj. → RHICf-related executables were done.

Φ smearing

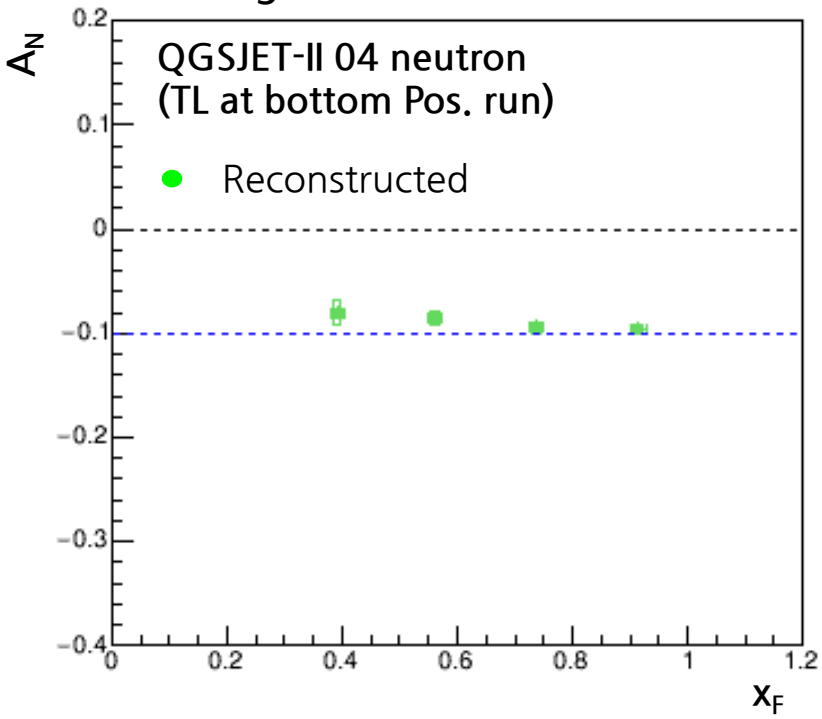


QGSJET-II 04 neutron
(TL at bottom Pos. run)

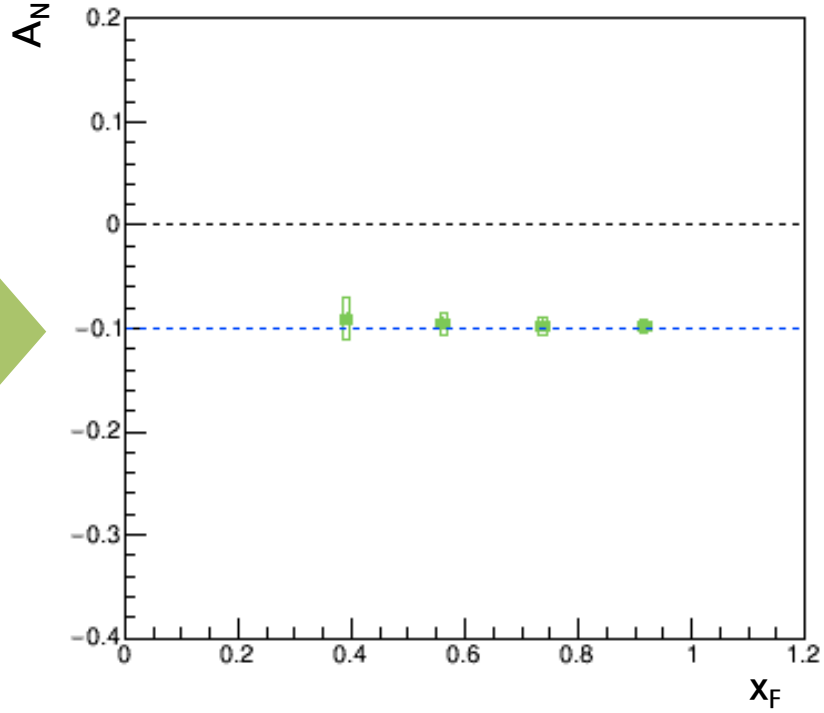
- Since the flat distribution is used for the MC priori, the Φ smearing needs to be comparable regardless of the hit position.
- Smaller "r" gives larger smearing for Φ.
- If r > 4 mm, the Φ smearing is comparable.

A_N reconstruction

2D unfolding for separated Φ regions

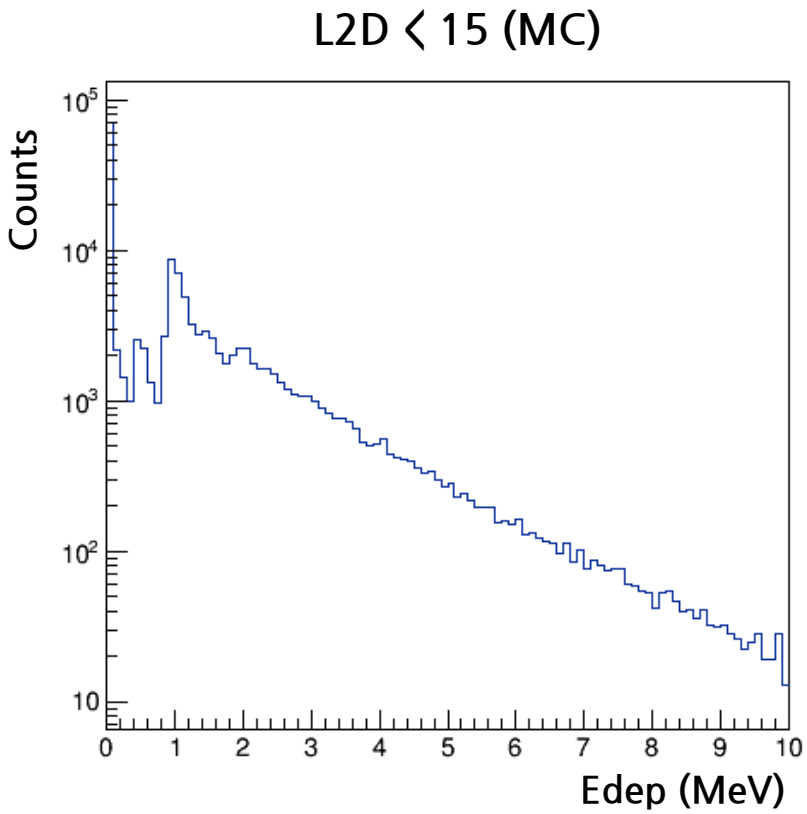


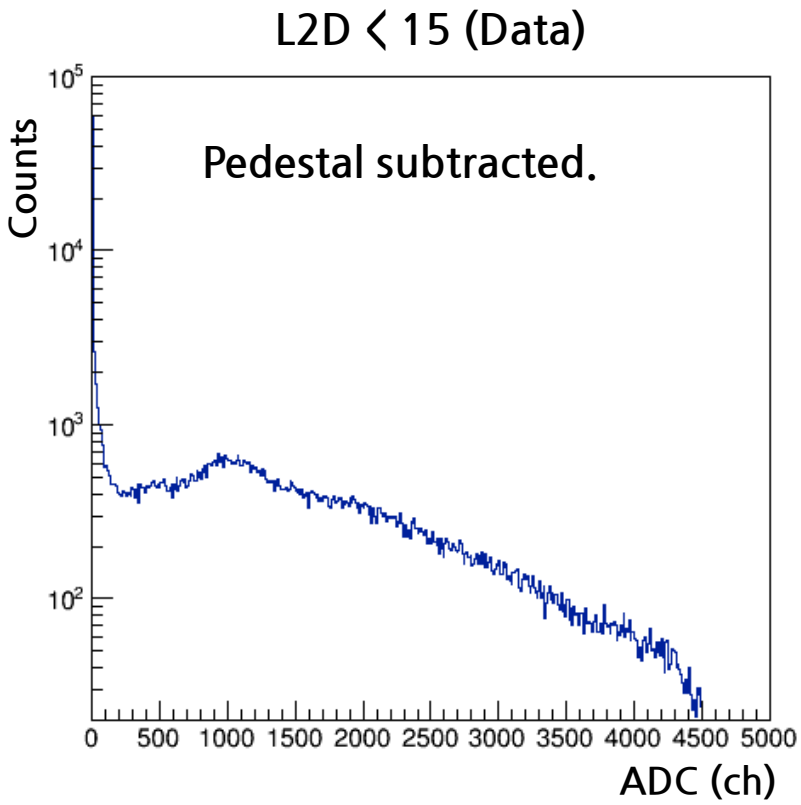
3D unfolding



- The A_N was smeared by the ϕ smearing when an artificial A_N of -0.1 was reconstructed.
- The A_N smearing disappeared after the ϕ is included in the unfolding variables.

Gain correction





- FC has 3 mm thickness. → Energy loss of MIP is ~0.5 MeV.
- In the MC, if there is charged particle in the detector, e+e- are dominant.
  → L2D < 15 was applied for gain correction.
- Effect of the charged particle events will be studied.