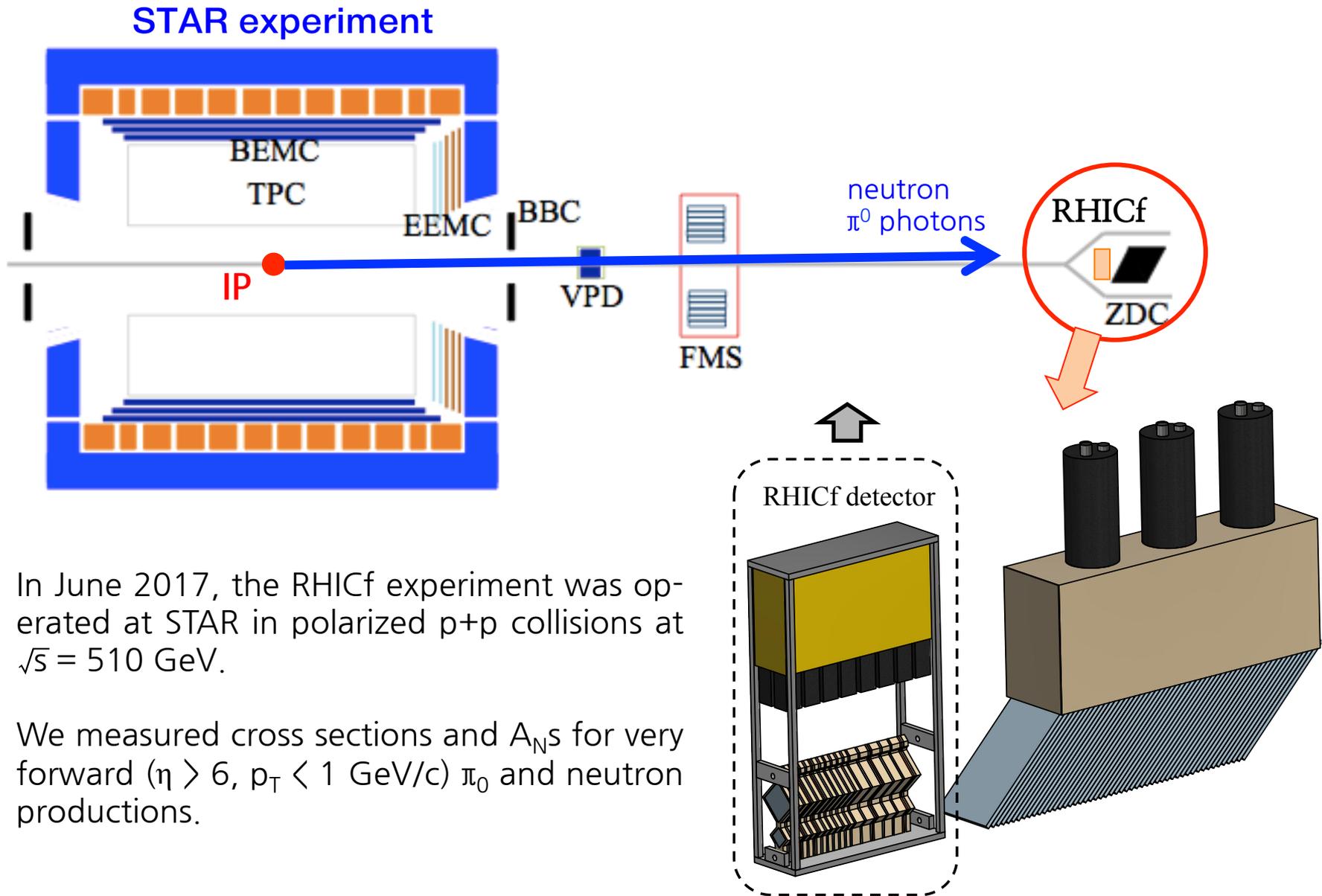


Status and plan of the RHICf-STAR combined analysis

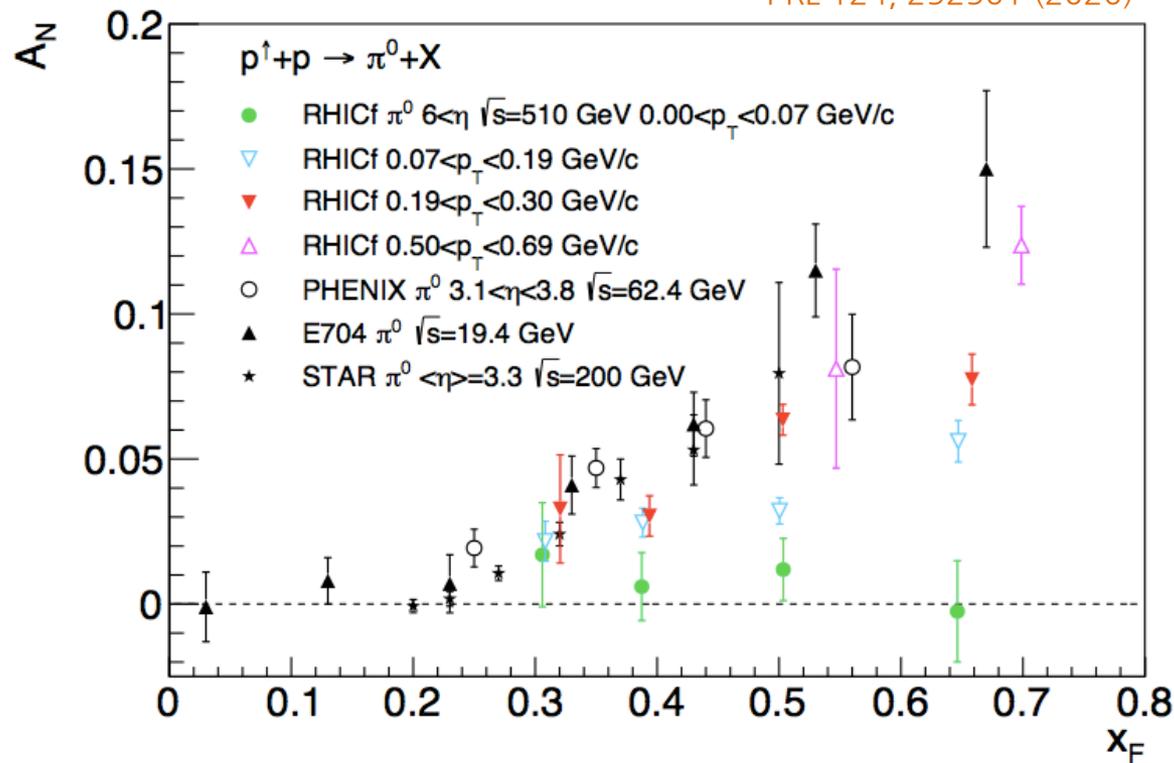
June 15
Minho Kim

RHICf experiment



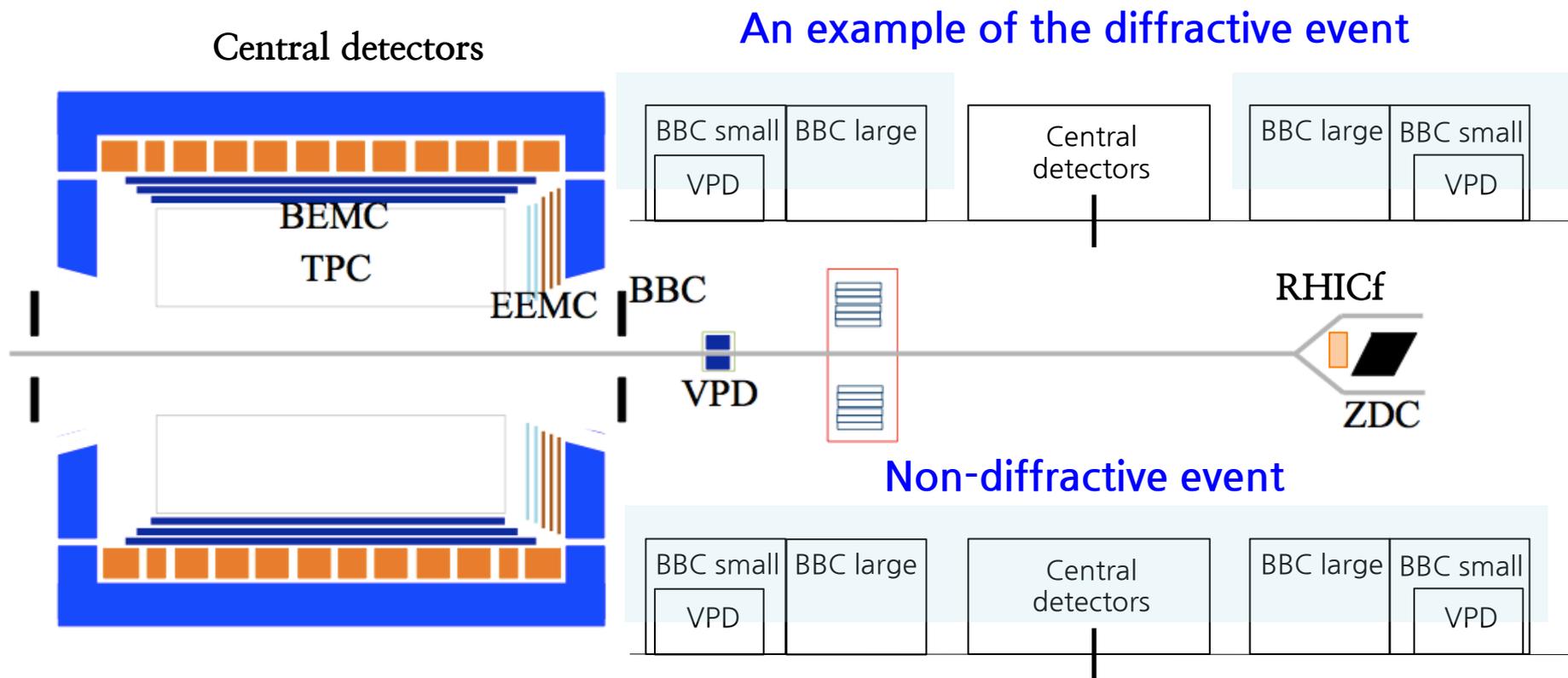
A_N for very forward π^0 production

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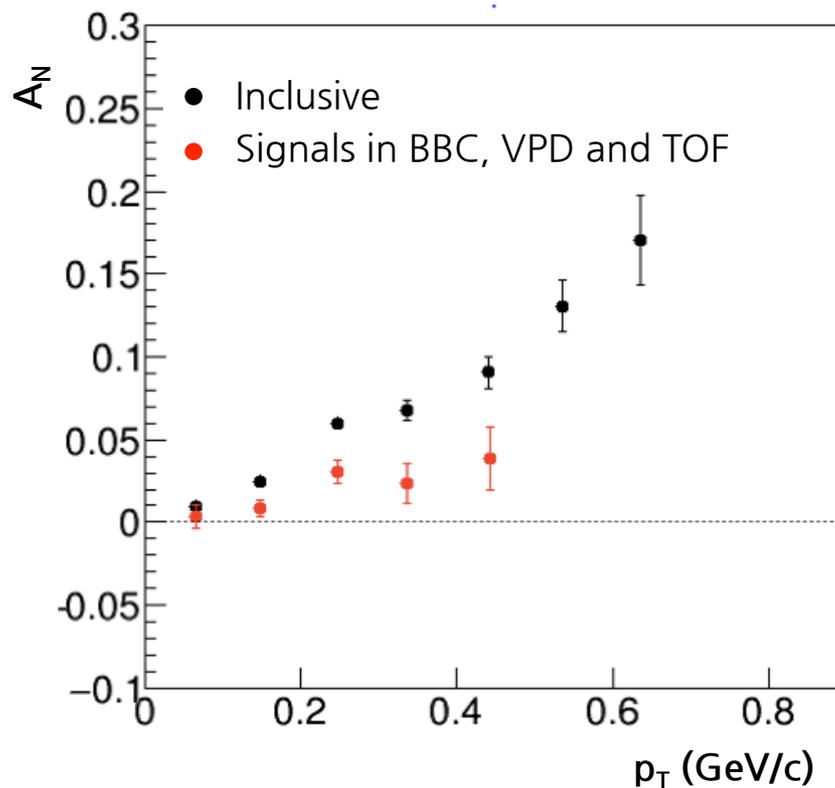
- A_N of very forward π^0 seems to be comparable with that of forward π^0 even though it is expected that their production mechanisms are different.
- We are trying to understand the A_N of very forward π^0 in more detail by studying the detector correlation between the RHICf and STAR detectors.

RHICf-STAR combined analysis



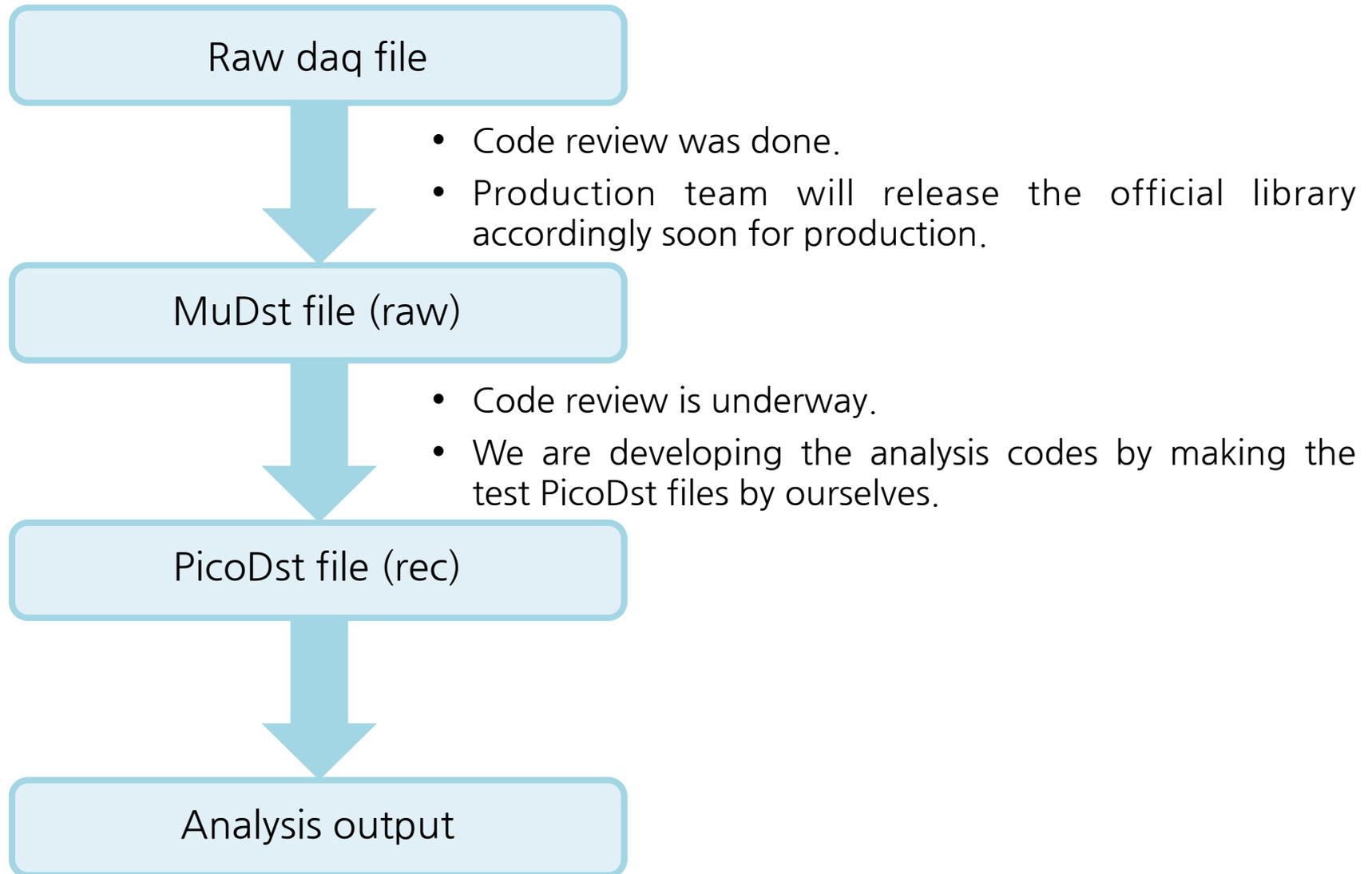
- First of all, we are planning to confirm if the RHICf π^0 result really came from the diffractive process.
- Signals in the STAR detectors can be connected to the event type, for example, if there is a central rapidity gap by a double diffraction, we expect no signal in the central detectors.

RHICf-STAR combined analysis



- In 2018, we unofficially analyzed the detector correlation and observed the suppressed A_N with non-diffractive like event condition.
- Now, we are going to analyze the detector correlation officially.

RHICf data production and status

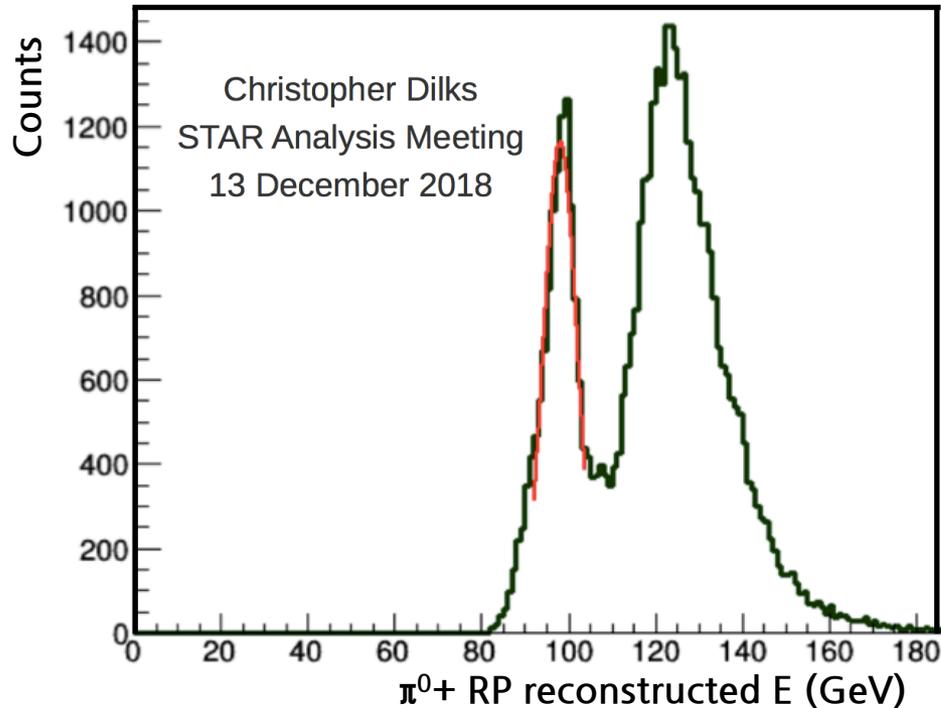


Visit to BNL (June 20 ~ July 22)

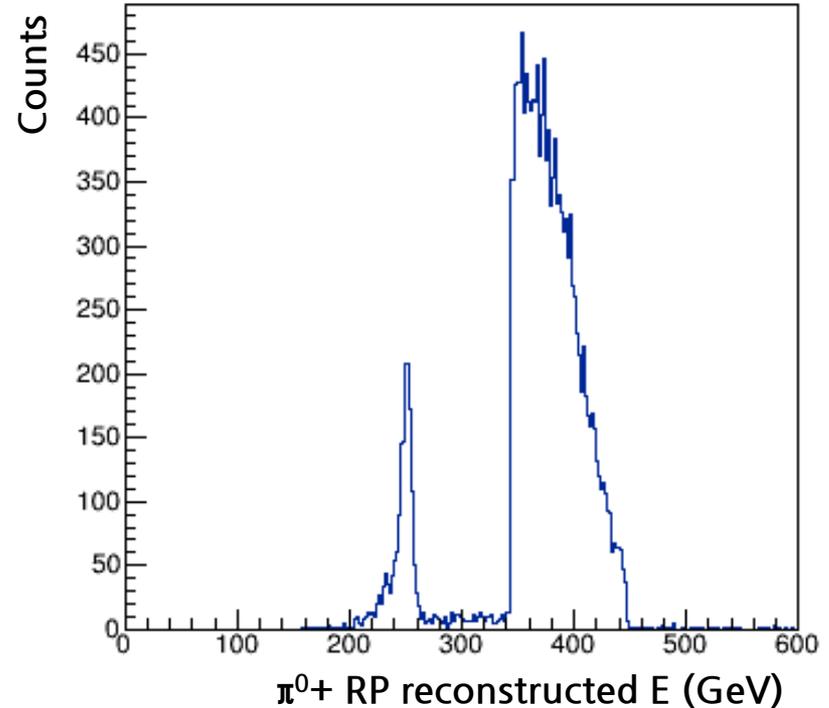
- Me and Seunghwan will visit BNL from June 20 ~ July 22.
 - How to properly analyze the STAR detectors.
 - How to deal with the STAR simulation tool to understand the event type from the detector's point of view.
- After learning above things, we'll focus on the analysis and join the PWG meeting in Korea and Japan, and visit BNL again in this winter.

Other topics ($pp \rightarrow p\pi^0 X$)

FMS + RP at 200 GeV



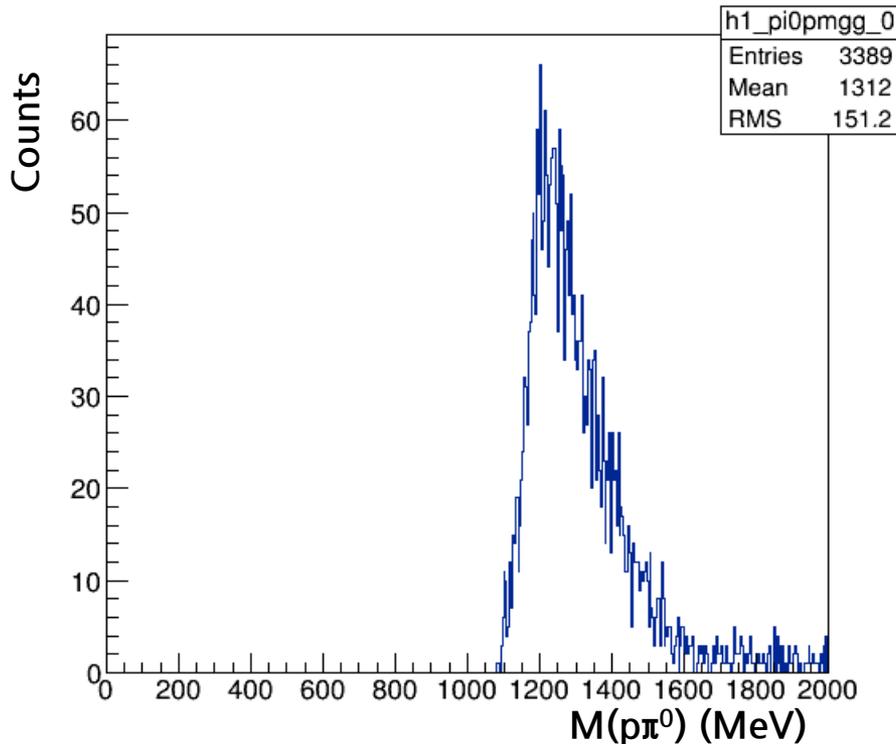
RHICf + RP at 510 GeV



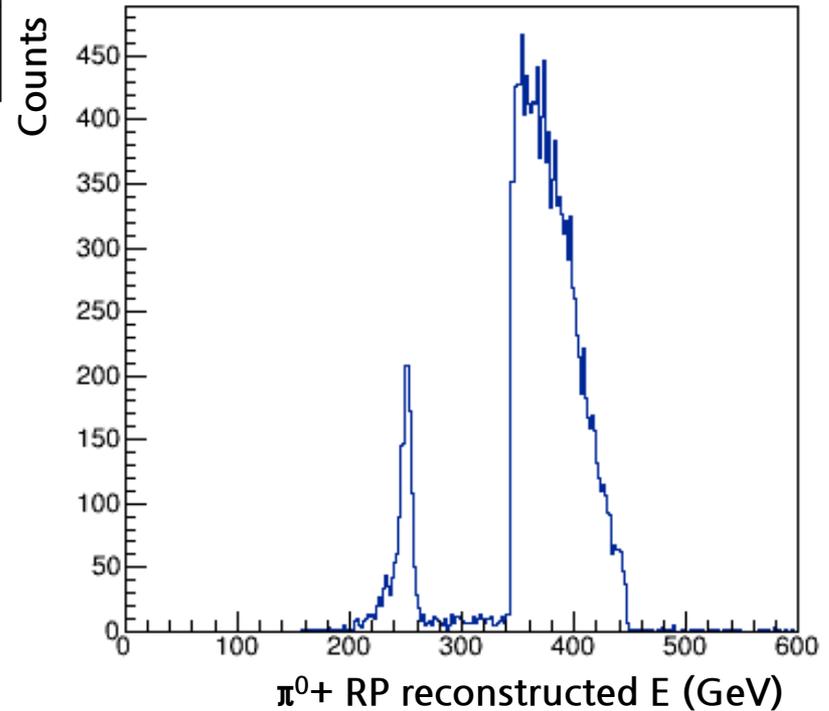
- We can study the diffractive $p\pi^0$ channel using Roman pot.
- It was once studied for forward π^0 and a similar study is currently underway for diffractive EM jet analysis.
- It will also be interesting if we study the $p\pi^0$ channel with the very forward π^0 production.

Other topics ($pp \rightarrow p\pi^0 X$)

RHICf + RP at 510 GeV

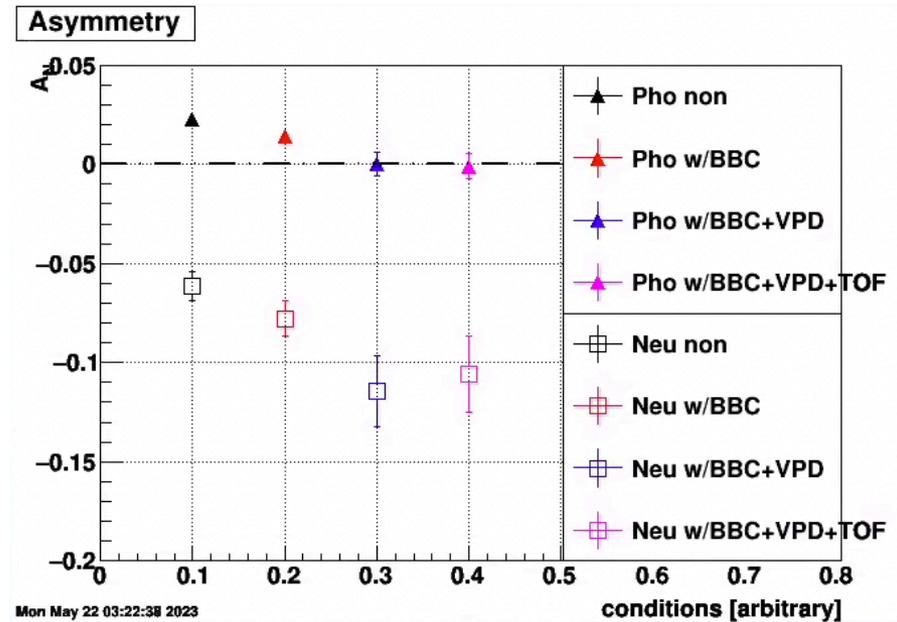
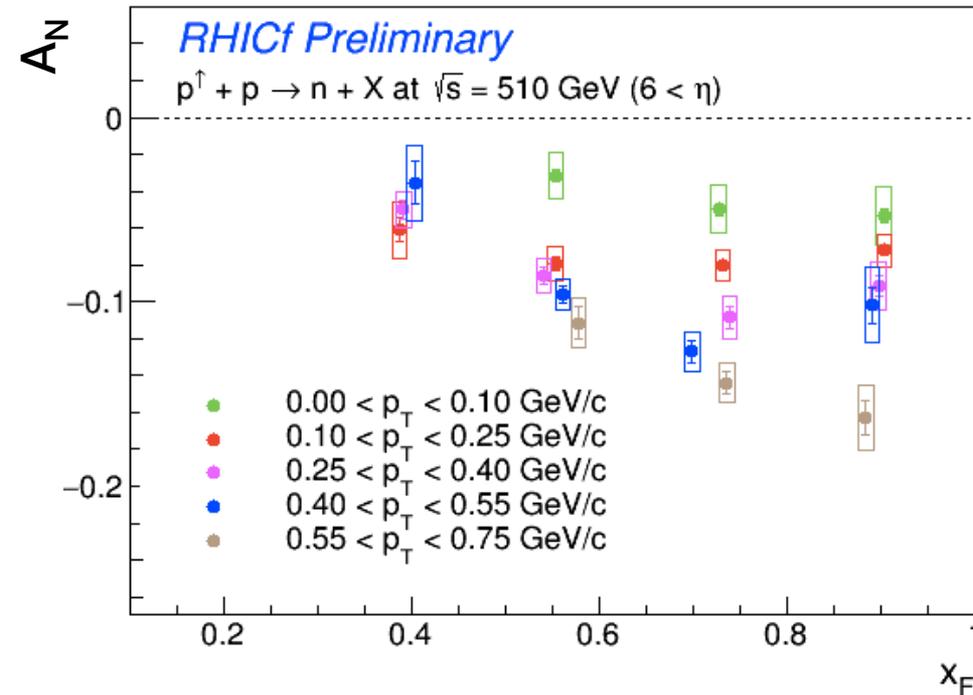


RHICf + RP at 510 GeV



- We can study the diffractive $p\pi^0$ channel using Roman pot.
- It was once studied for forward π^0 at STAR and a similar study is currently being proceeded with the diffractive EM jet analysis.
- It will also be interesting if we study the $p\pi^0$ channel with the very forward π^0 production.

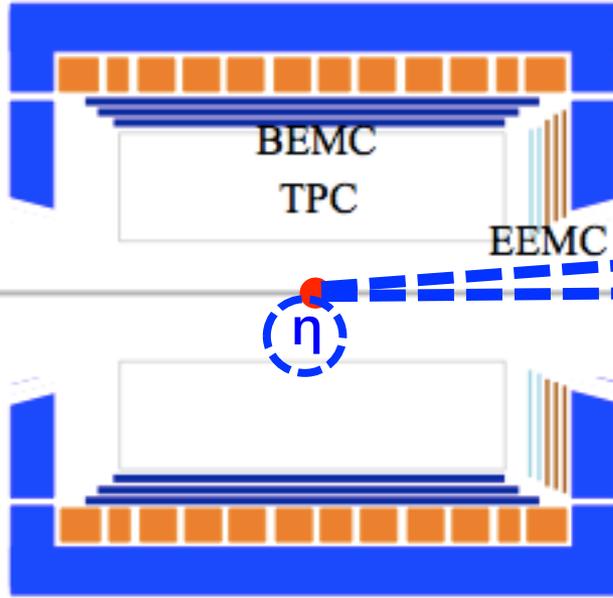
Other topics (Neutron A_N)



- Theoretical model predicted the neutron A_N increases in magnitude with p_T with little x_F dependence but a clear x_F dependence was observed.
- Another interesting thing is that the neutron A_N is enhanced in the non-diffractive like event condition.
- We can improve the neutron energy resolution from $\sim 38\%$ to $\sim 20\%$ using ZDC.

Other topics (η -meson, Λ)

STAR experiment



■ η -meson: RHICf + FMS

■ Λ : RHICf + ZDC

