

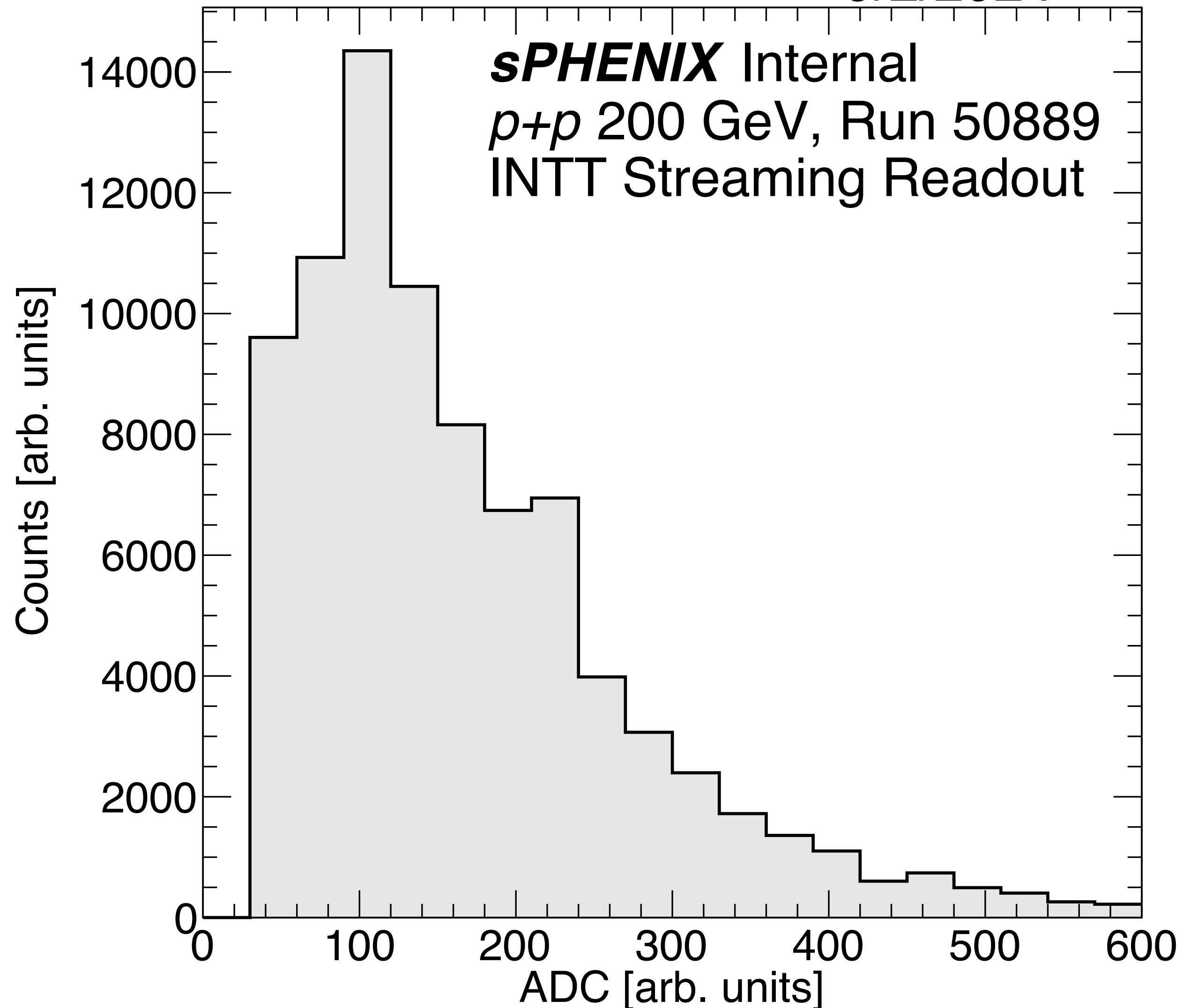
INTT Preliminary in Sep 2024

MIP peak search

Genki Nukazuka (RIKEN)

The conclusion at the last INTT meeting

9/2/2024



- Modification of the ADC bins at 210 and 420 was performed well. The ADC distributions look more reasonable by the modification.
- θ^{INTT} dependence of the peaks position was not obvious.
- ADC distribution with the requirement of a tracklet association will be asked for preliminary.
- It's good to do the same with a triggered data (not done yet).
- It's good to take z_{vtx} from MBD (not done yet).

Treasure hunting from huge statistics again

After making the good event displays with the minor change, I had huge amount of data (compared to the past) with the minor change. The dedicated cuts might change the situation 🤔

- Event selection cuts

- $N_{inner} > 3$

- $N_{outer} > 3$

- $N > 6$

- $|N_{inner} - N_{outer}| / N < 10\%$ ← not used this time. It's maybe useless.

- $N_{associated} / N > 0.4$

- $N_{associated, inner} / N_{inner} > 0.4$

- $N_{associated, outer} / N_{outer} > 0.4$

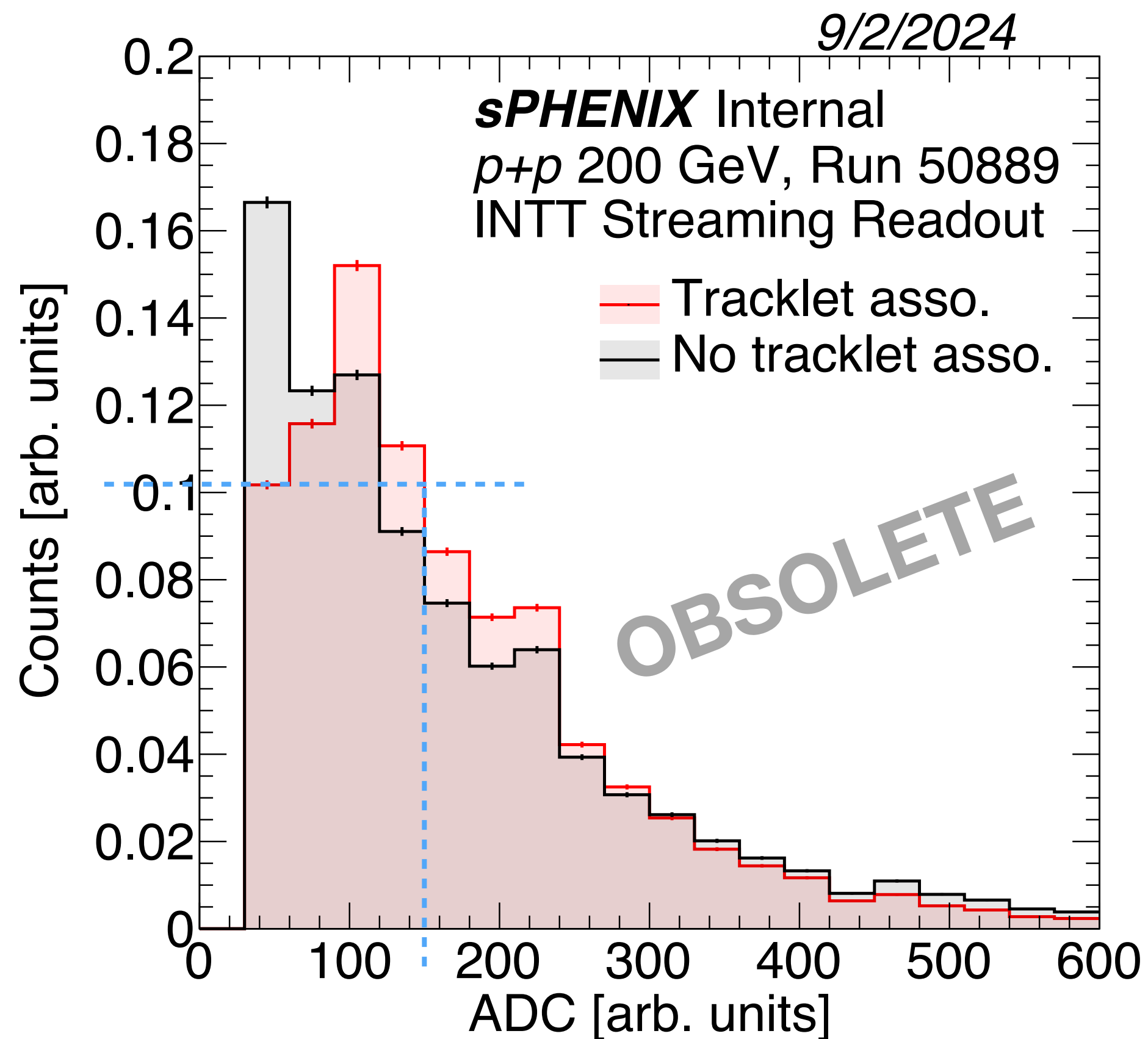
Clusters not associated to INTT tracklets should be minor in an event.

- Cluster selection cuts

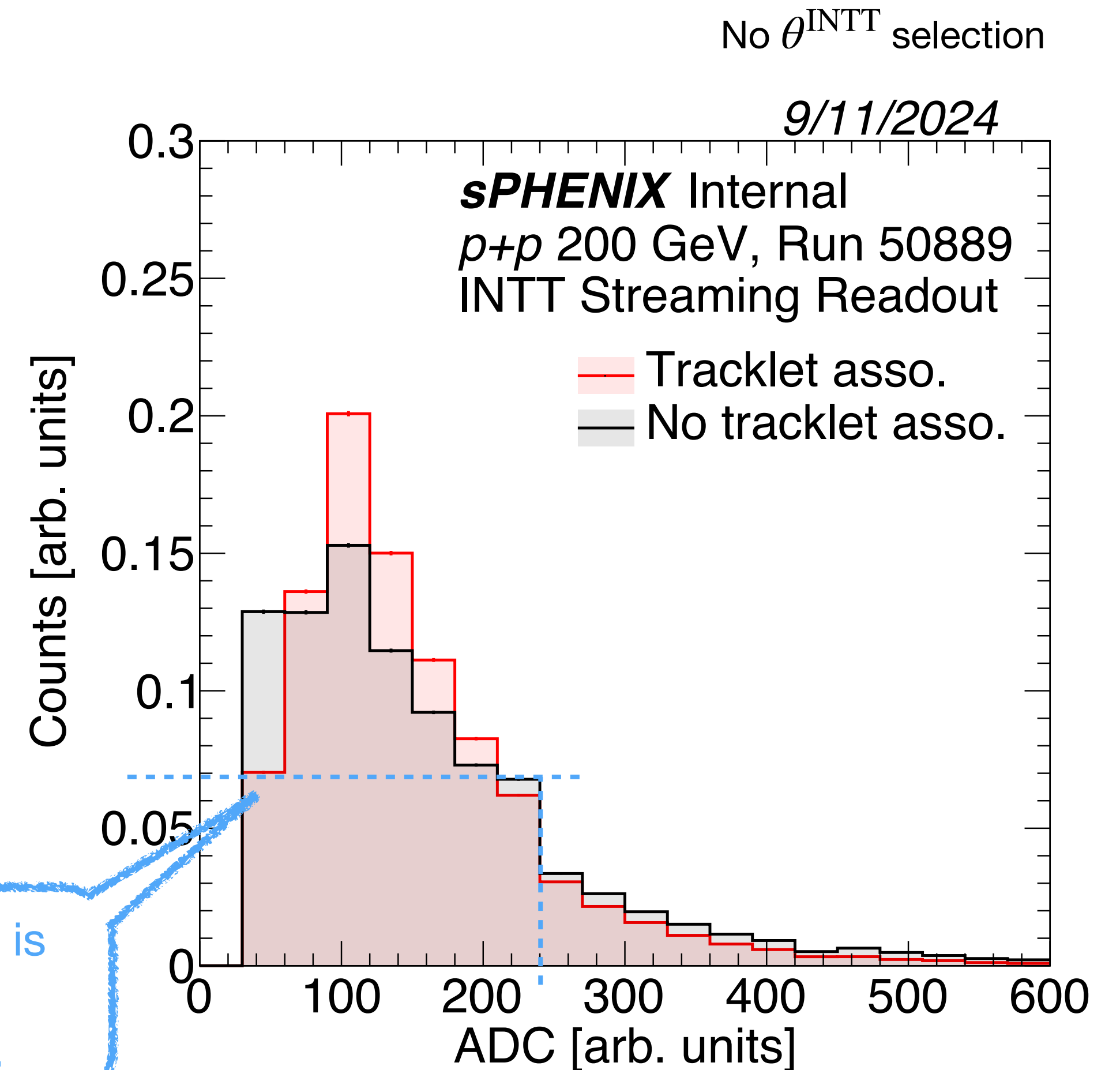
- cluster size (only ϕ) < 5

- association to an INTT tracklet Event selection cuts

ADC distribution



Bin at ADC 35 is significantly suppressed.



No θ^{INTT} is applied.

I didn't expected that the new plot was significantly different from the old version.

That about θ^{INTT} dependence?

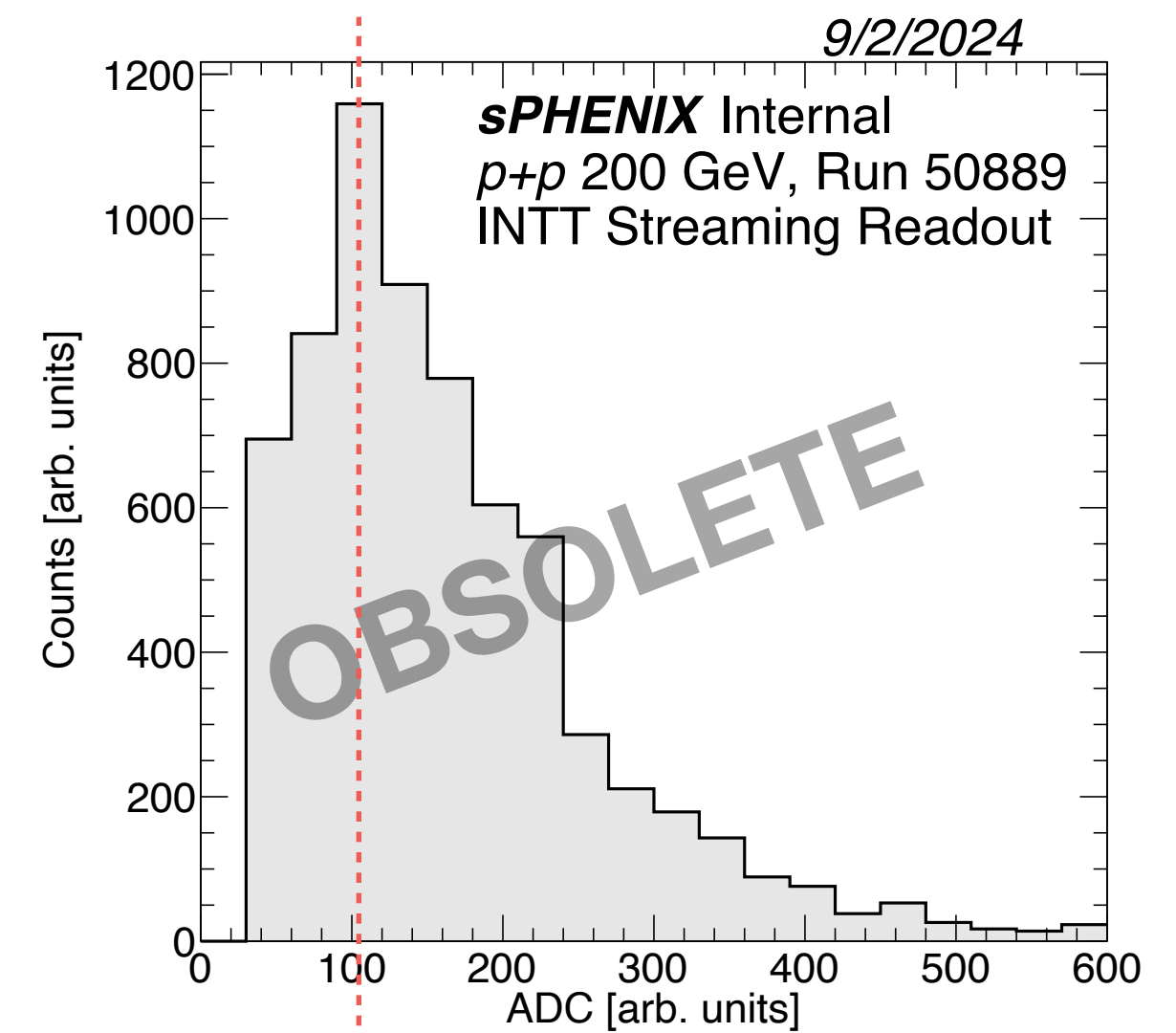
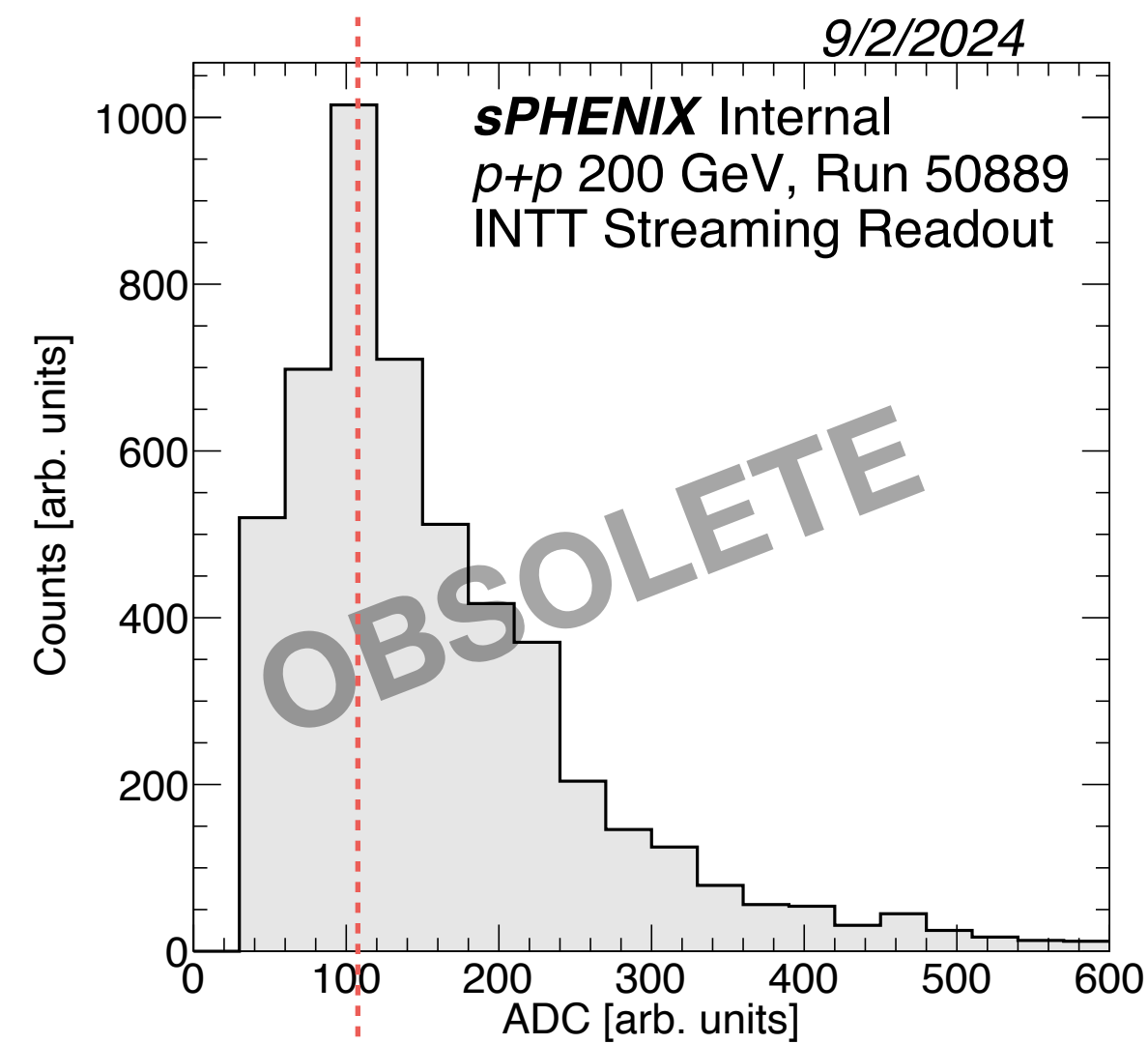
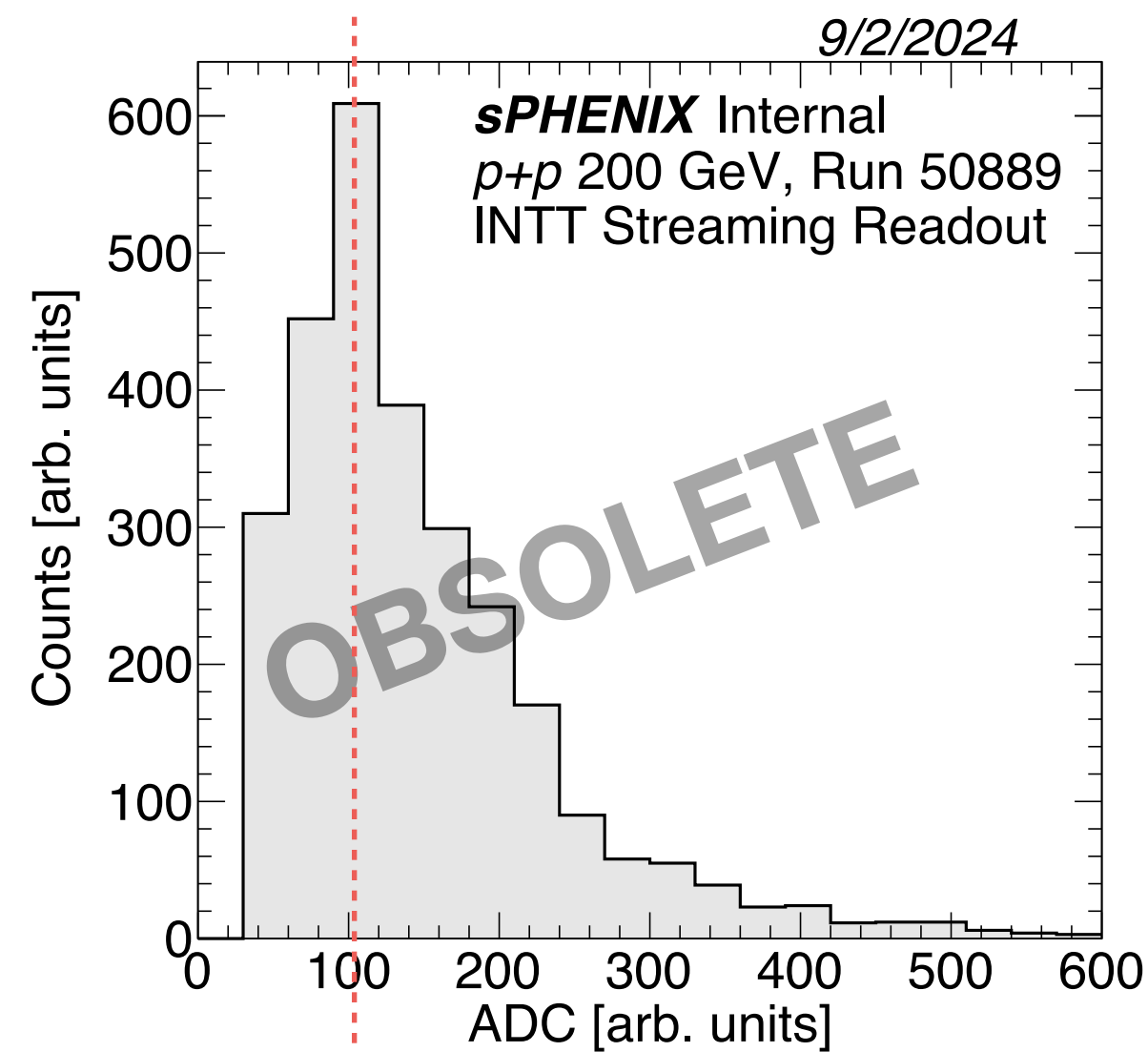
Comparison between the old and new

$$85^\circ < |\theta^{\text{INTT}}| \leq 90^\circ$$

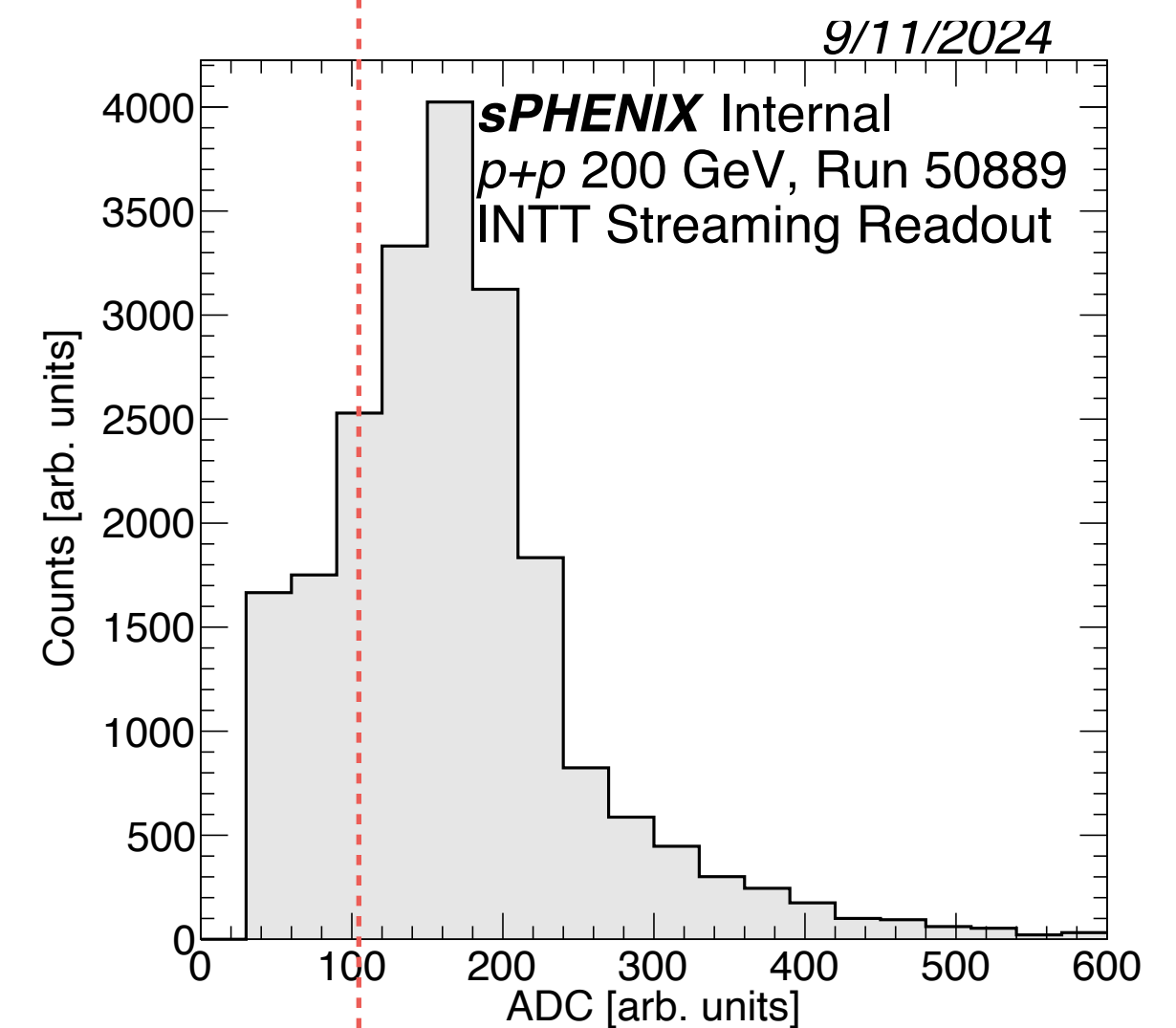
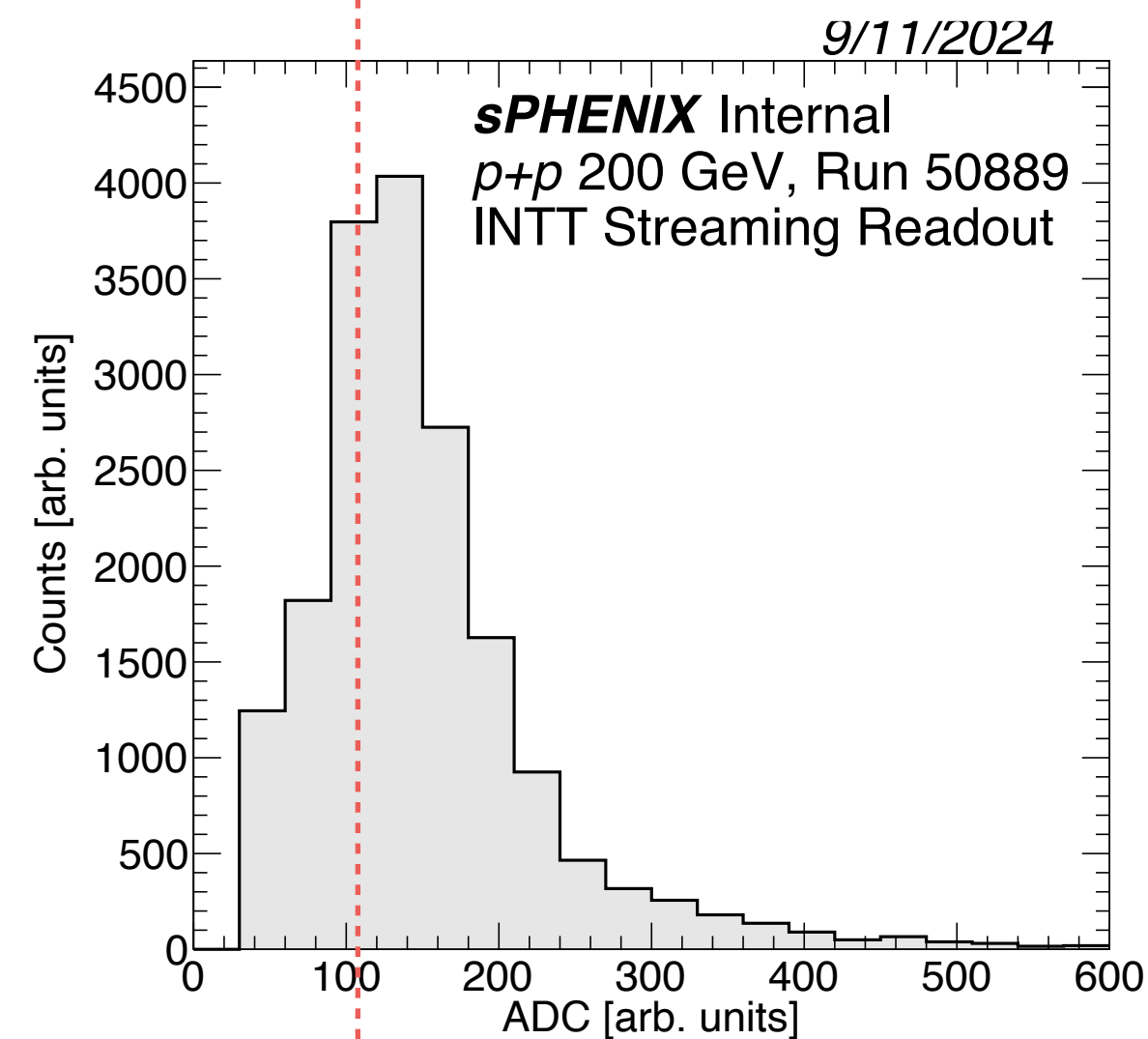
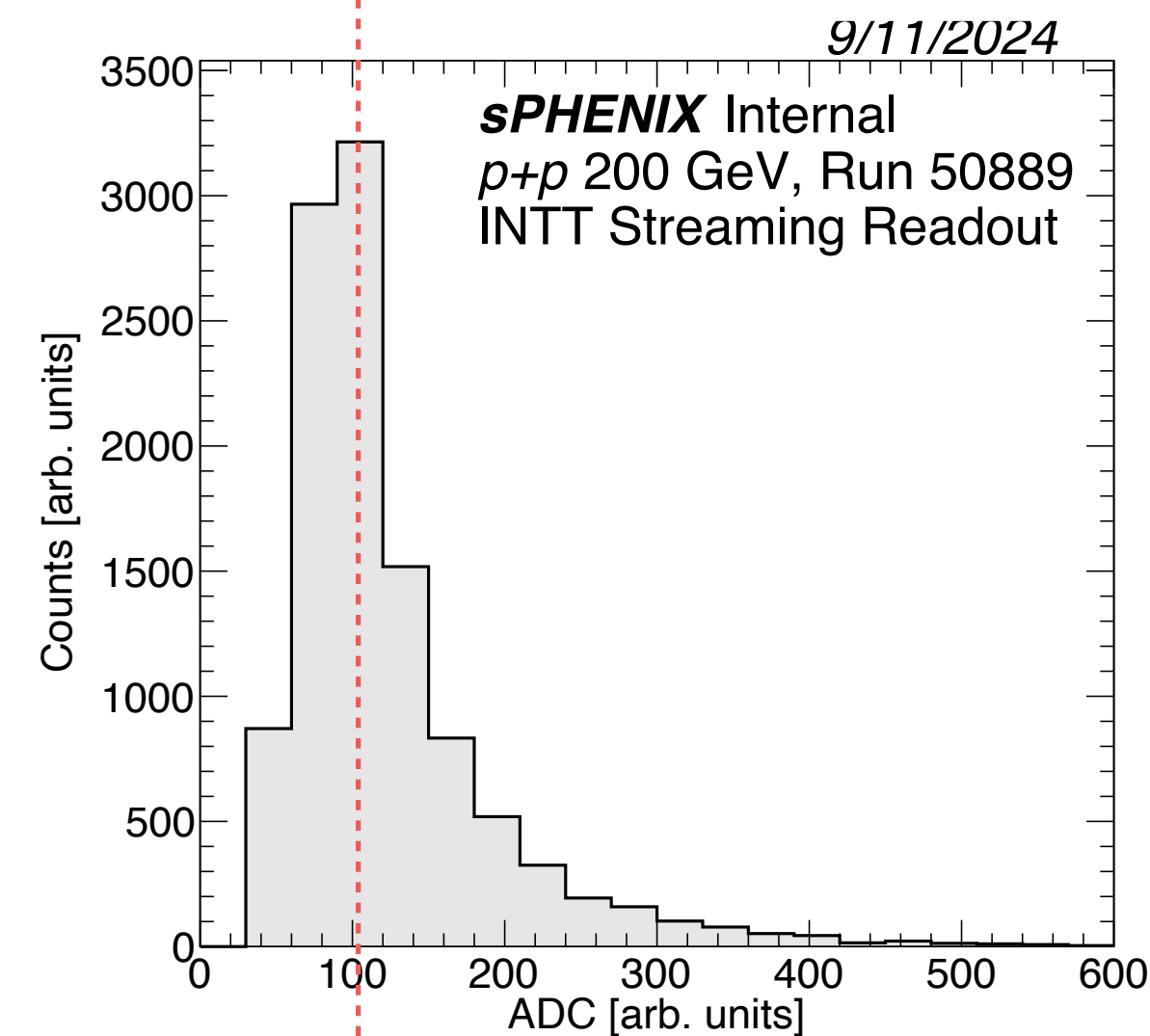
$$40^\circ < |\theta^{\text{INTT}}| \leq 45^\circ$$

$$30^\circ < |\theta^{\text{INTT}}| \leq 35^\circ$$

OLD



NEW



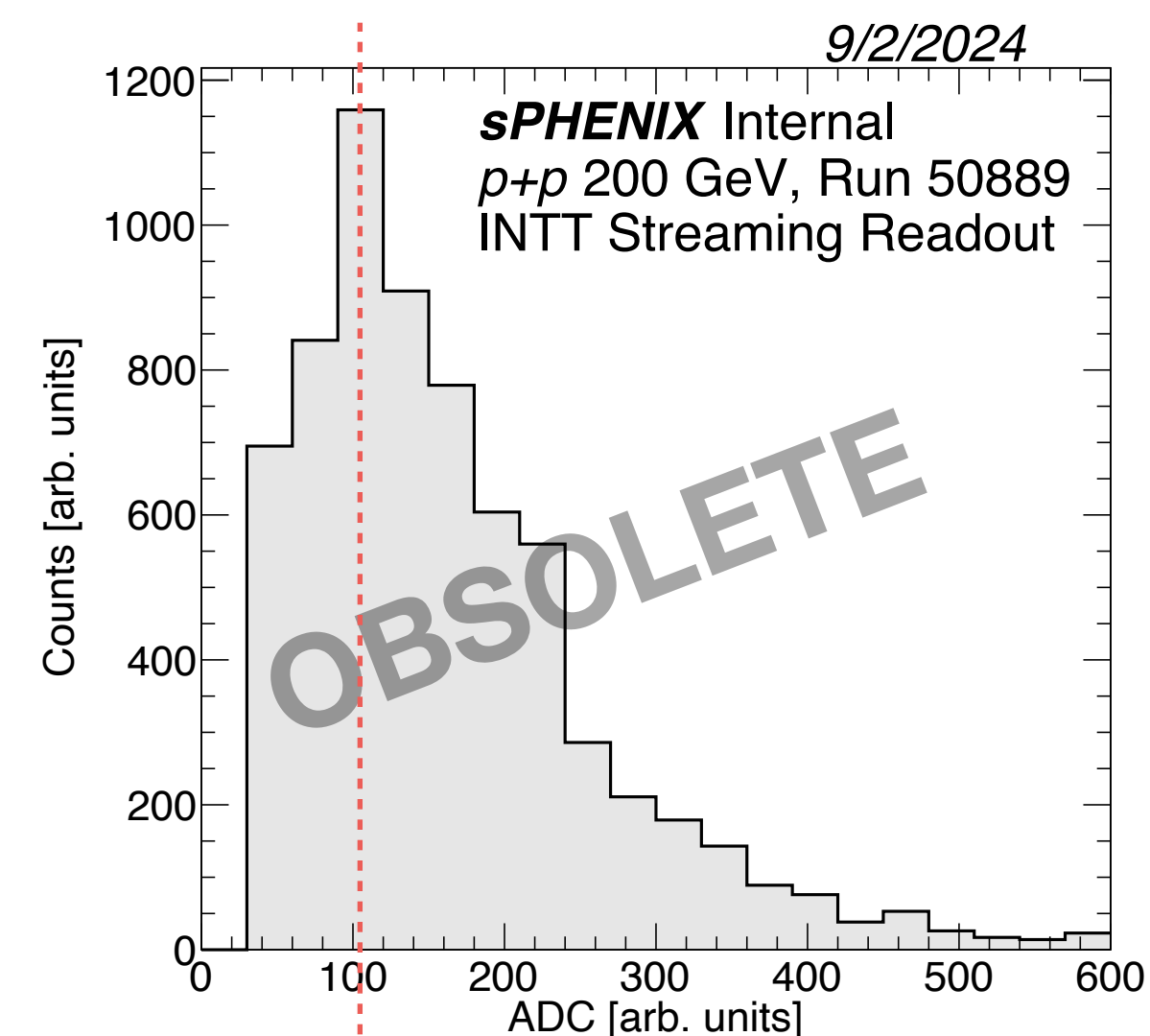
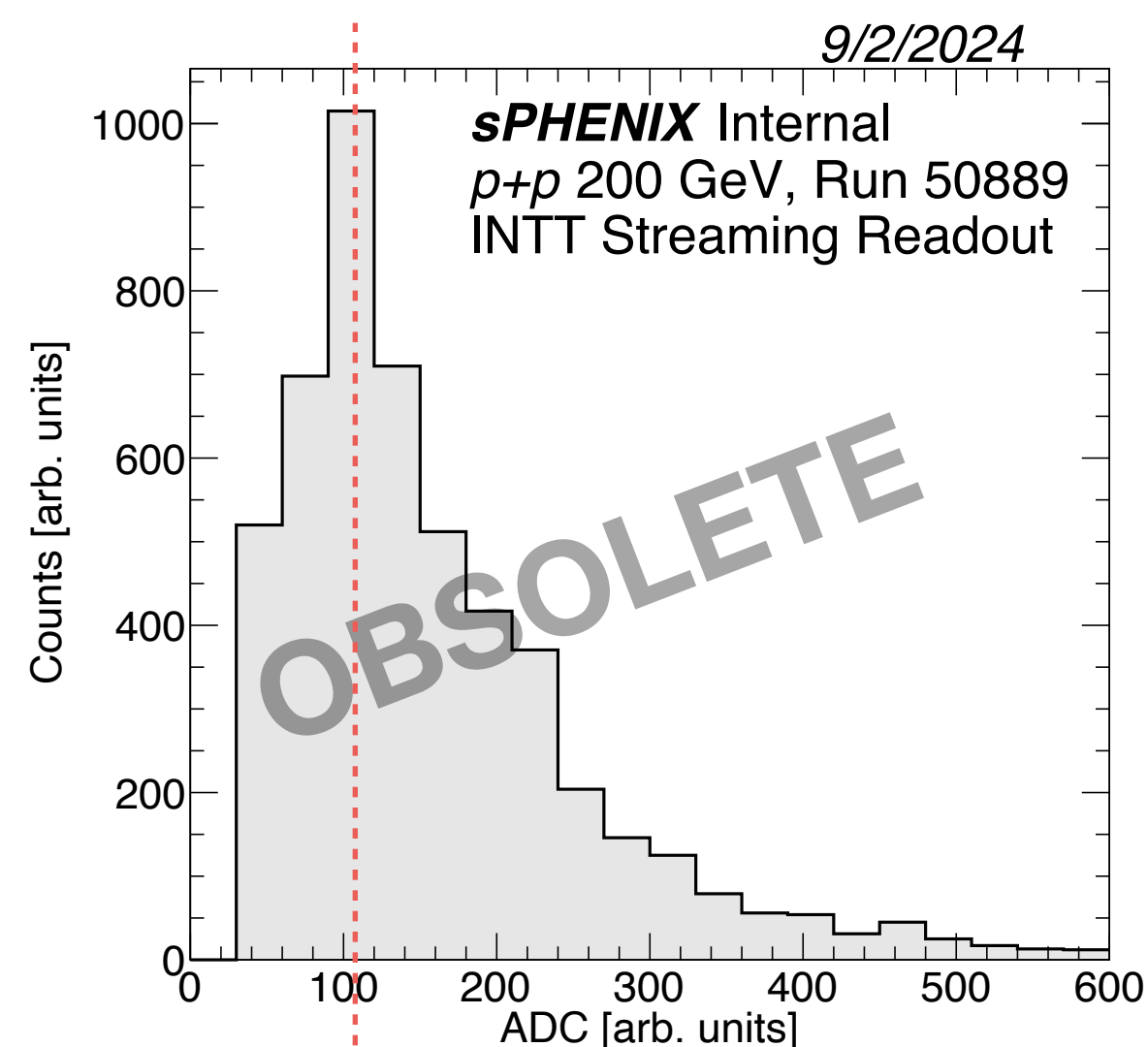
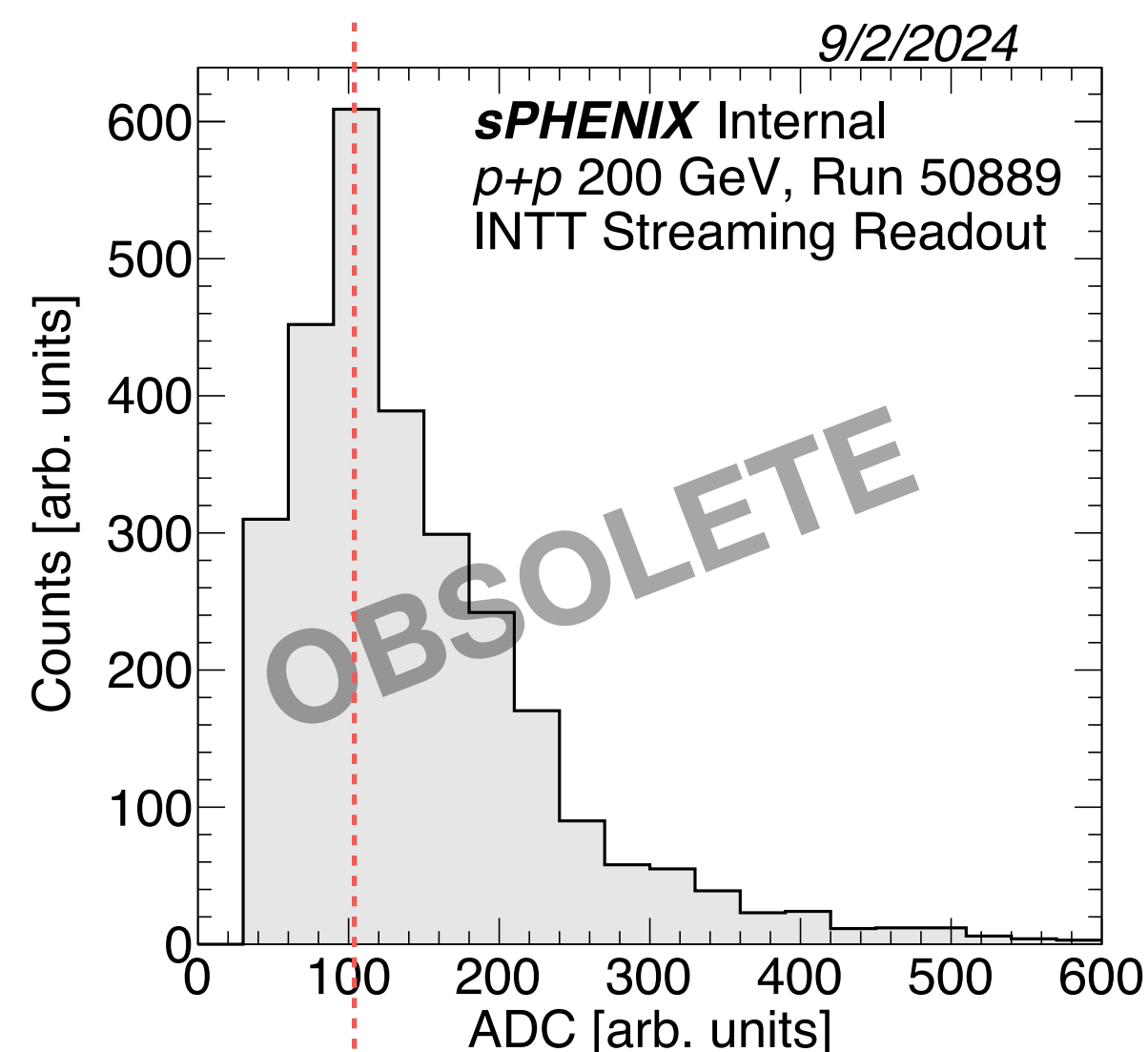
Comparison between the old and new

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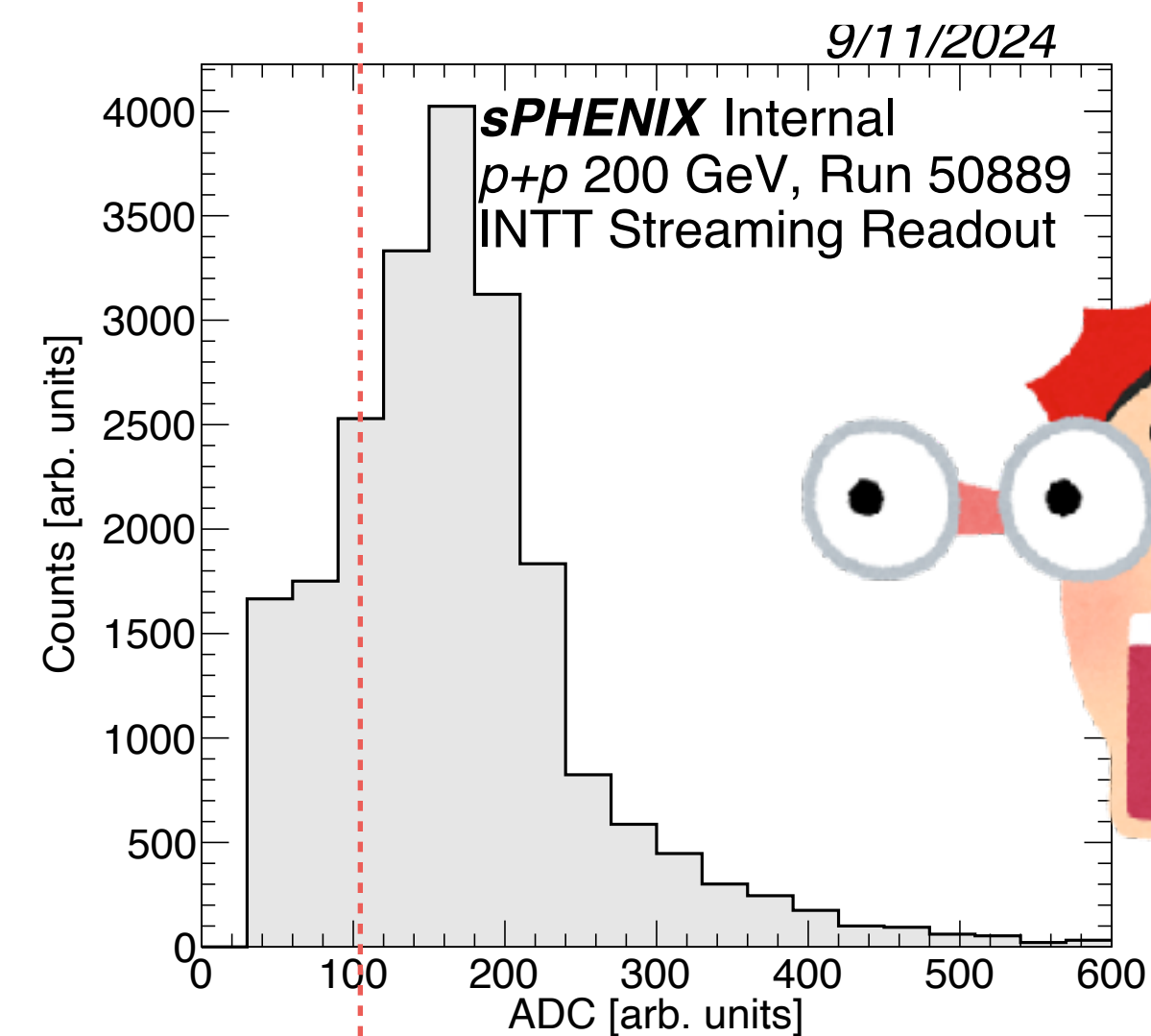
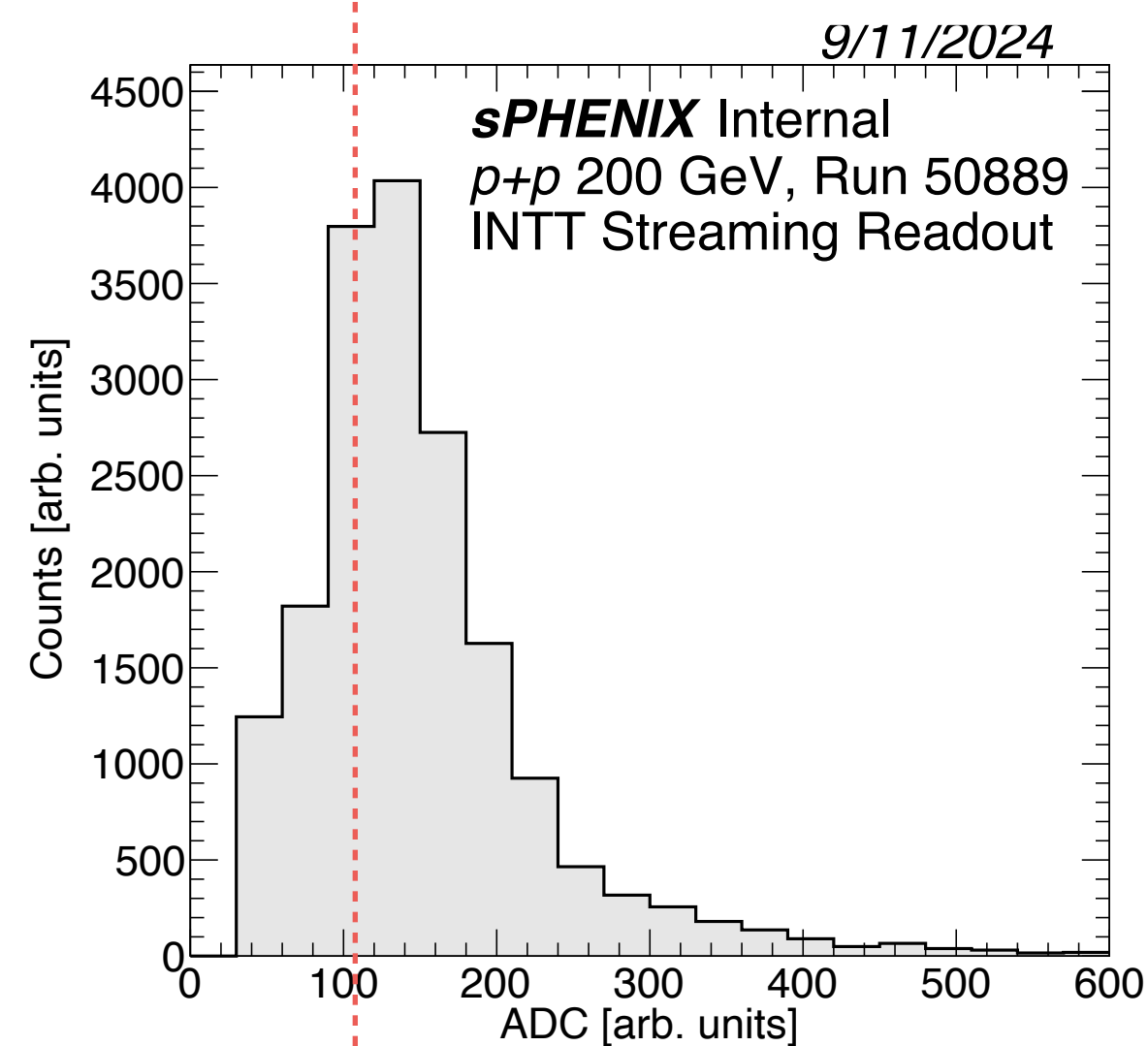
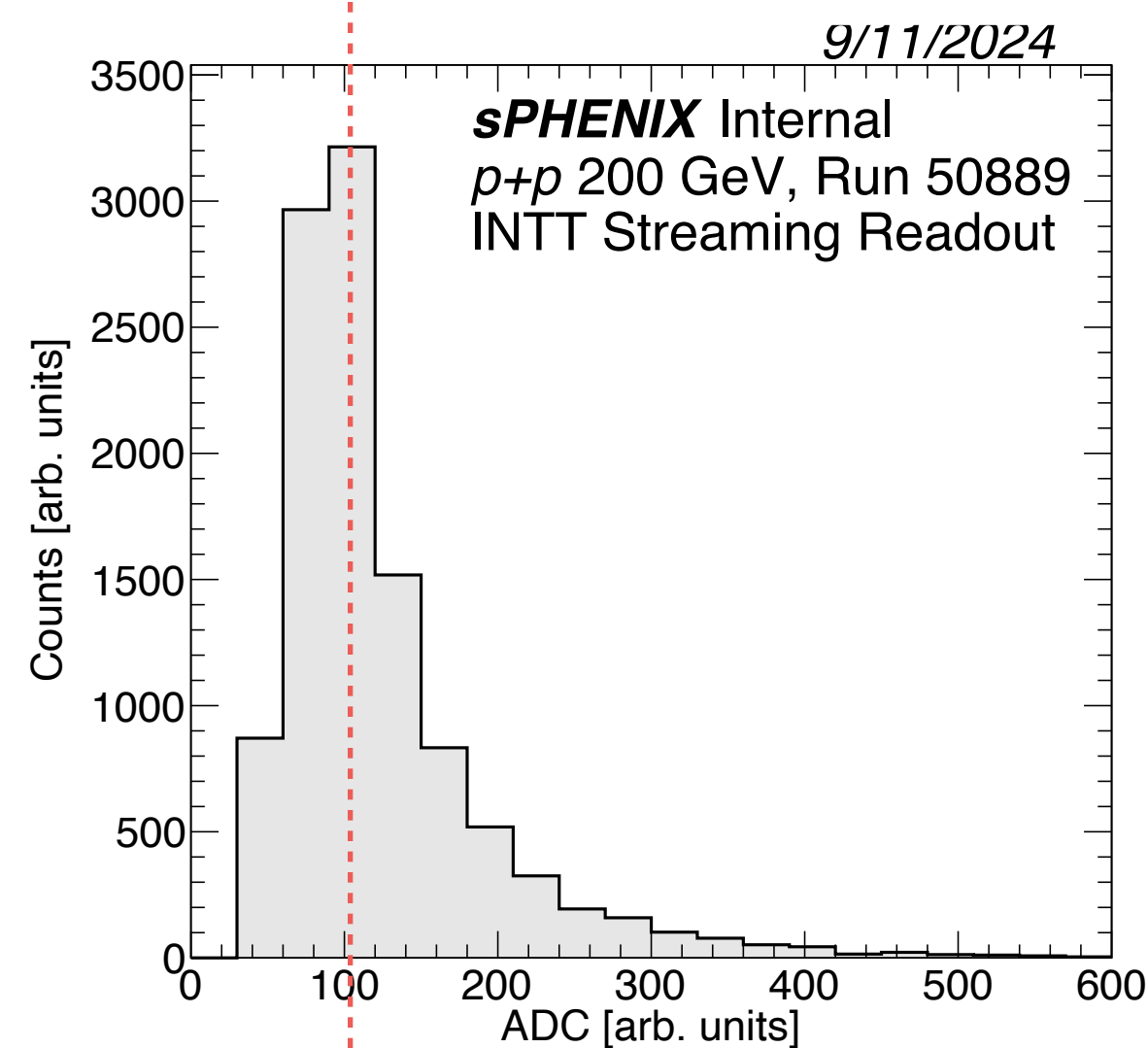
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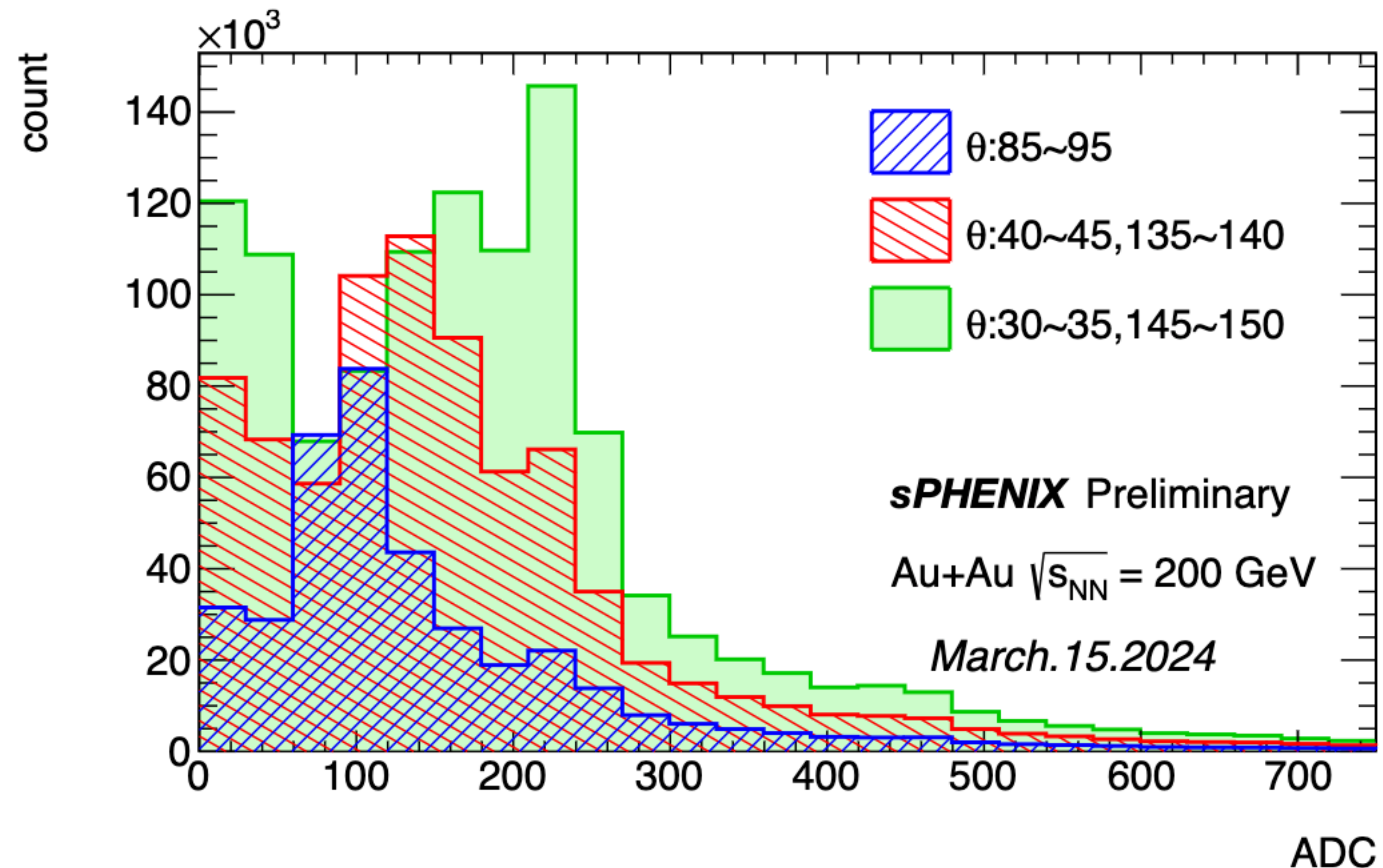
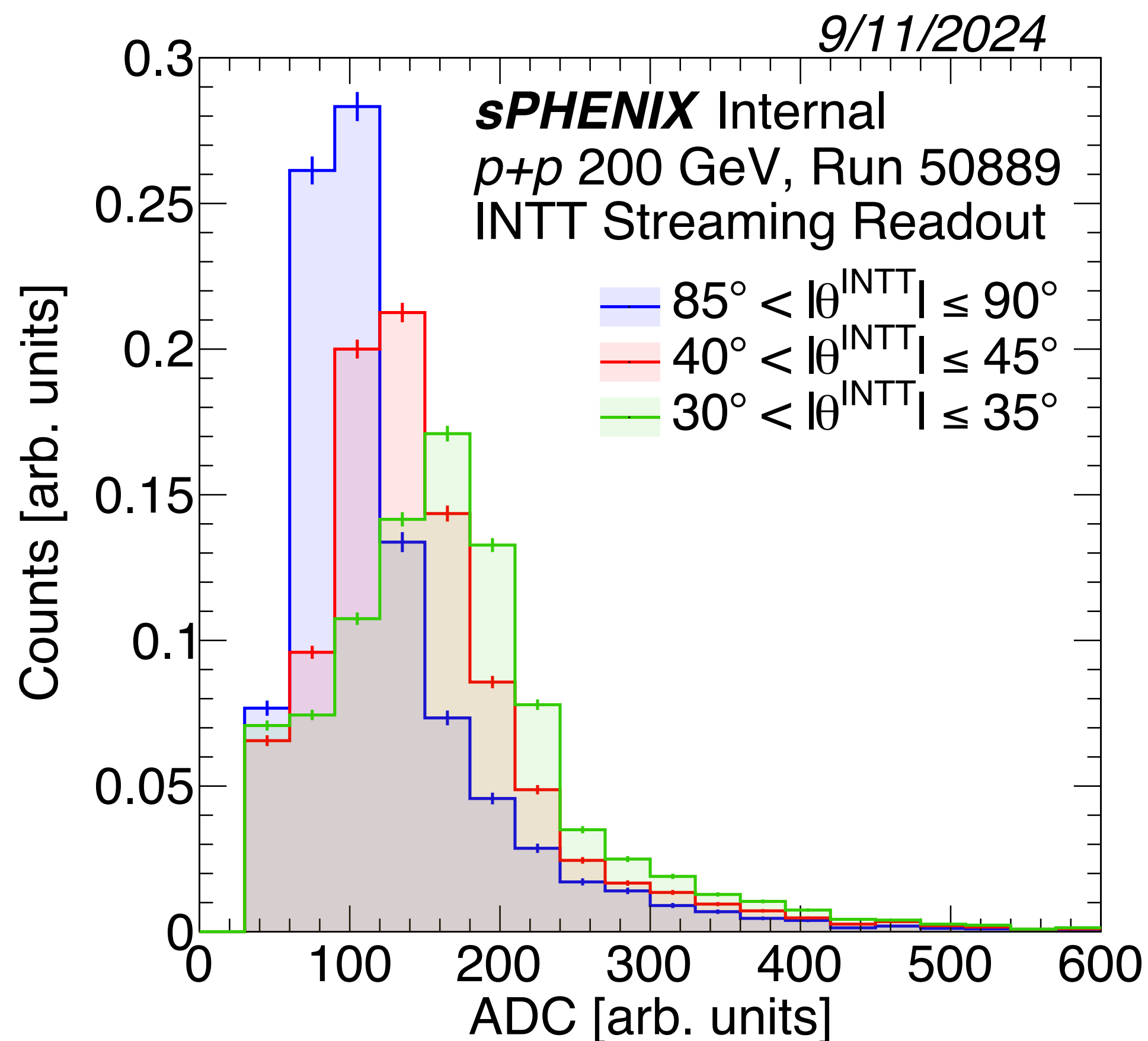
OLD



NEW



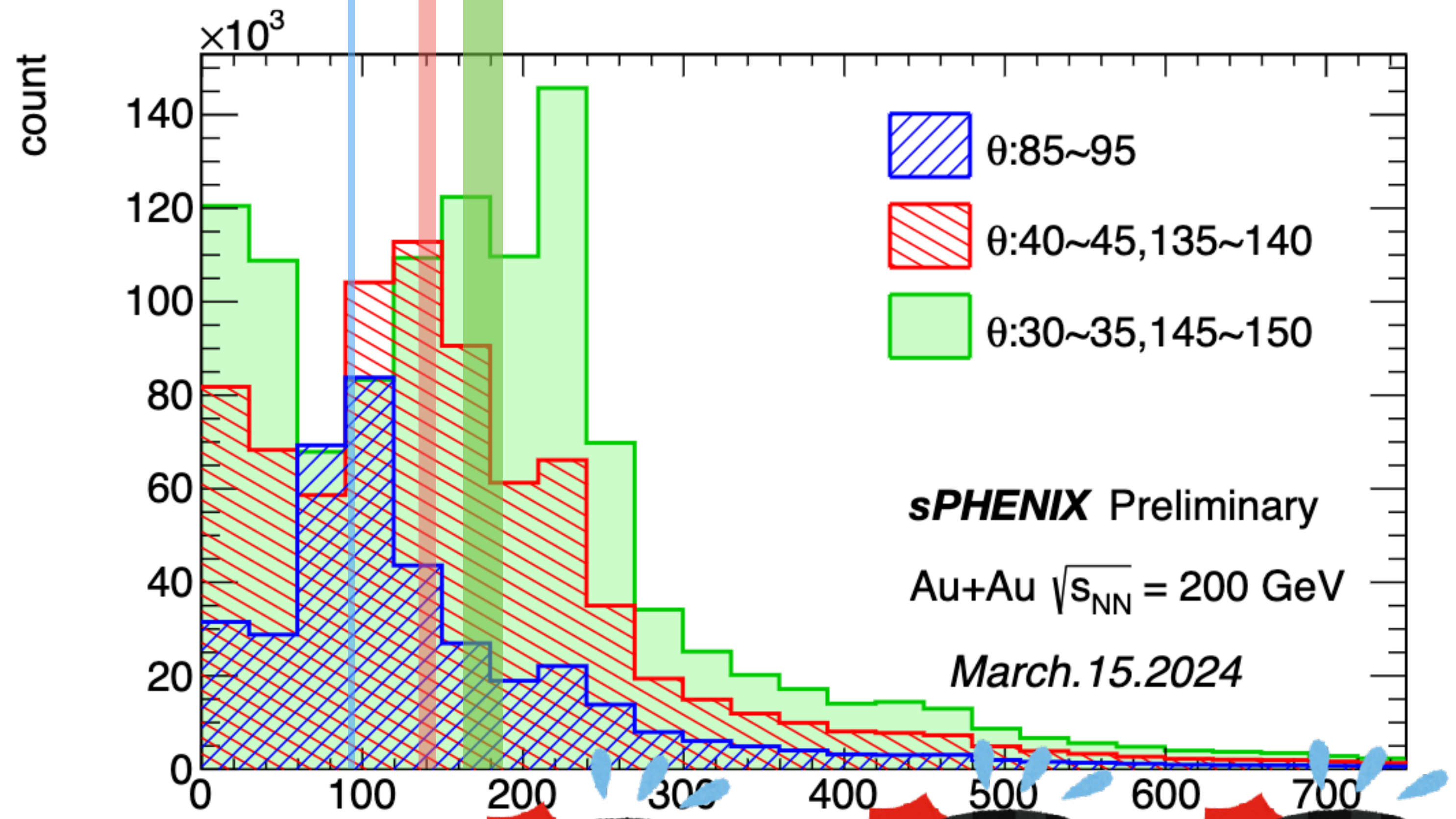
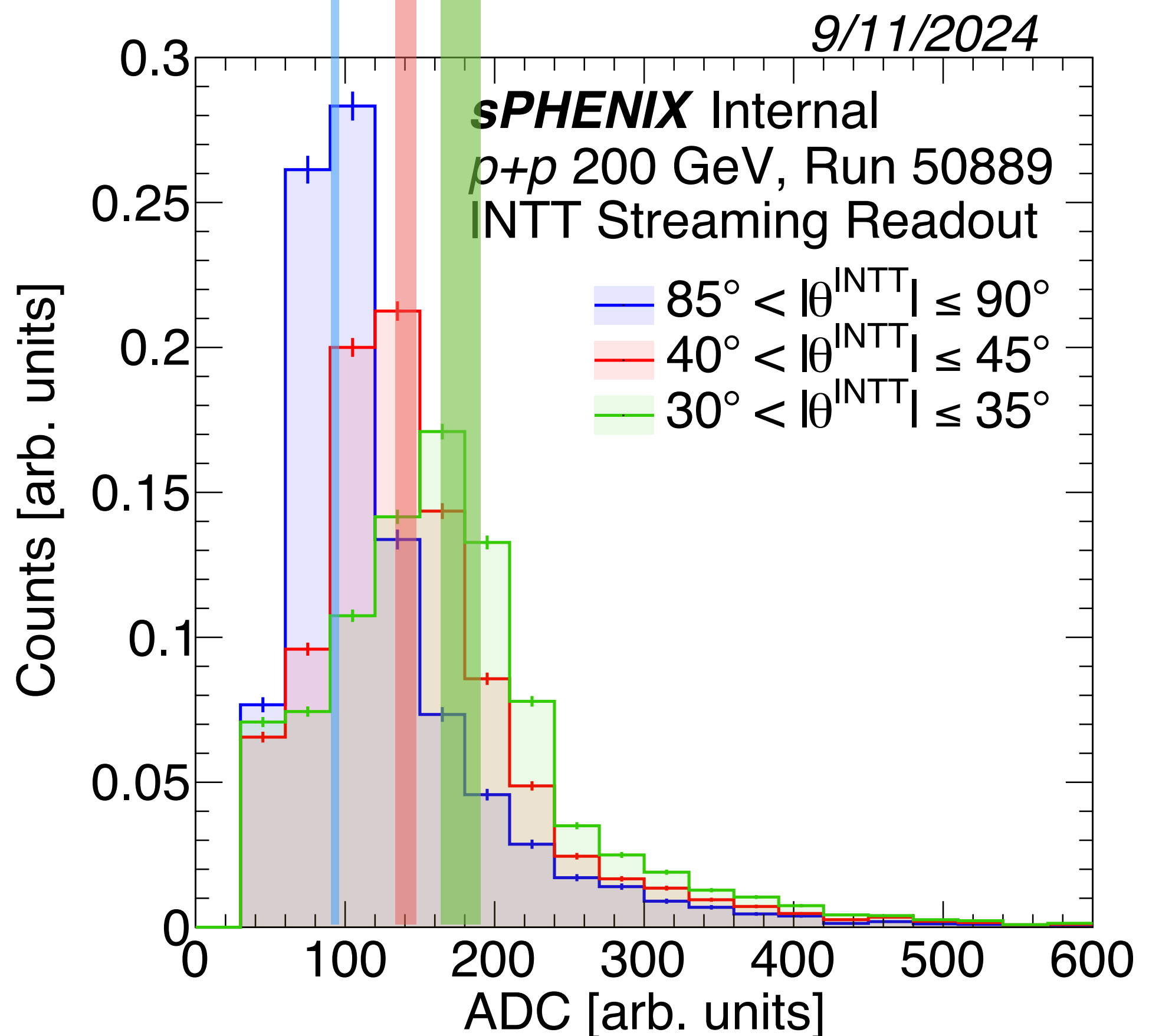
Comparison to Misaki's results



Expected peak region from calculation

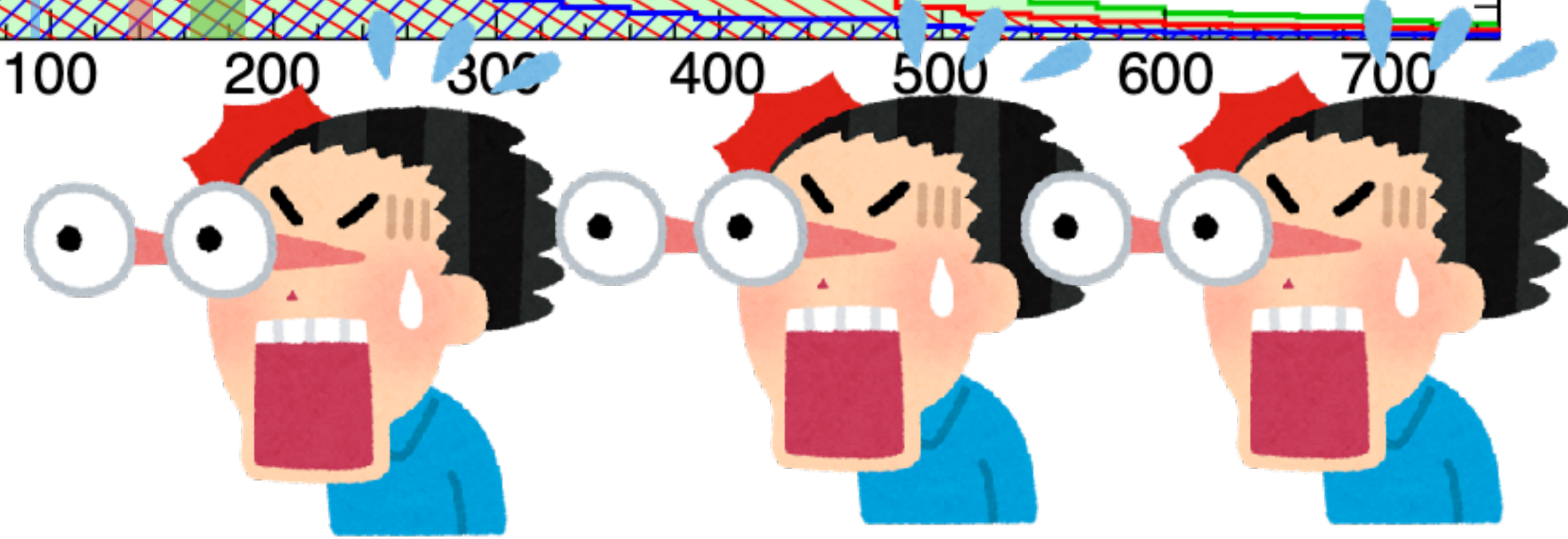
- $85^\circ < |\theta| < 90^\circ$: DAC 94 — 95
- $40^\circ < |\theta| < 45^\circ$: DAC 134 — 147
- $30^\circ < |\theta| < 35^\circ$: DAC 165 — 189

Comparison to Misaki's results

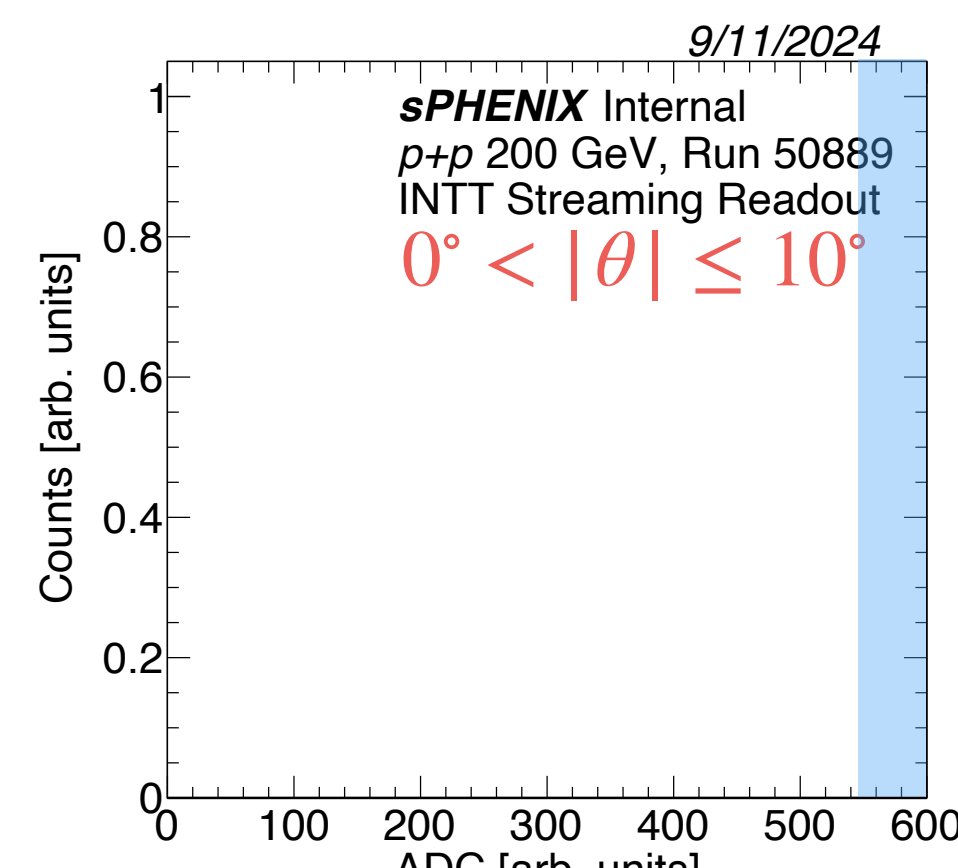
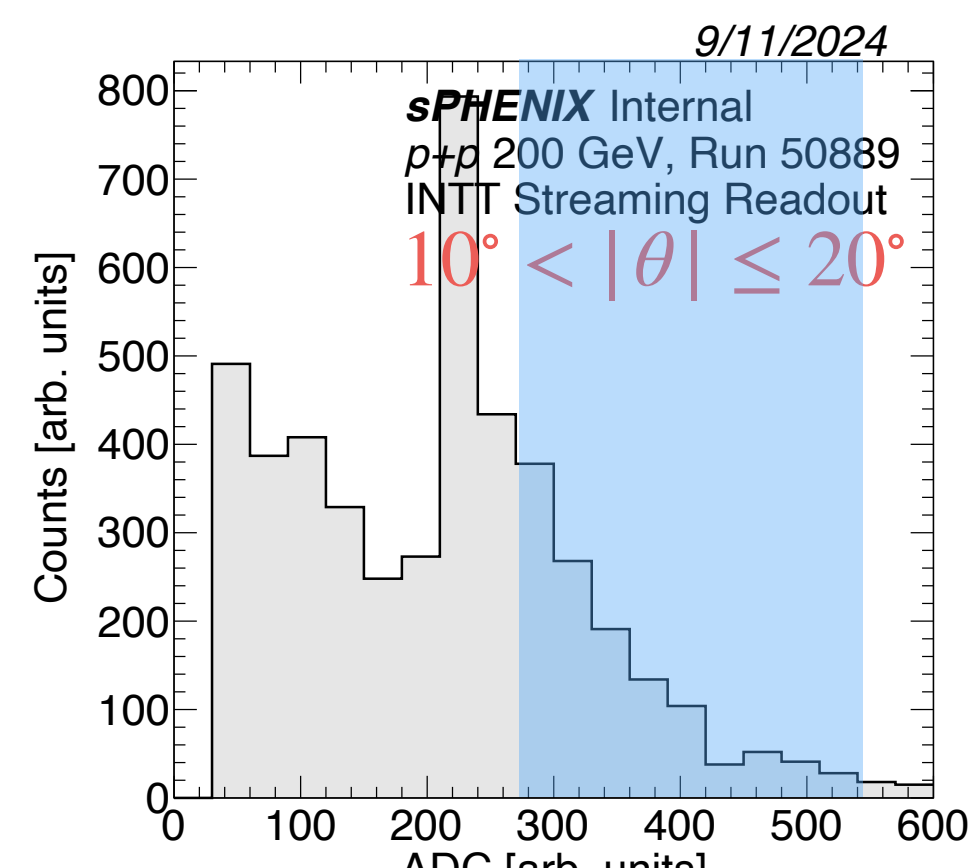
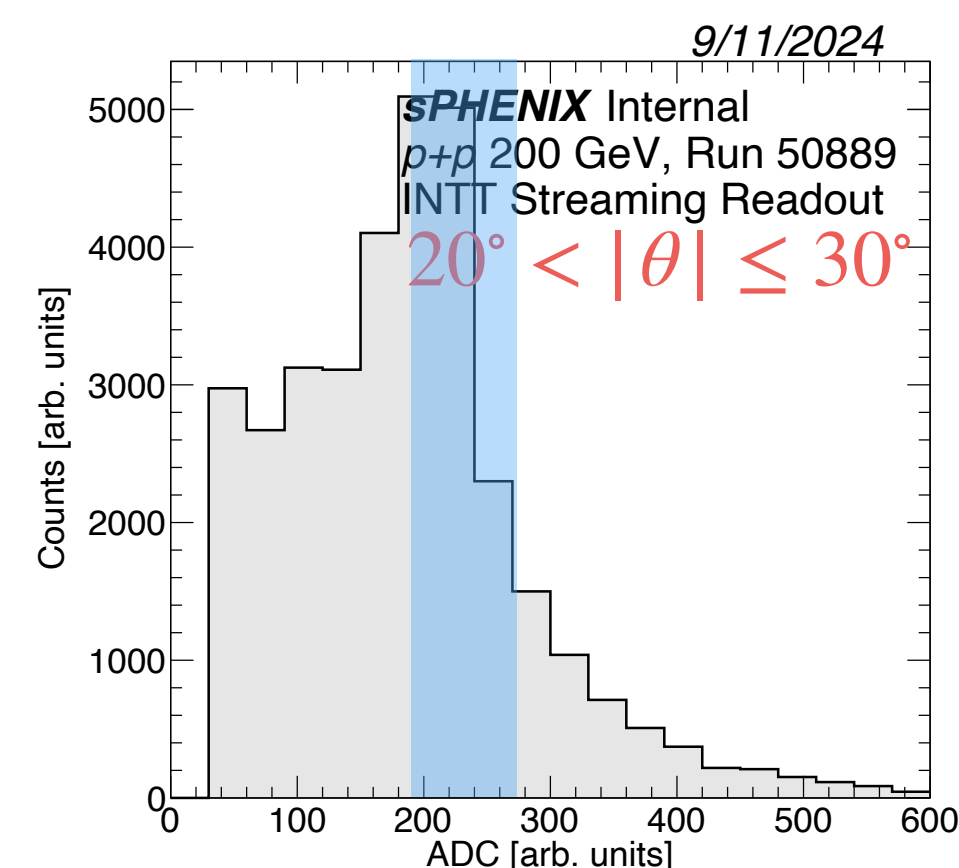
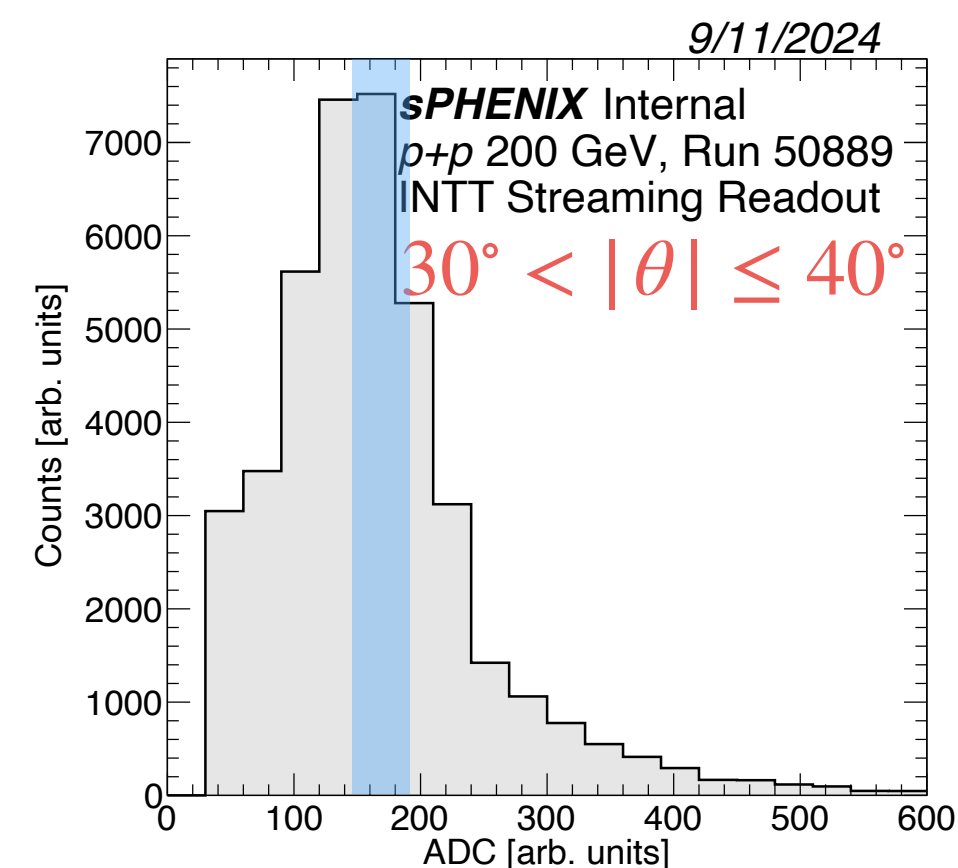
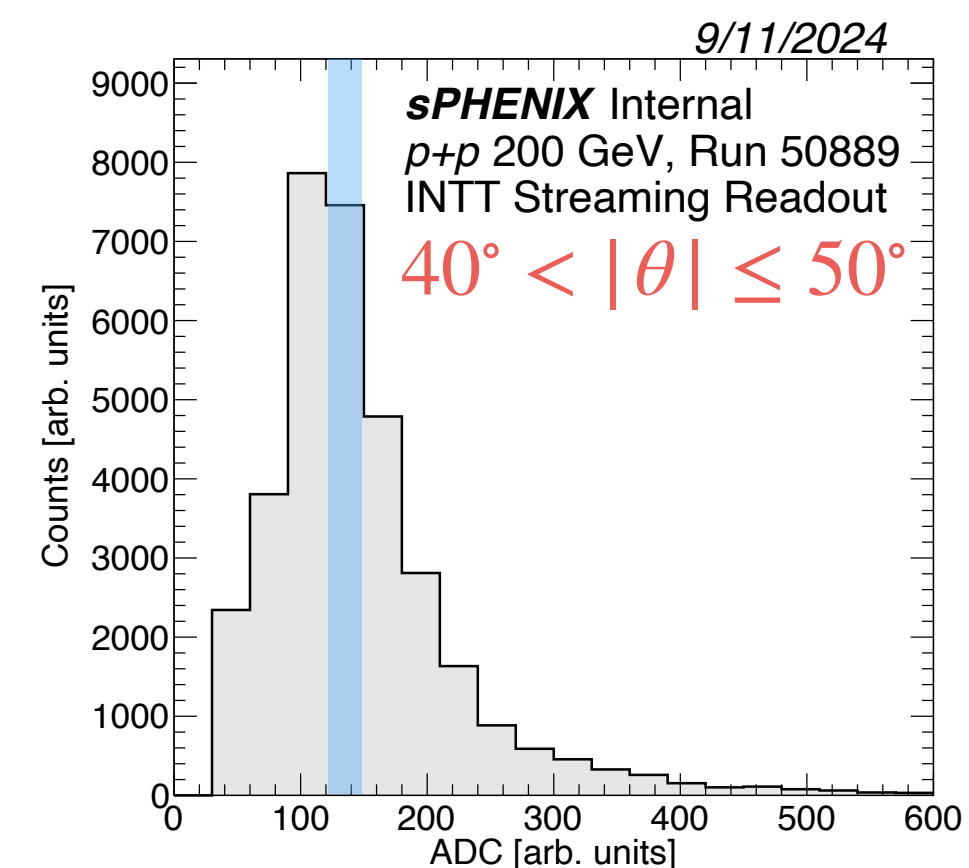
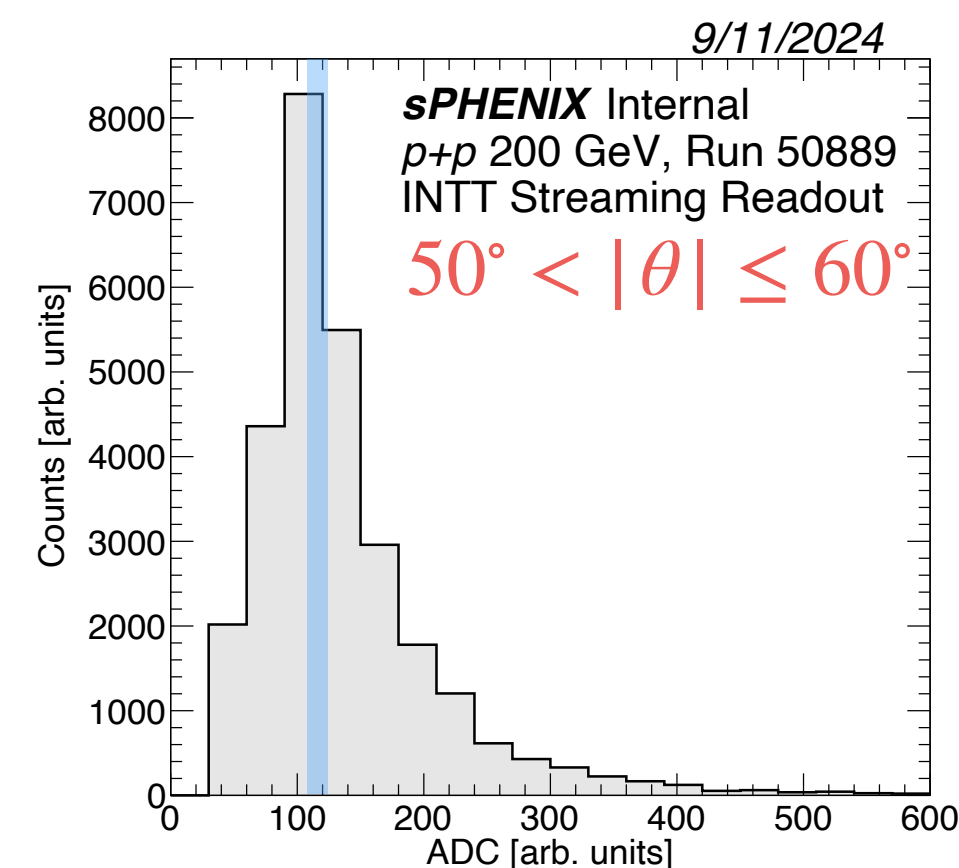
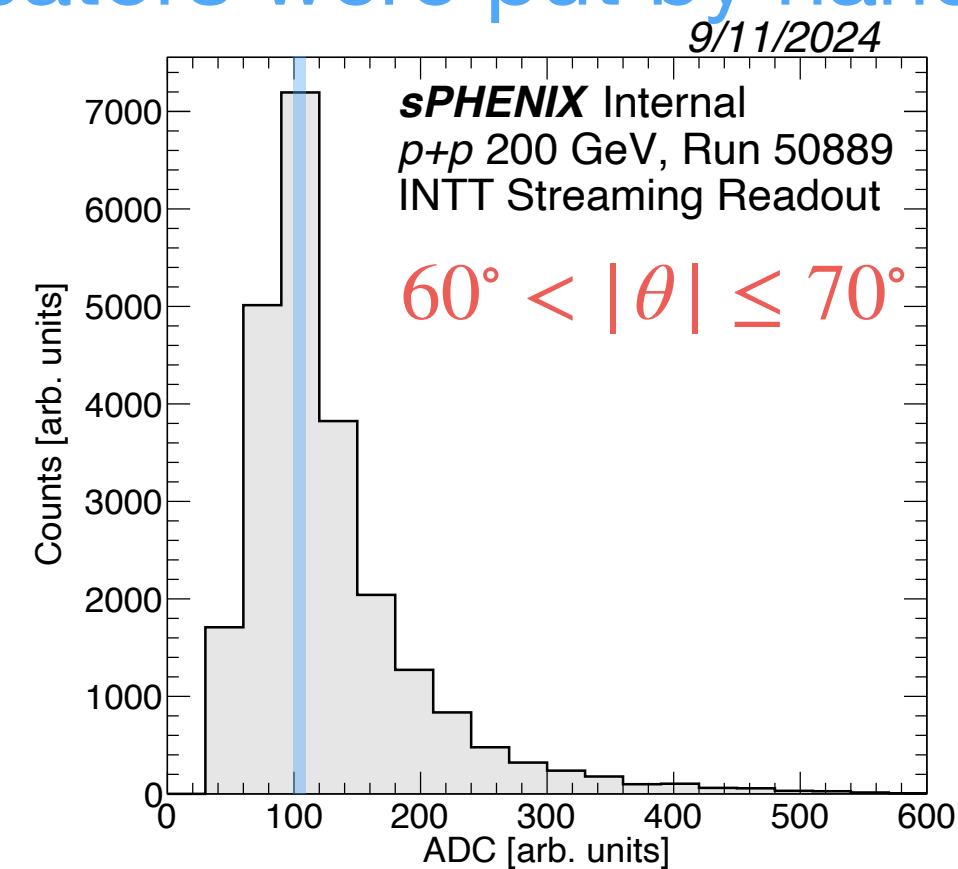
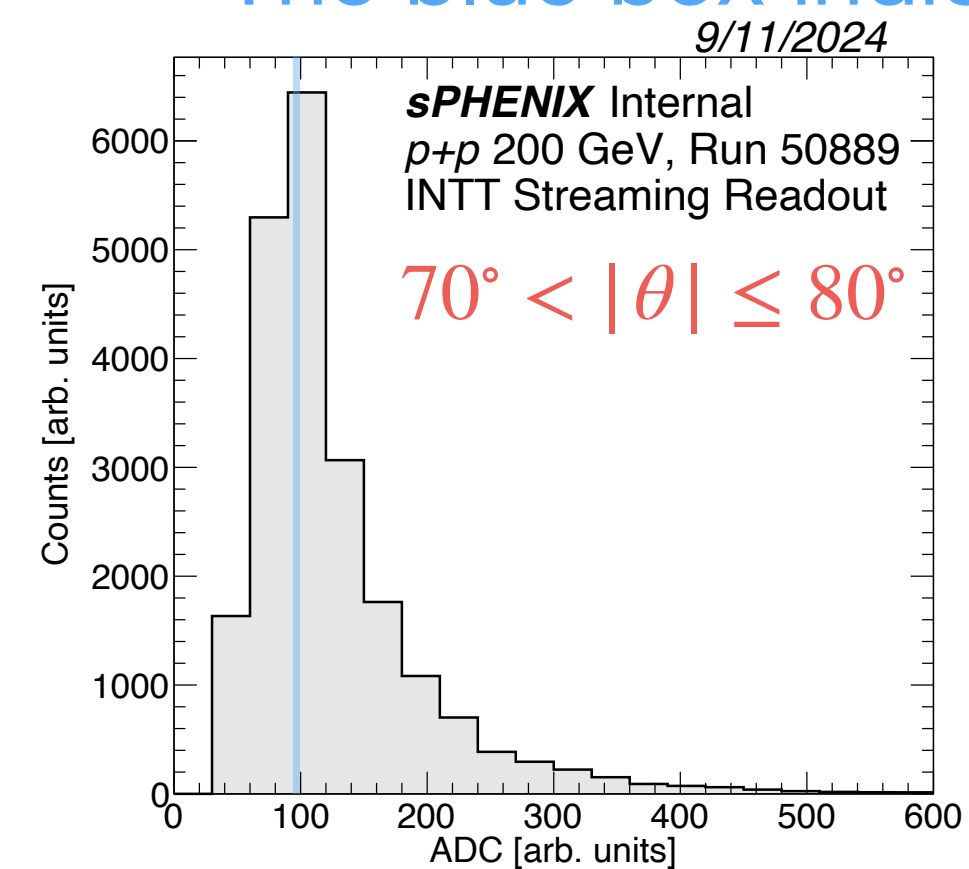
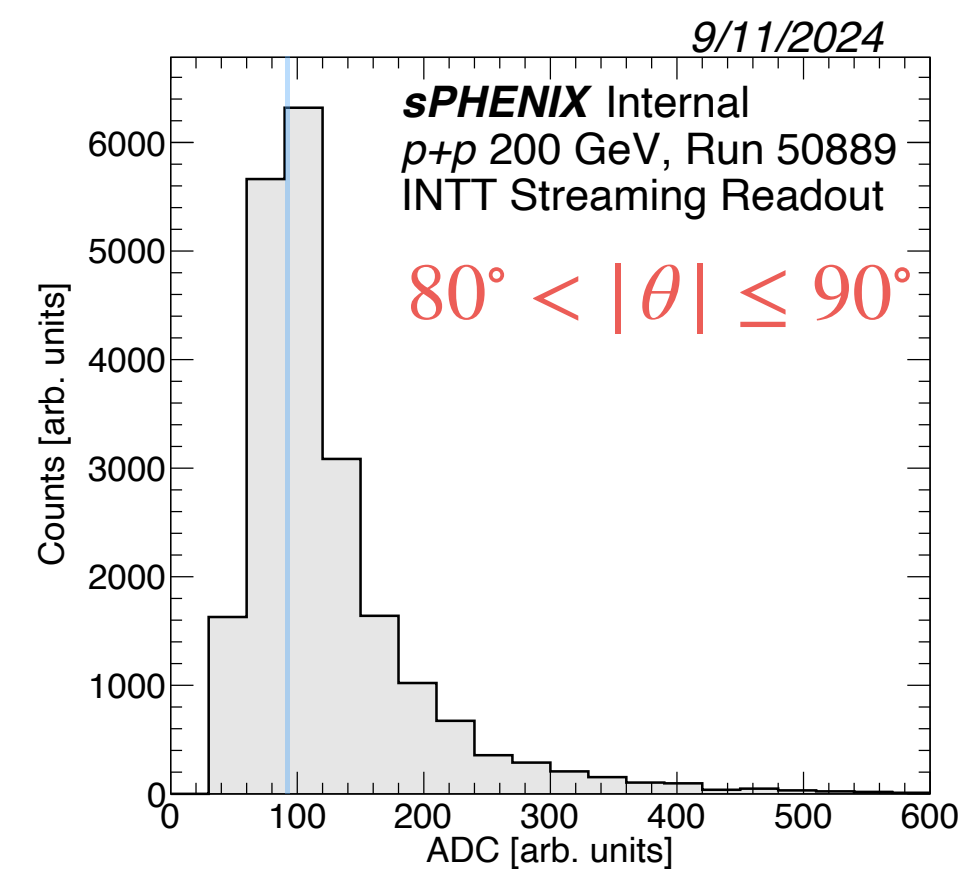
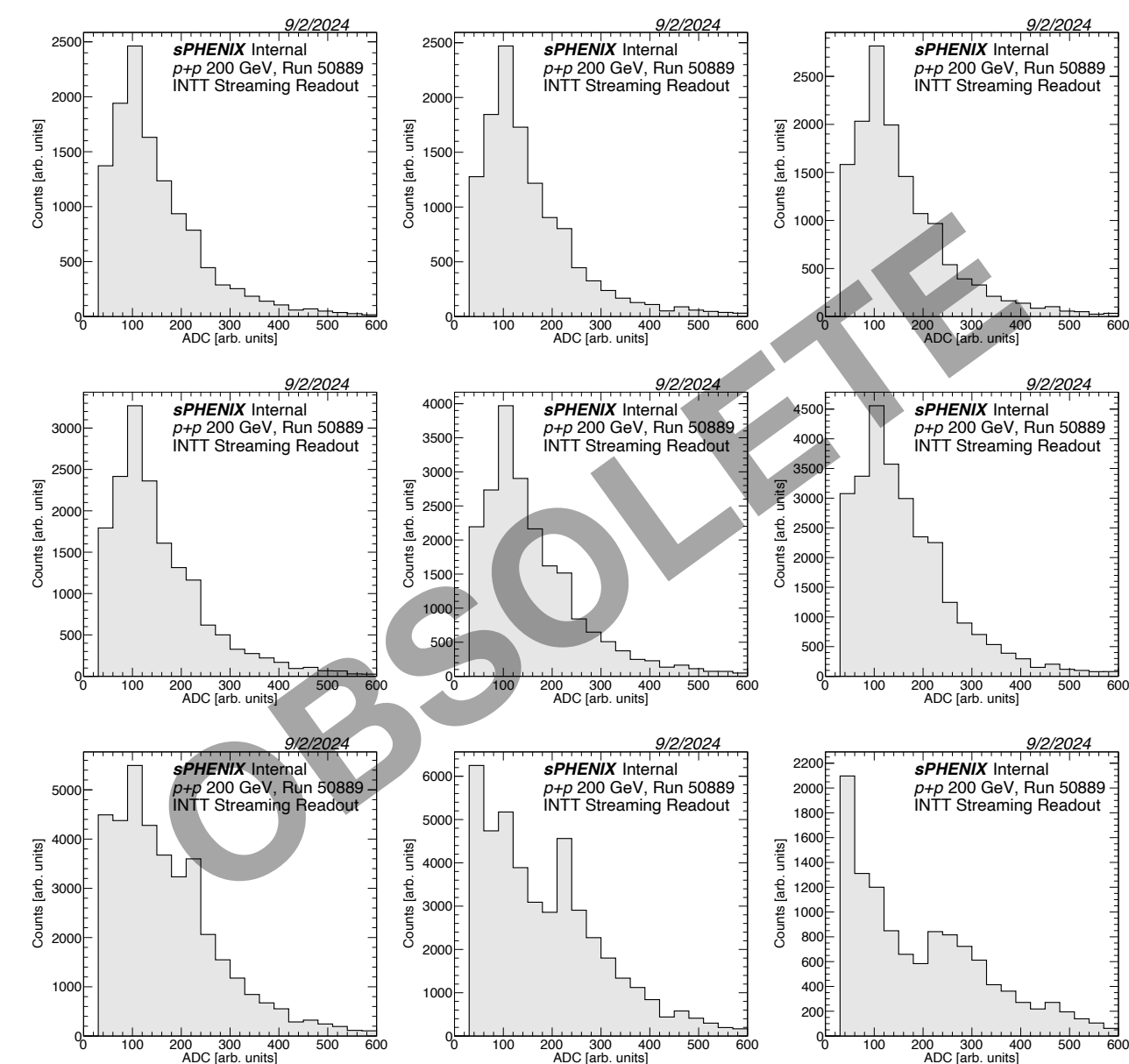


Expected peak region from calculation

- 85° < $|\theta|$ < 90° : DAC 94 — 95
- 40° < $|\theta|$ < 45° : DAC 134 — 147
- 30° < $|\theta|$ < 35° : DAC 165 — 189



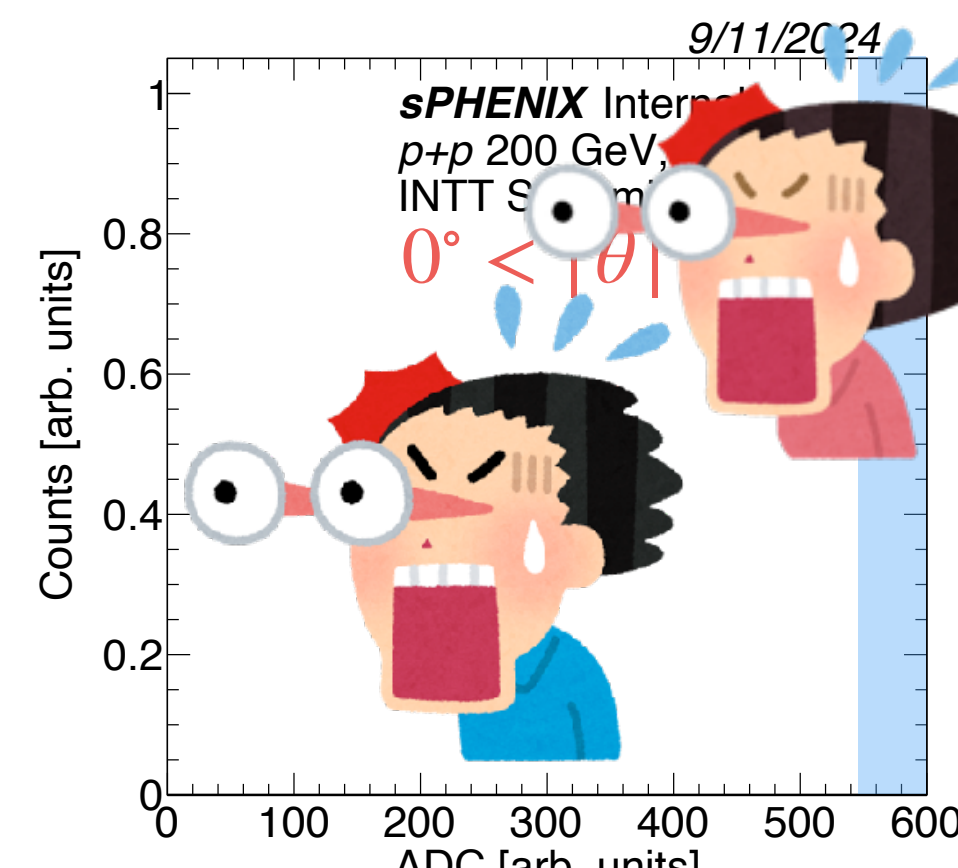
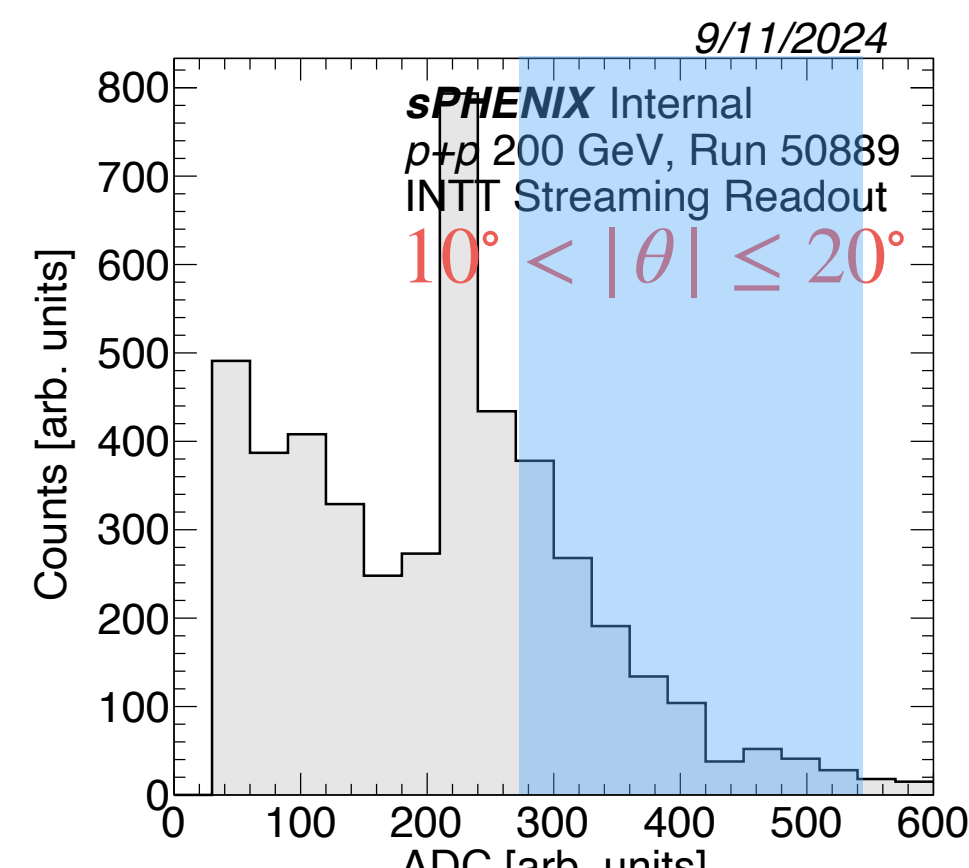
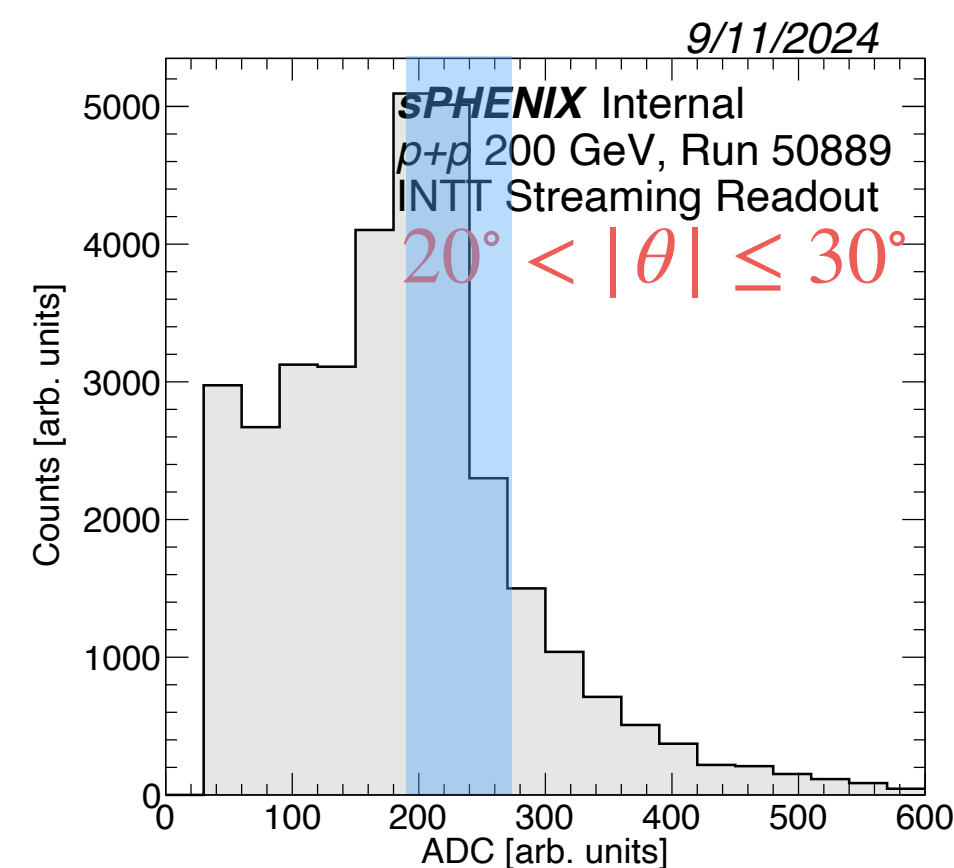
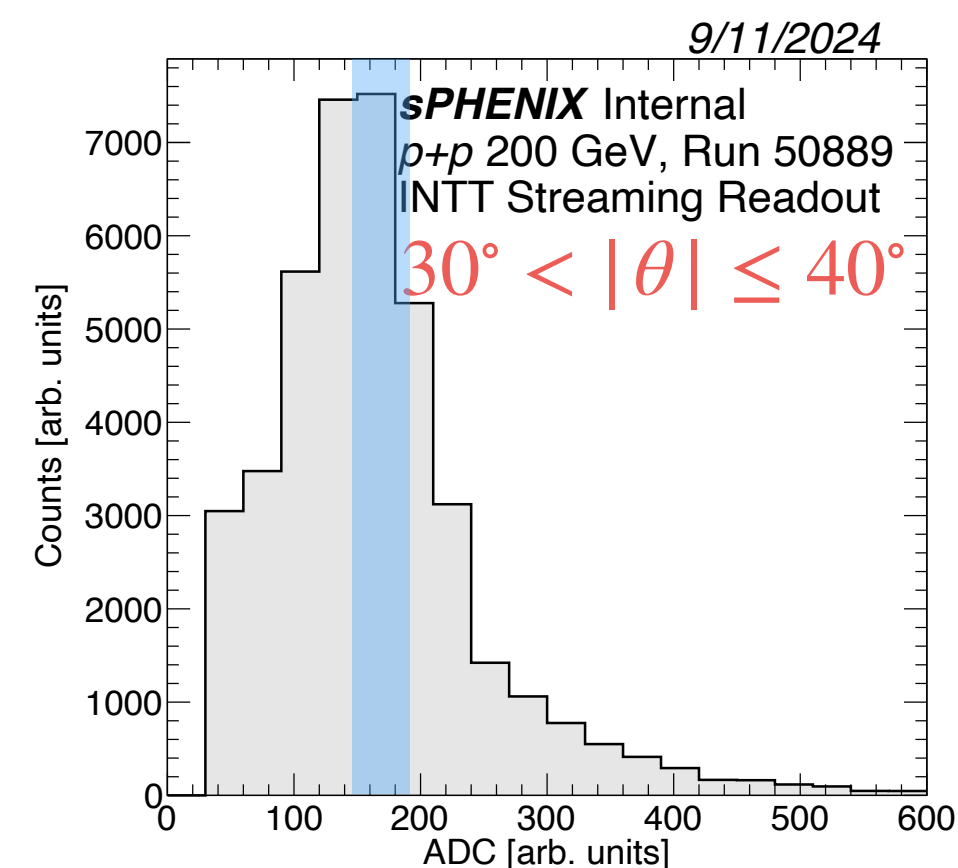
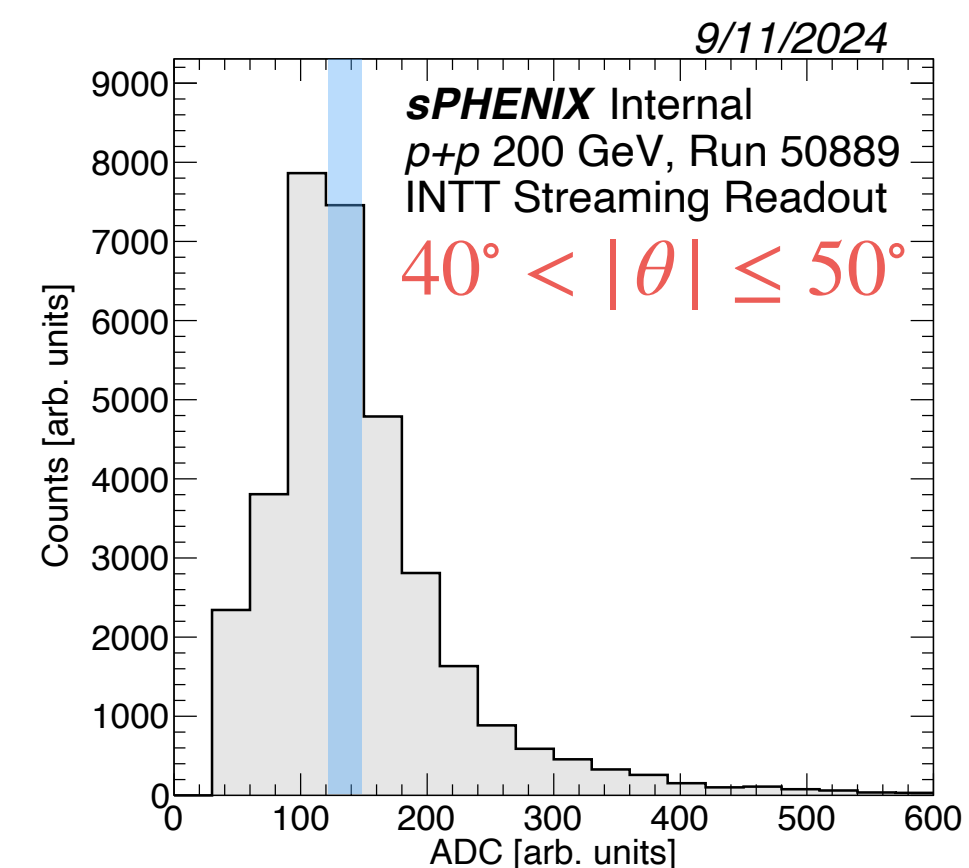
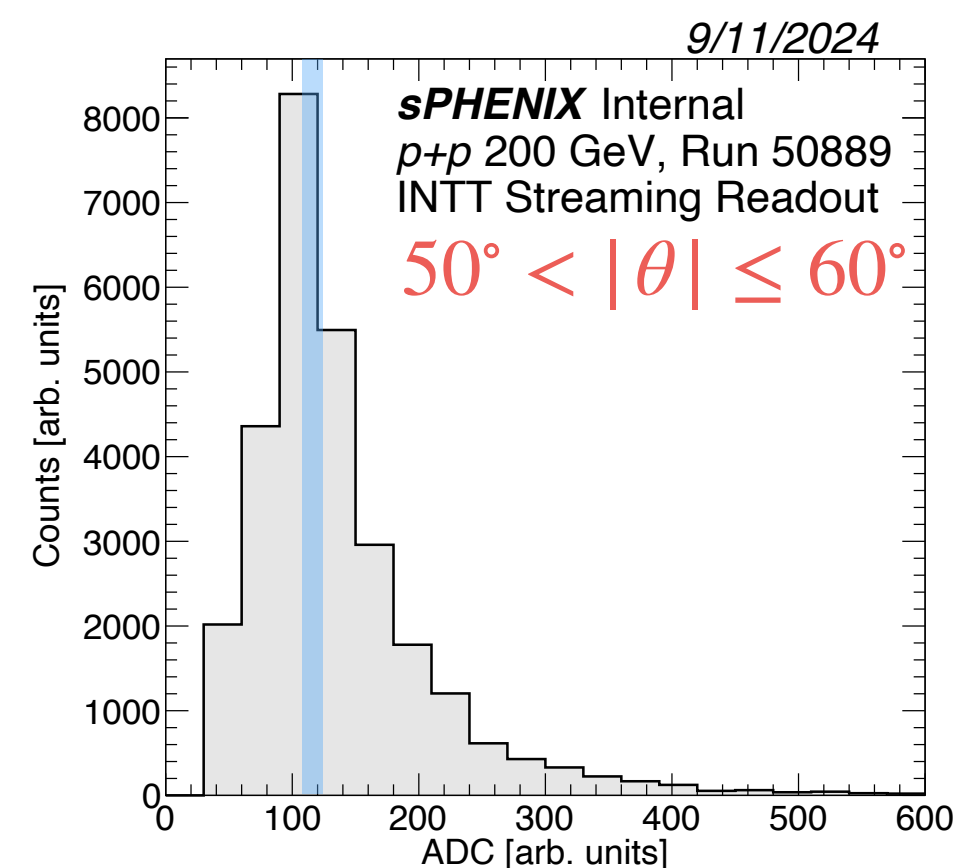
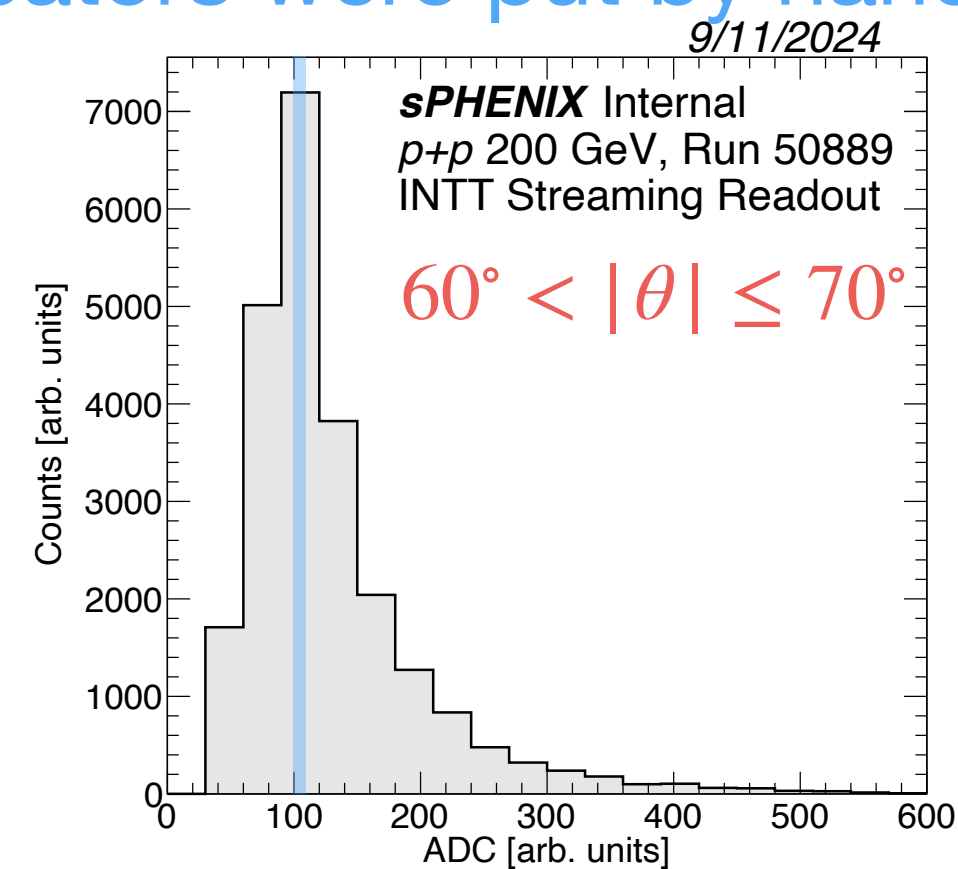
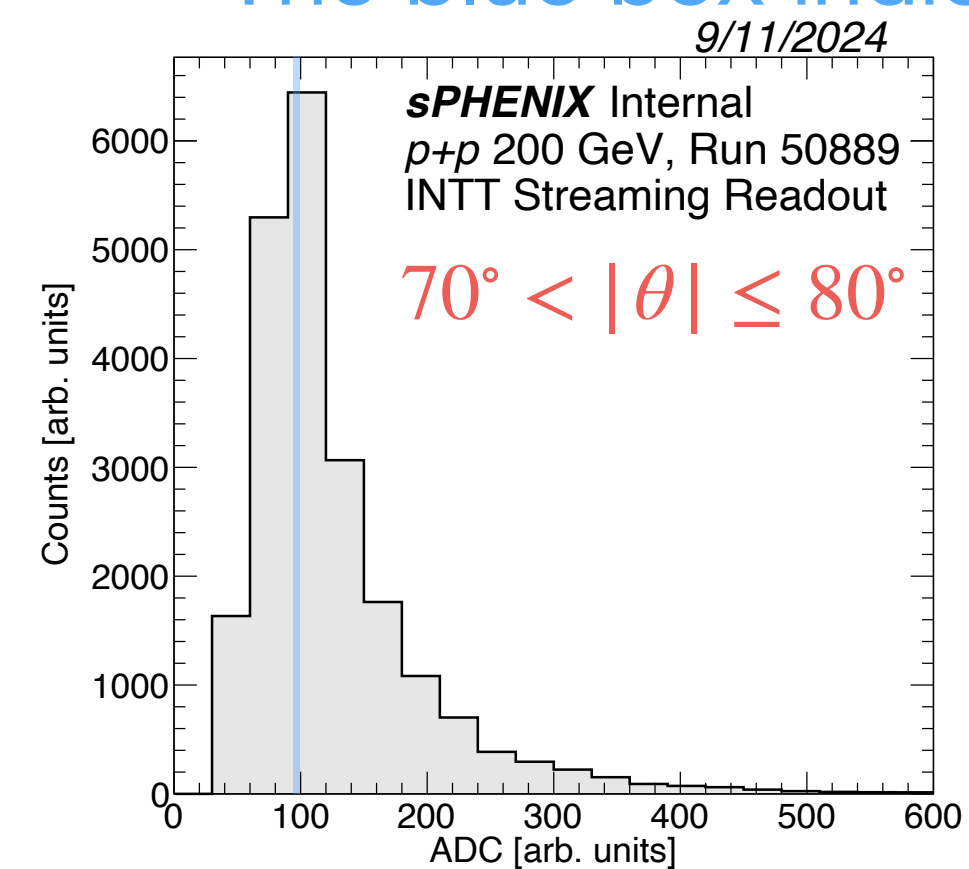
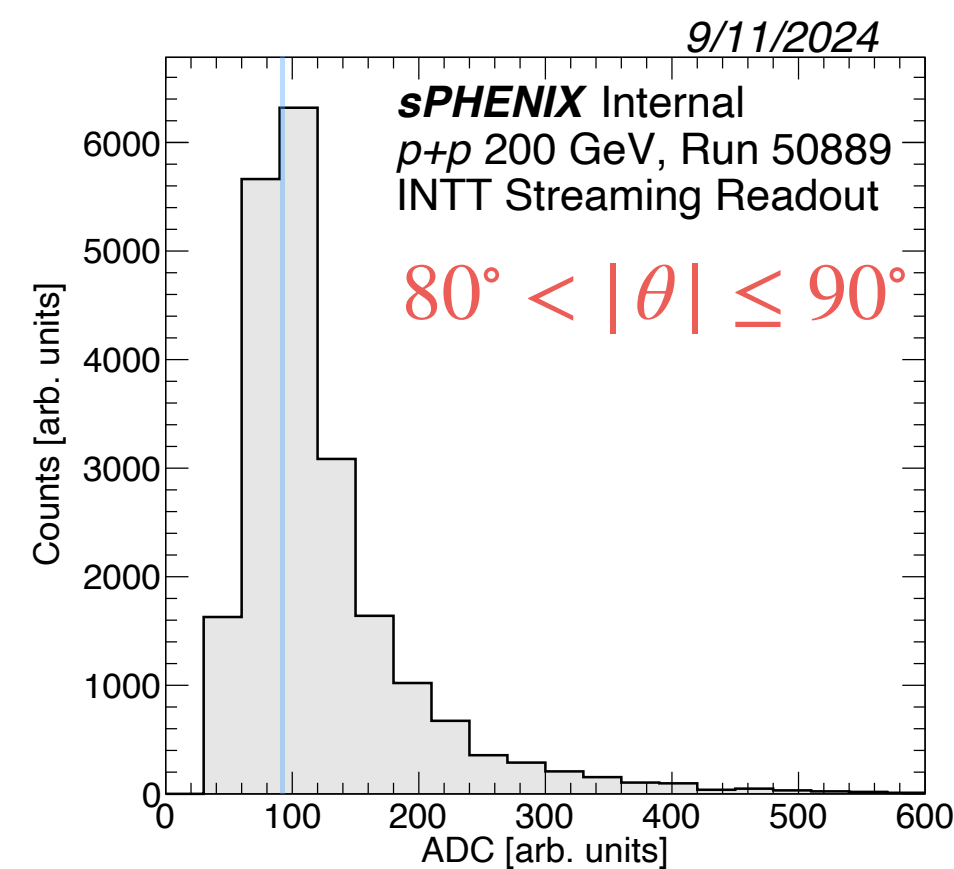
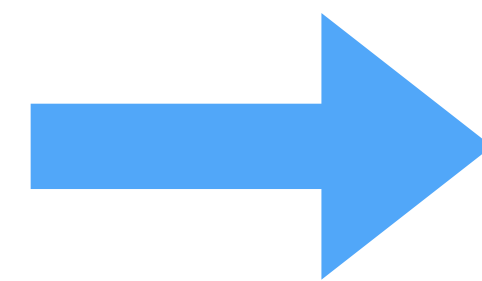
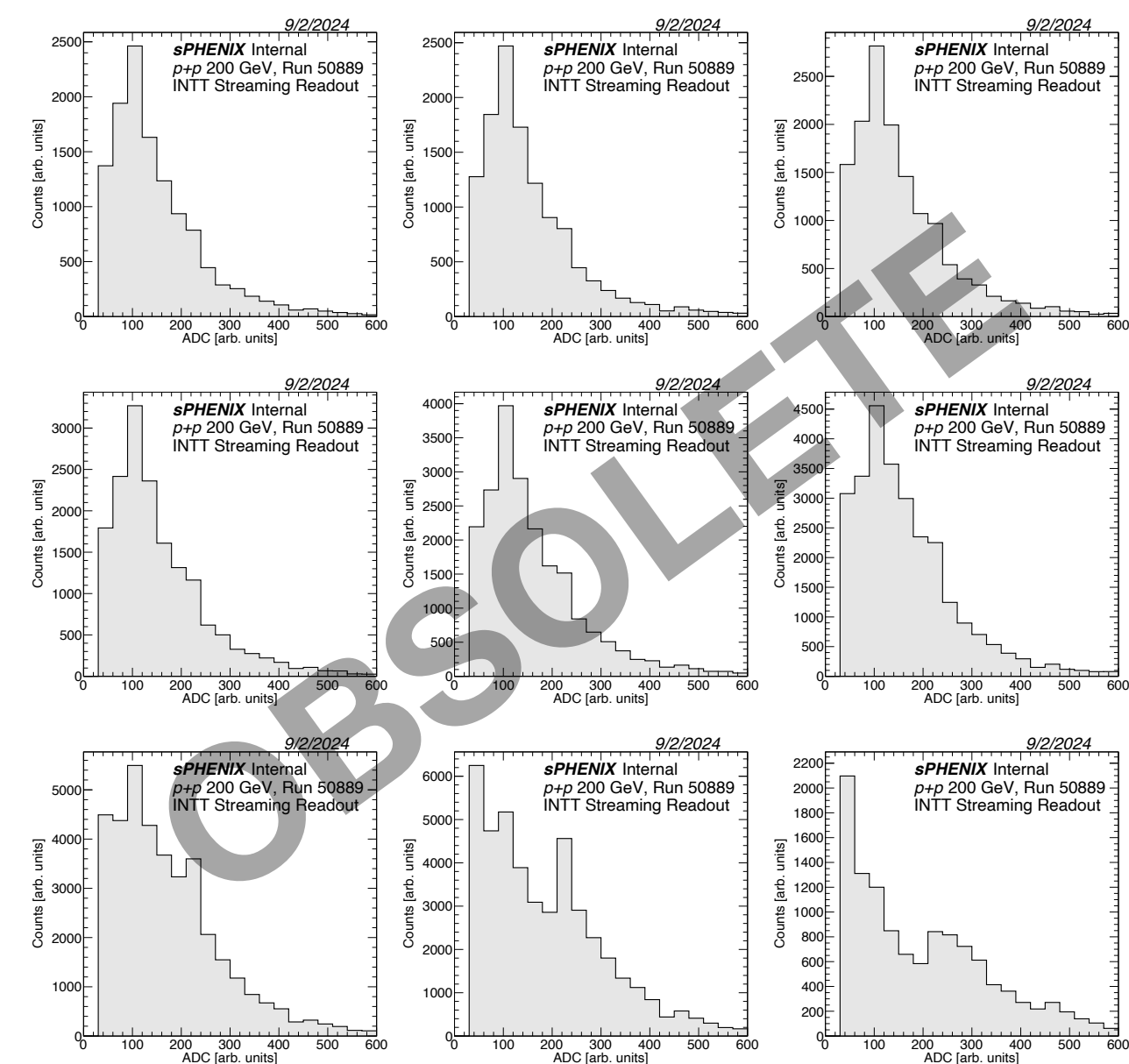
ADC distribution with a selection of θ^{INTT}



The blue box indicators were put by hand.

The θ^{INTT} dependence is clearly seen except for very low angles.

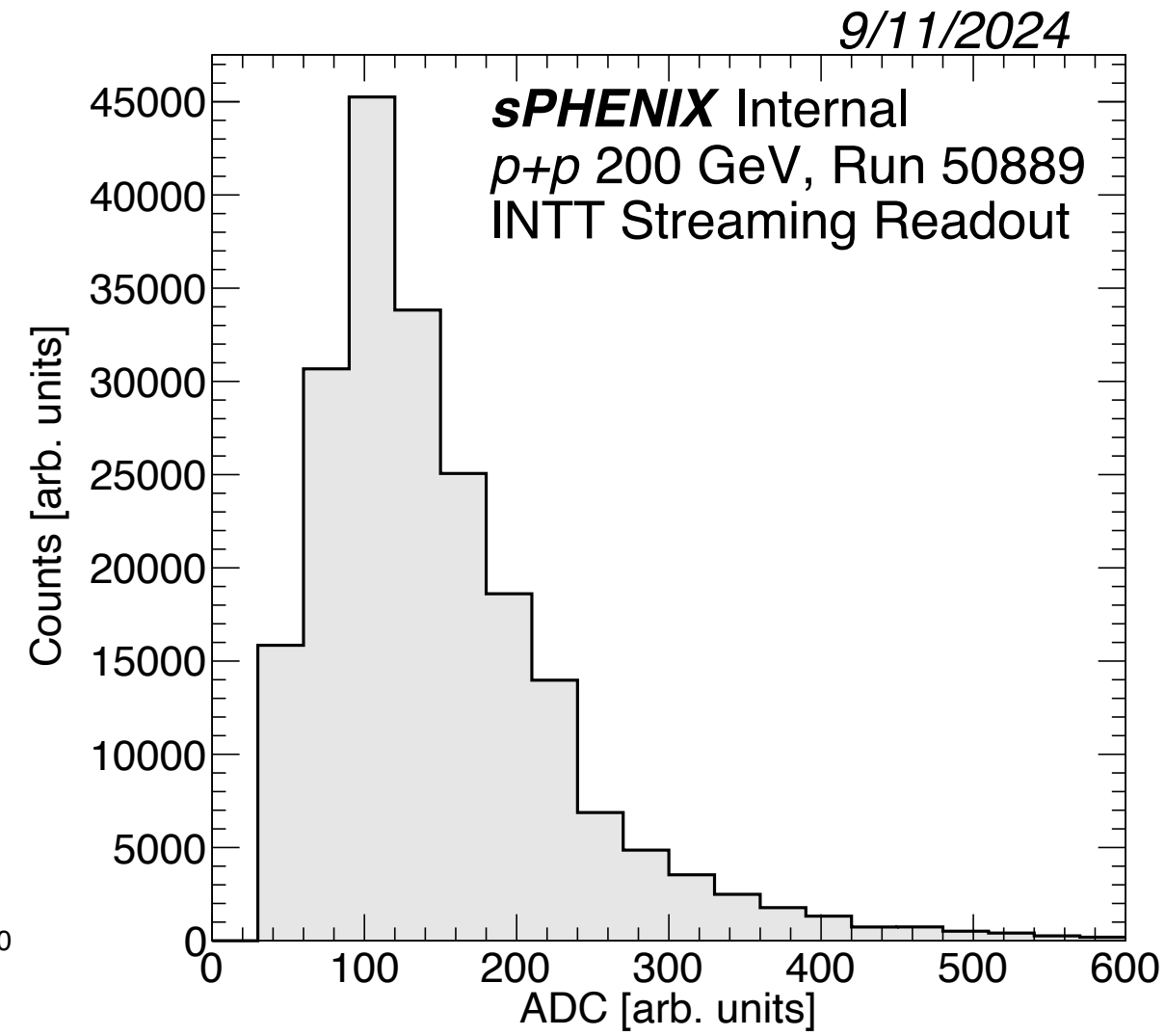
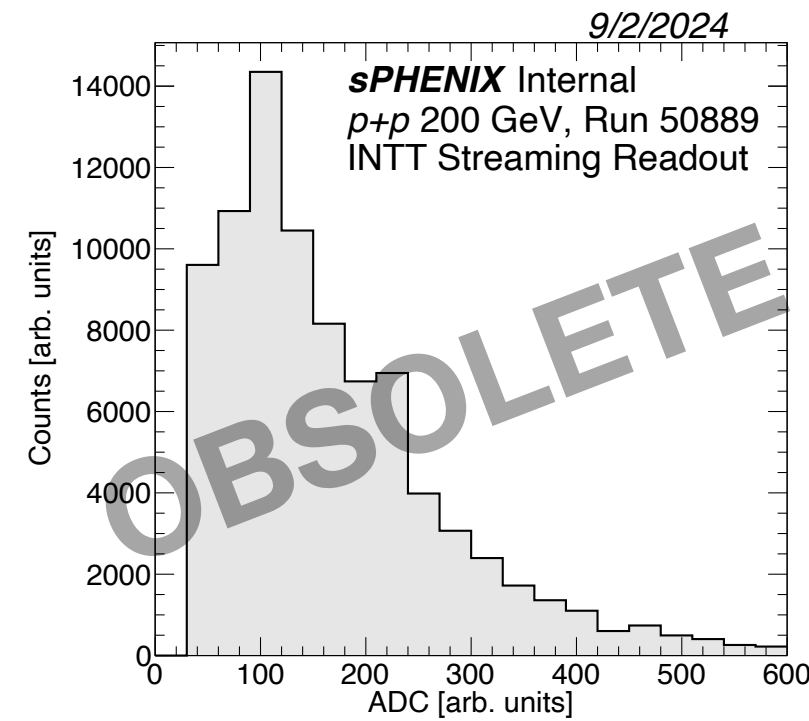
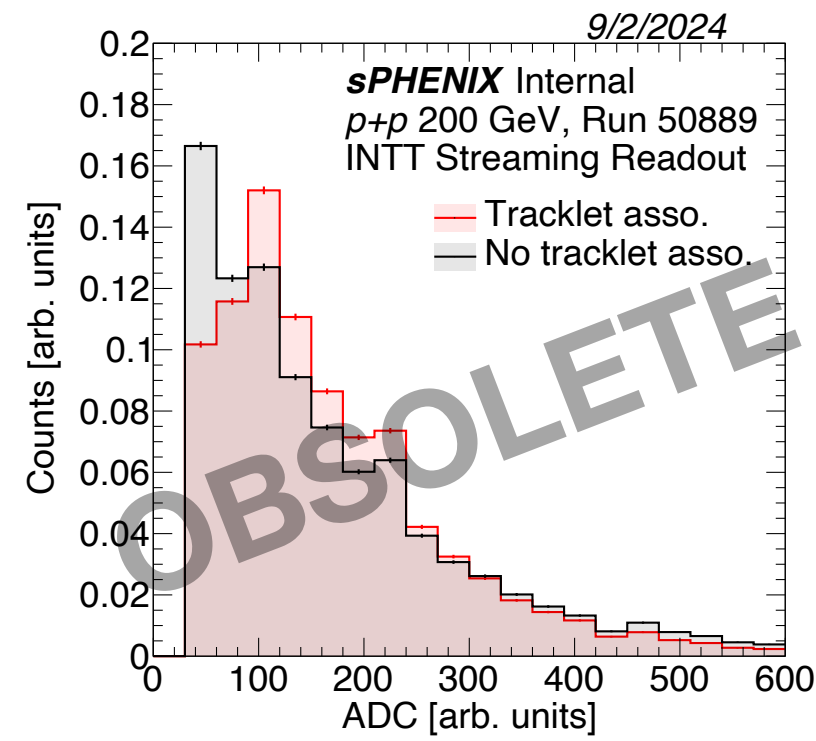
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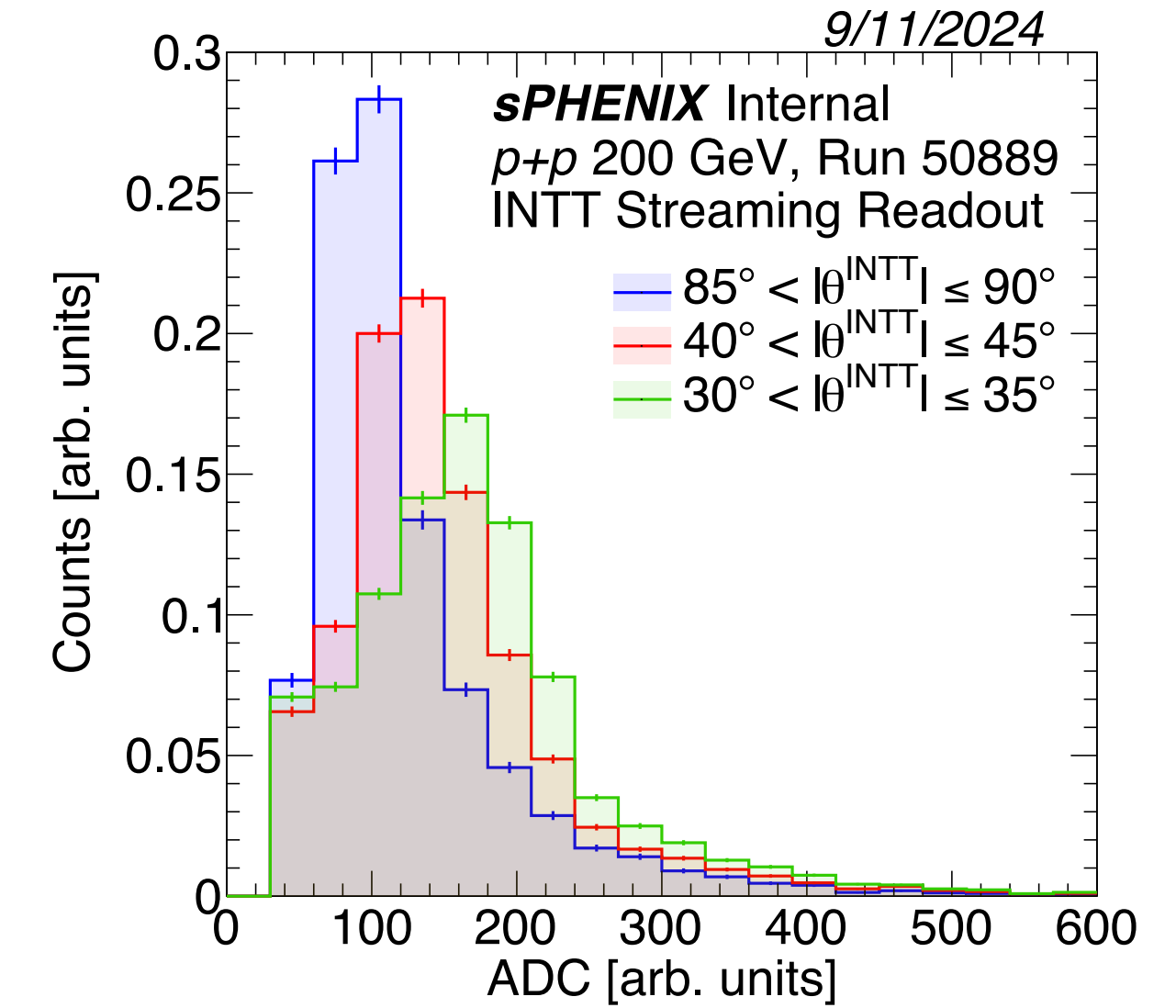
The θ^{INTT} dependence is clearly seen except for very low angles.

Plots

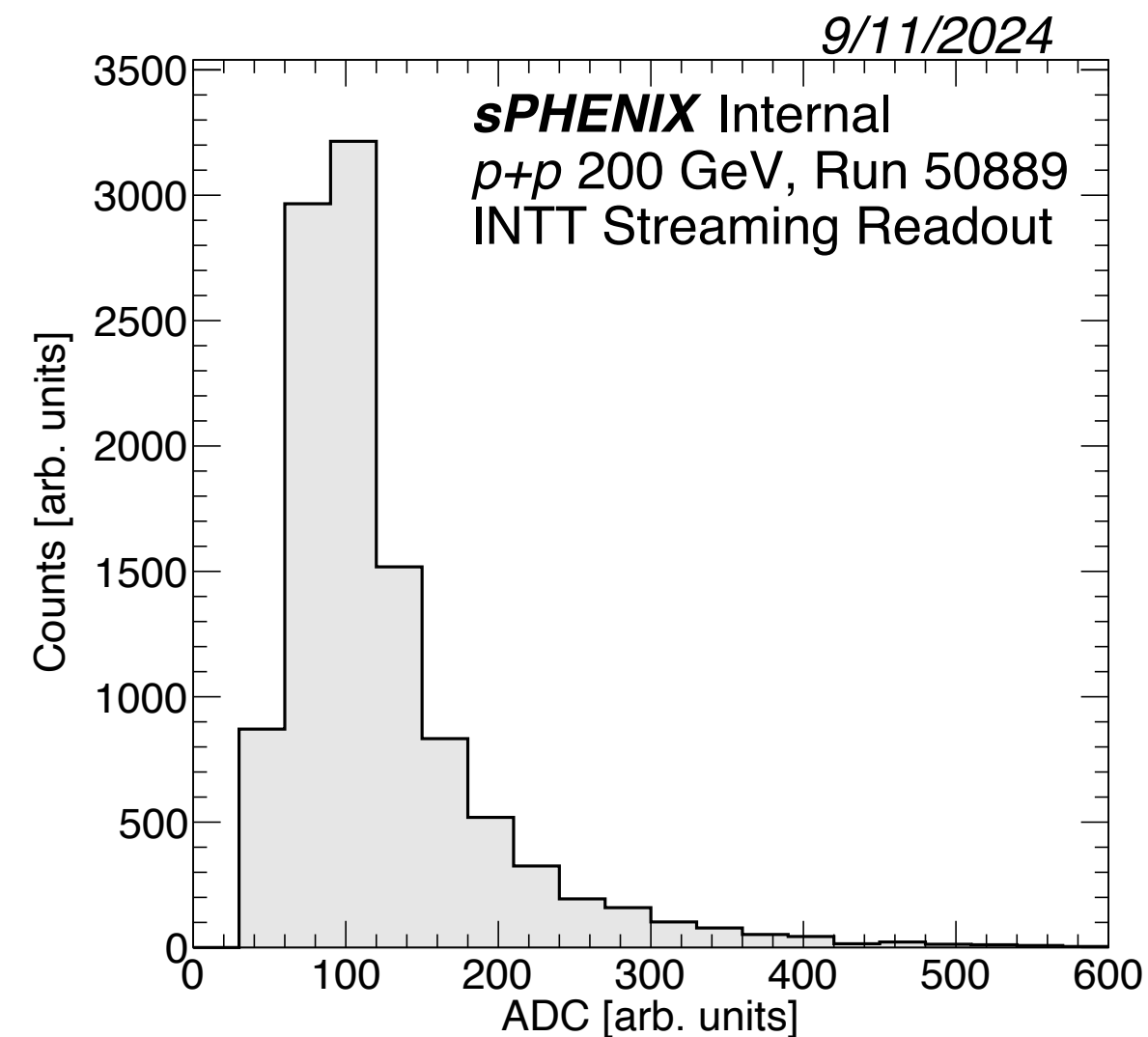
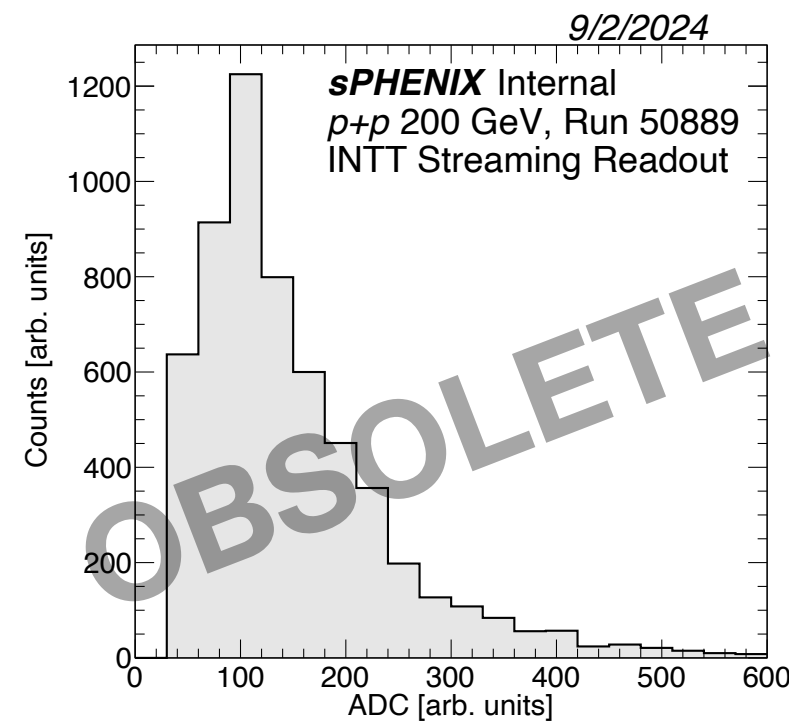
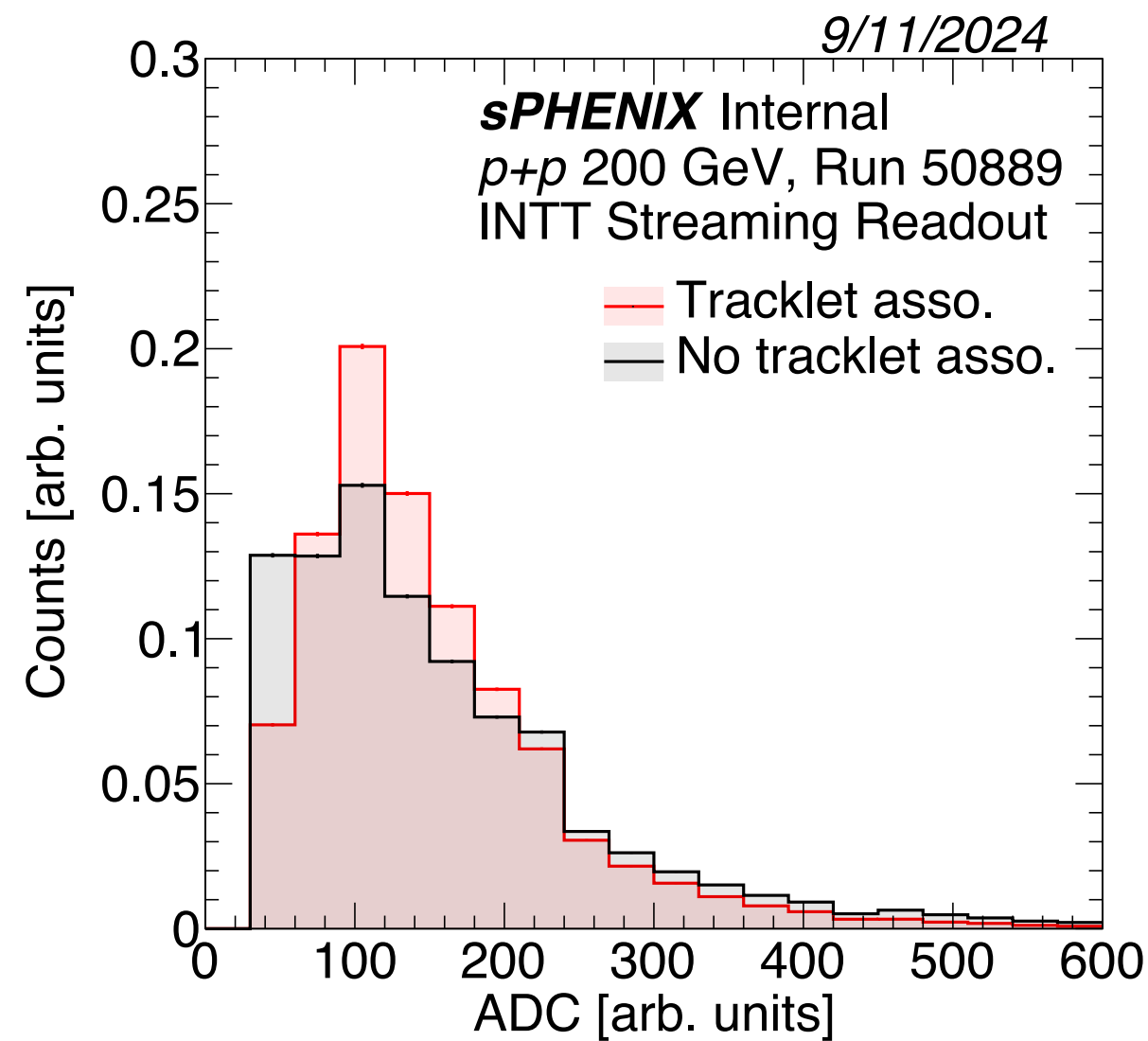


No tracklet angle selection

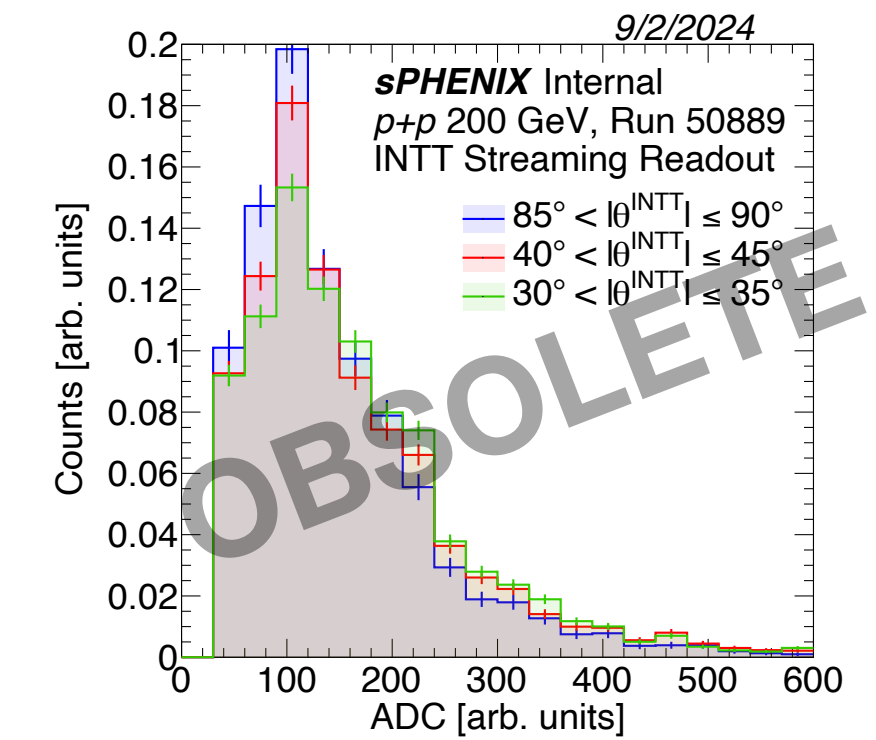
Tracklet angle dependence



W/WO tracklet association



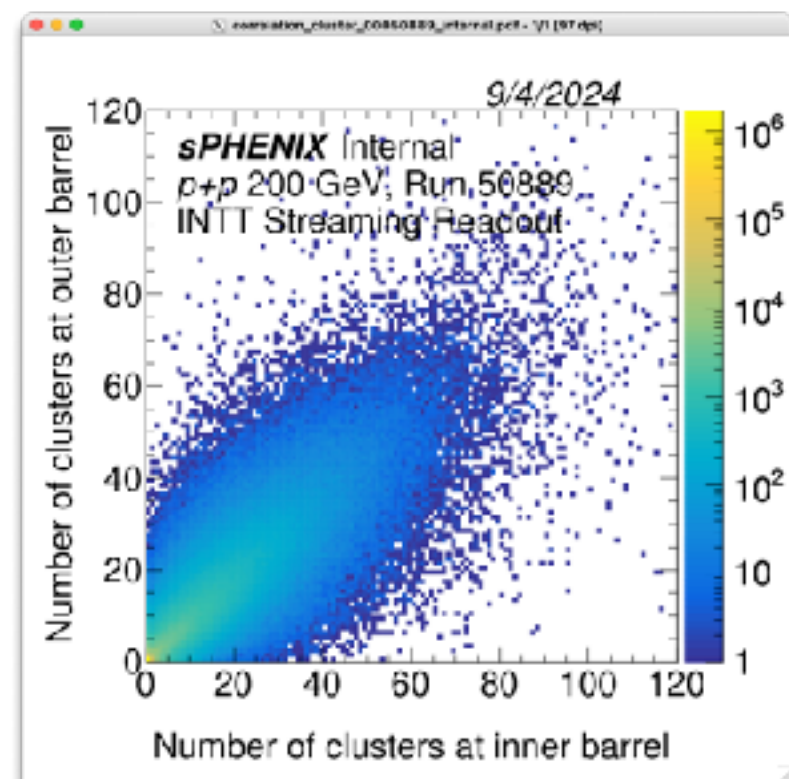
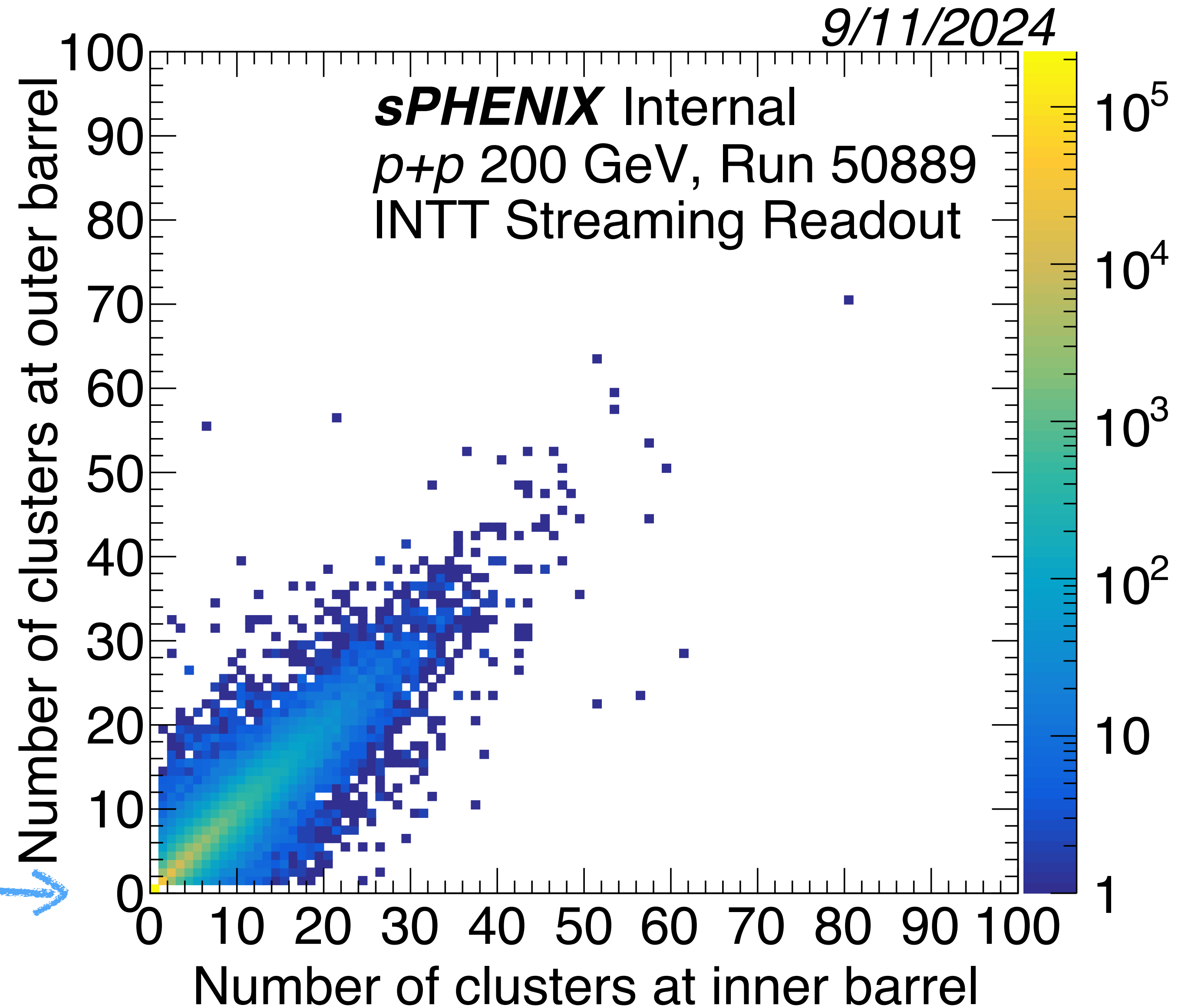
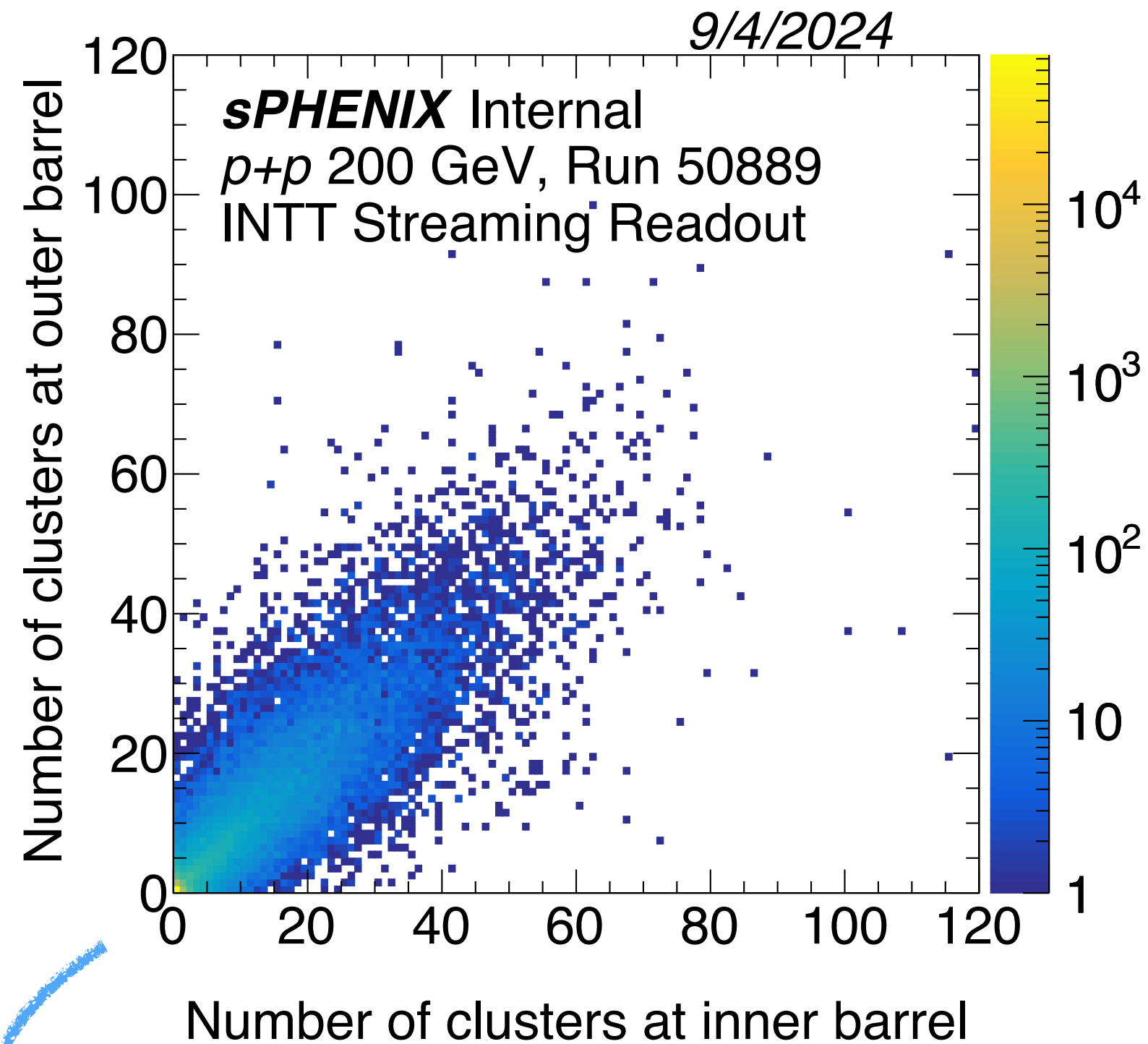
$80^\circ < |\theta| \leq 90^\circ$



Which plot do you want to use in your talk in the future?

→ No need to ask for preliminary
 but good to show at the general meeting.

#cluster correlation with at least a cluster associated with a INTT tracklet in an event



It becomes like this actually if more statistics are used.