

Event Mixup of Au-Au in Run24

20241023

INTTMT

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Mixup Event fraction · Hit fraction

$$\text{Mixup Event fraction} = \frac{\text{Mixup Event}}{\text{All Event}}$$

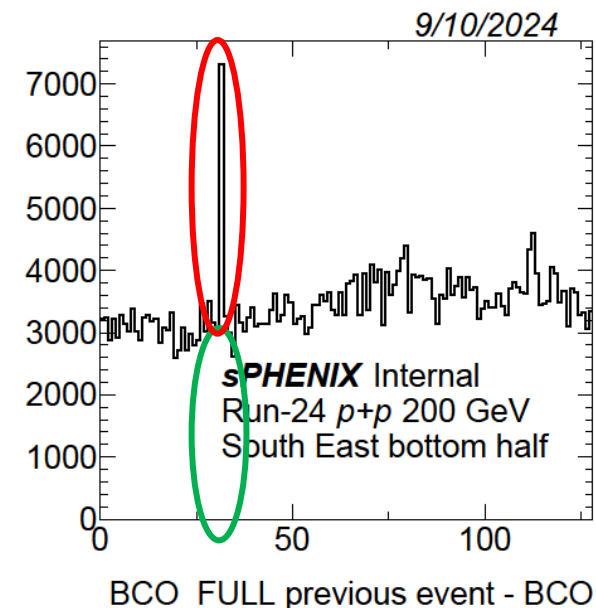
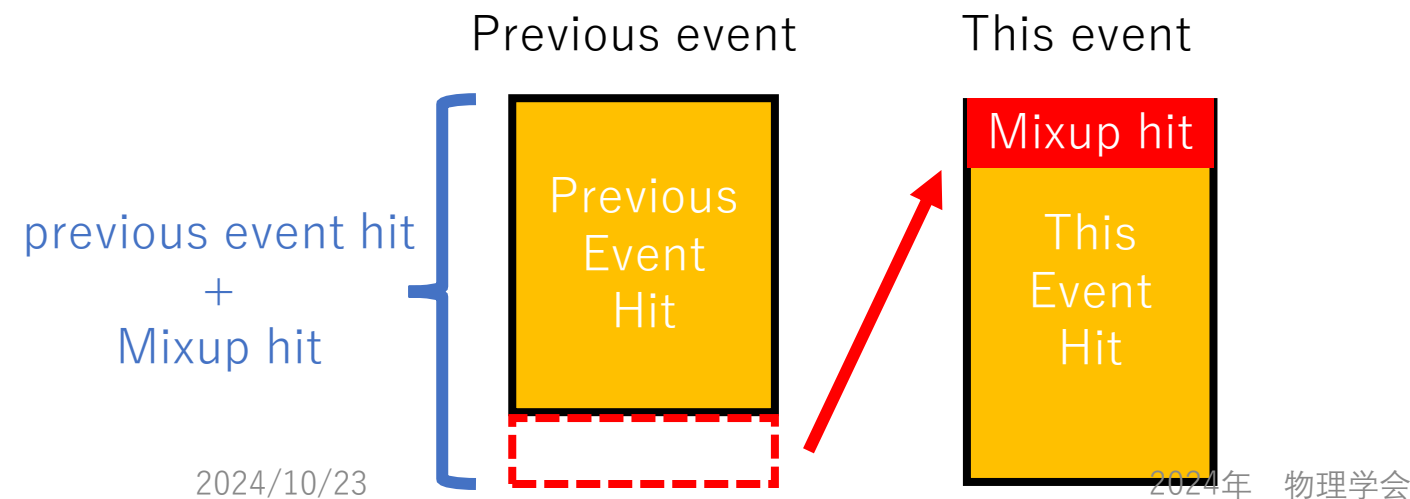
$$\text{Mixup Hit fraction} = \text{Mixup Bin Hit fraction(Average)} - \text{Random Hit fraction(Average)}$$

$$\text{Mixup Bin Hit fraction} = \frac{\text{Mixup Hit}}{\text{Previous Event Hit} + \text{Mixup Hit}}$$

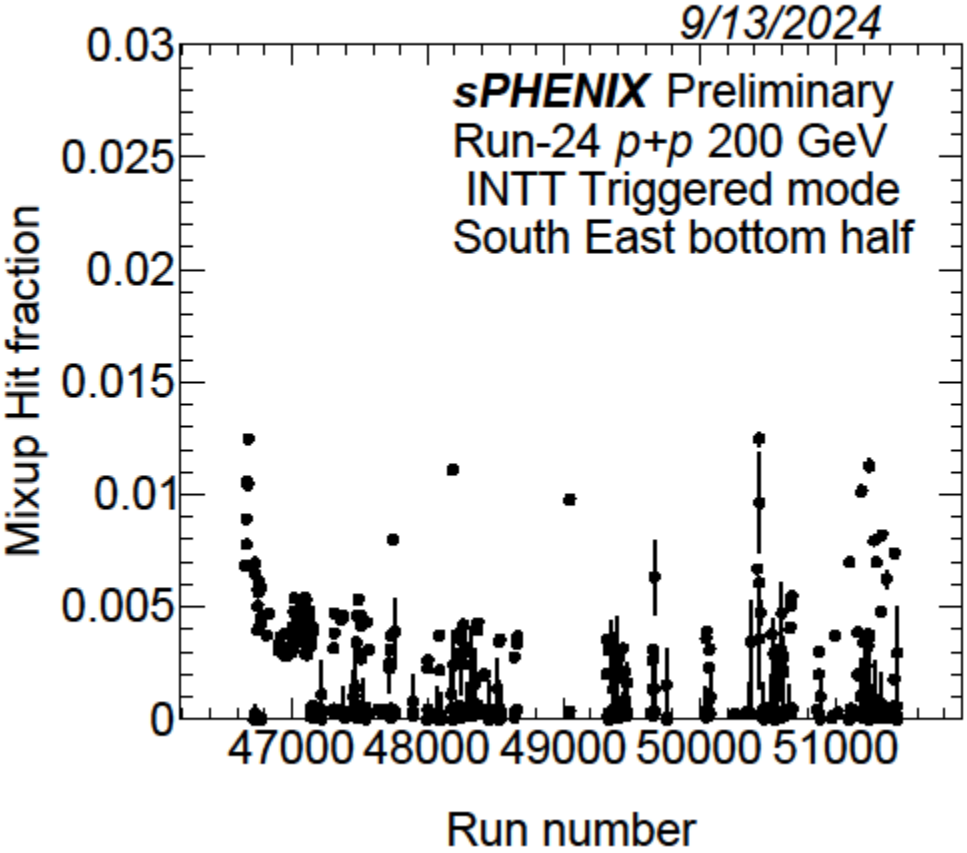
$$\text{Random Hit fraction} = \frac{\pm 2\text{bin from Mixup peak Hit}}{\text{Previous Event Hit} + \pm 2\text{bin Hit}}$$

$$\text{Average} = \frac{\text{Mixup Hit fraction}}{\text{Mixup Event}}$$

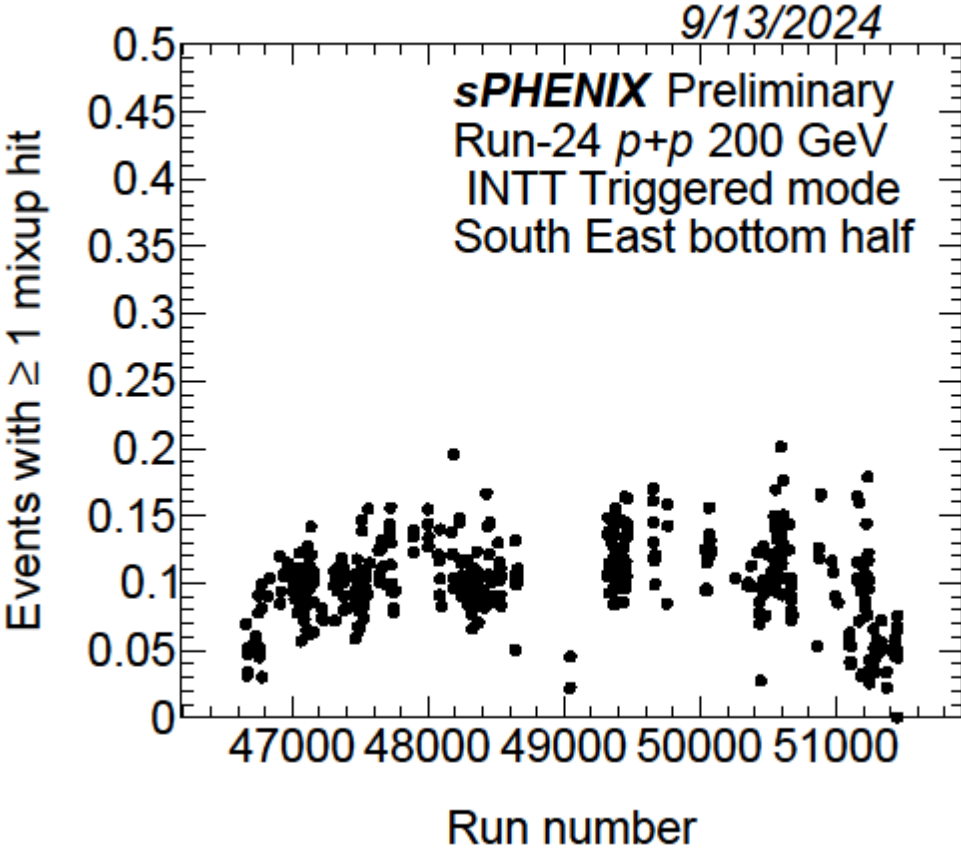
$$\text{Average} = \frac{\text{Random Hit fraction}}{\pm 2\text{bin Event}}$$



Event Mixup fraction of p-p in Run24



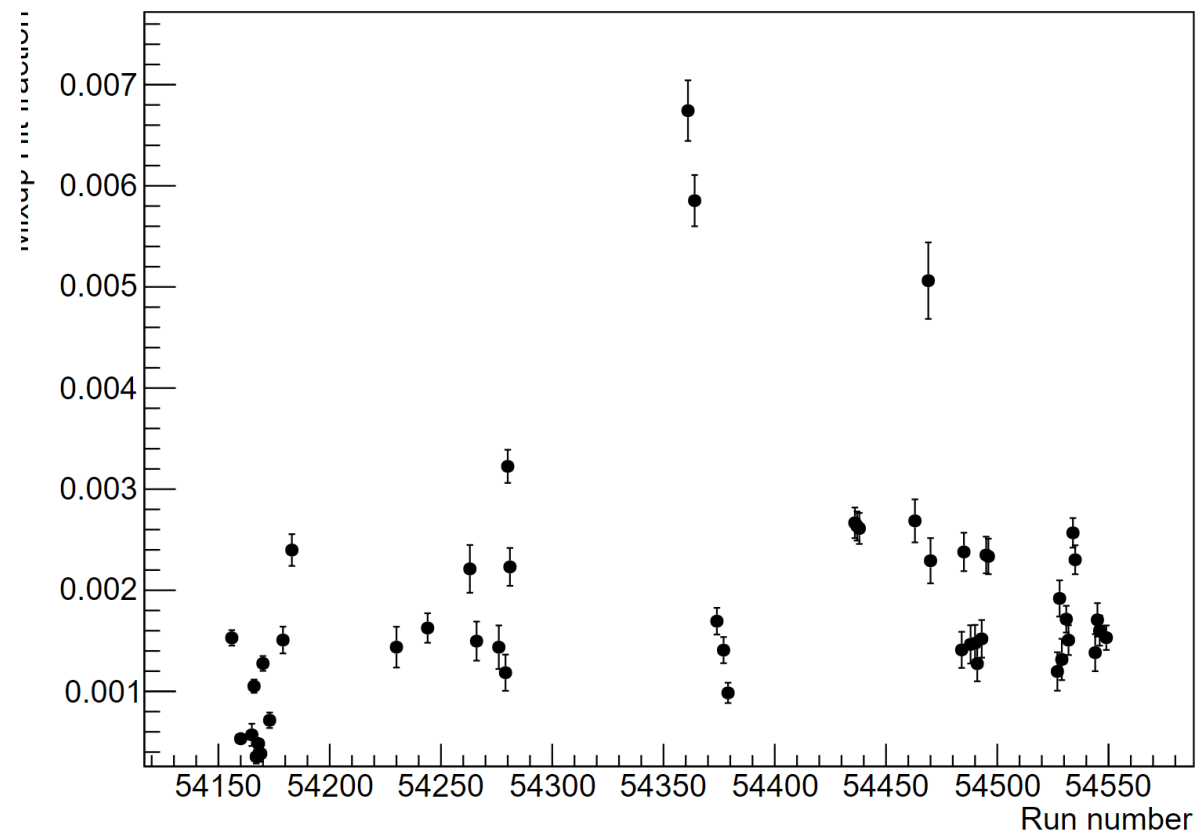
Mixup Hit fraction
Most of them are under 1%



Mixup Event fraction
Most of them are 5~15%

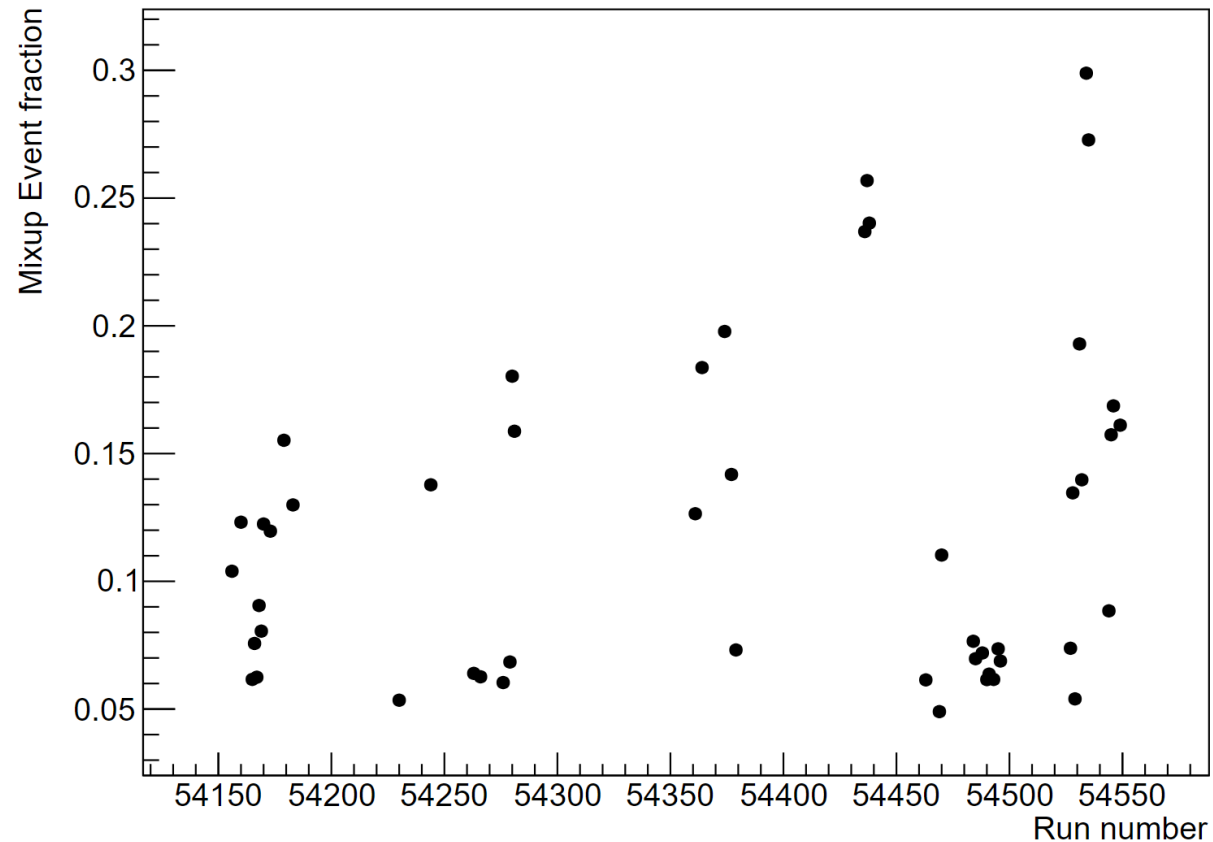
Event Mixup fraction of Au-Au in Run24

Mixup hit fraction for Felix 0



Mixup Hit fraction
under 1%

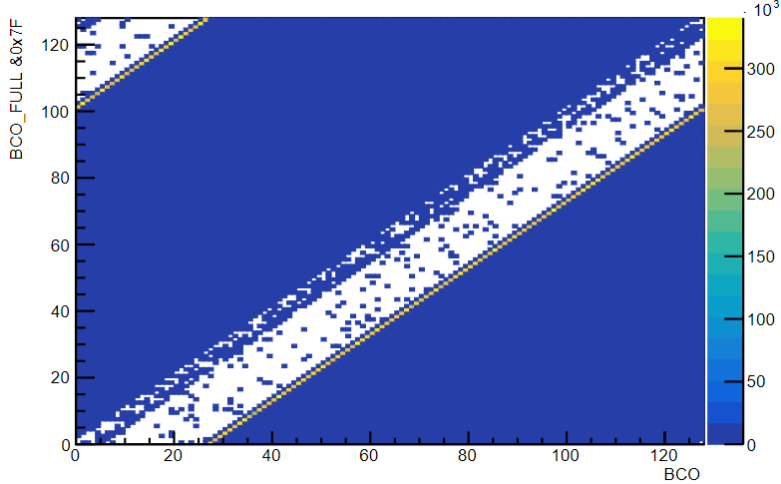
Mixup event fraction for Felix 0



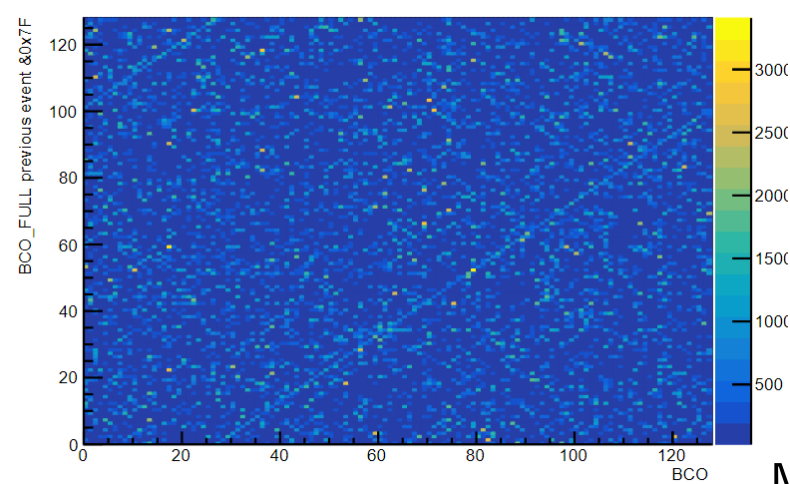
Mixup Event fraction
Most of them are 5~30%
A little higher than p-p

Run that have high Mixup Event fraction

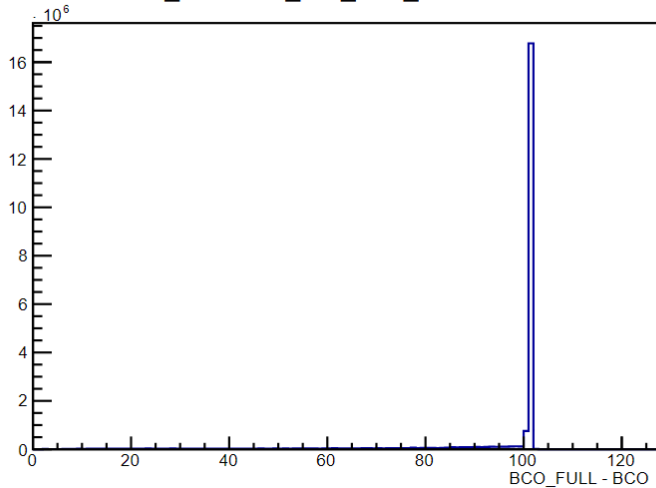
bco_full&0x7F_vs_bco_intt0_Run54534



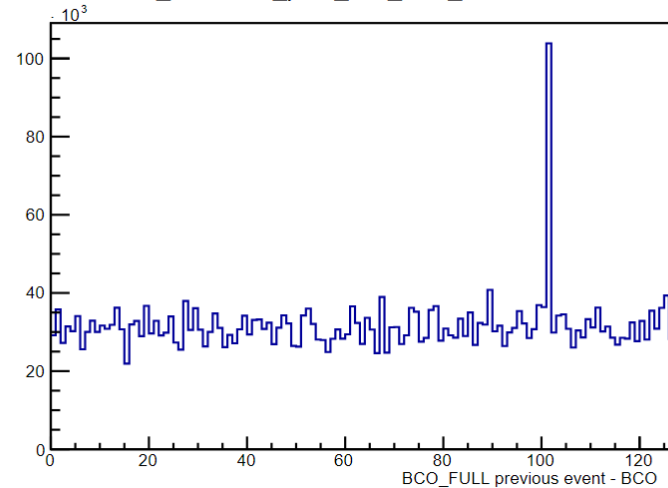
bco_full&0x7F_prev_vs_bco_intt0_Run54534



bco_full&0x7F_bco_intt0_Run54534

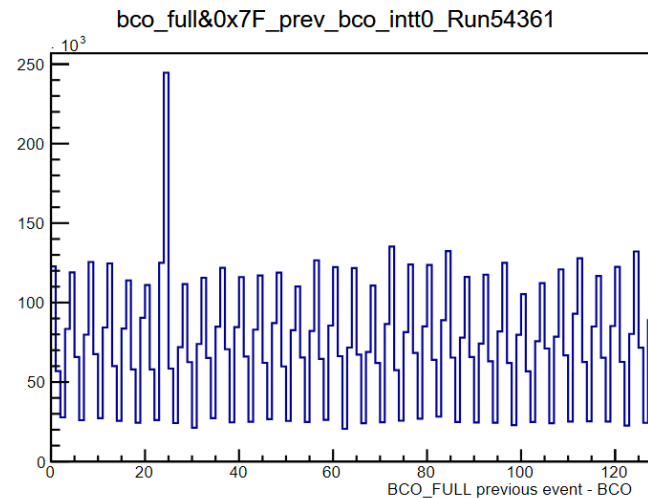
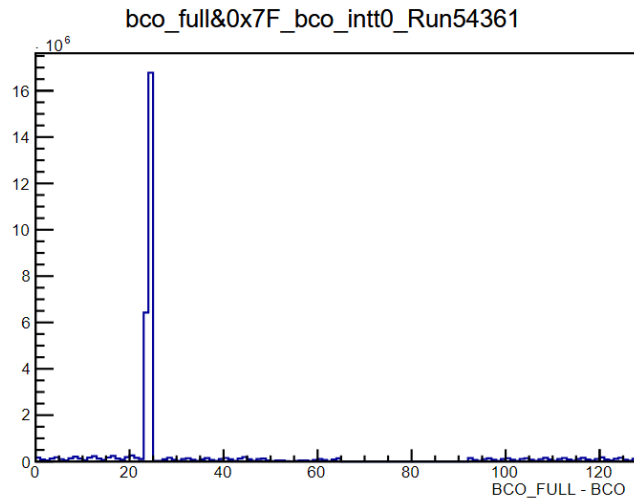
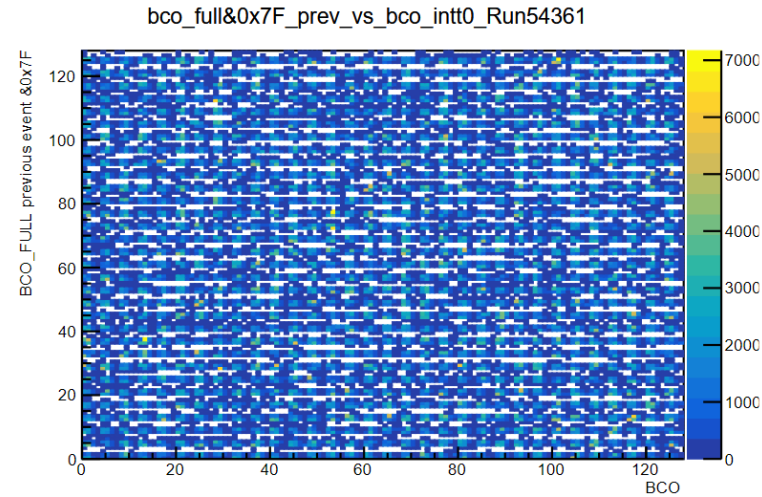
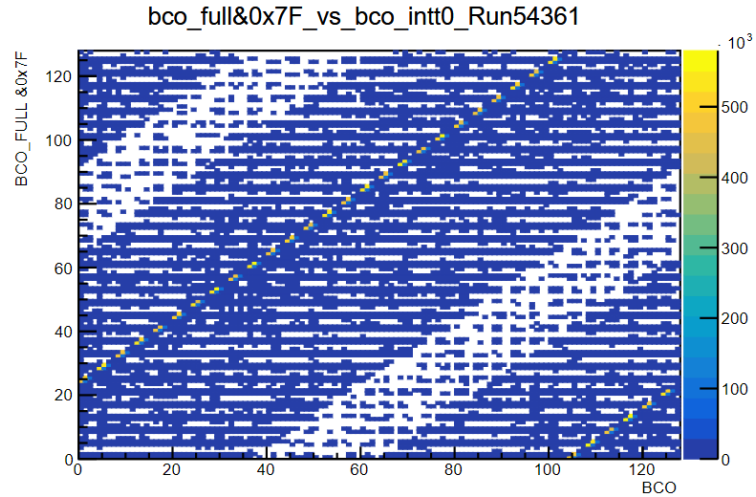


bco_full&0x7F_prev_bco_intt0_Run54534



Mixup was still occurs in Au-Au of Run24 without any change.

Run that have high Mixup Hit fraction



The fraction is higher due to the smaller number of bunches in the run, which affects the calculation of the hit fraction.

Next to do

- Check other plots in Au-Au (e.g. Multiplicity)
- Upload BCO & BCO_full plots confirming Mixup occurrence to offline QA for Run25(should be done today...I hope...)
- Reexamination of correlation between mixup event fraction and collision rate