Improvement of track reconstruction algorithm upstream the magnet for SRC at BM@N experiment

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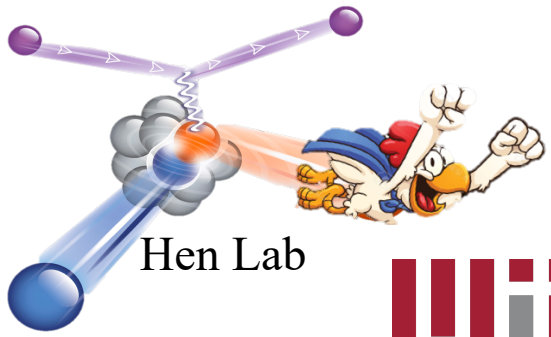
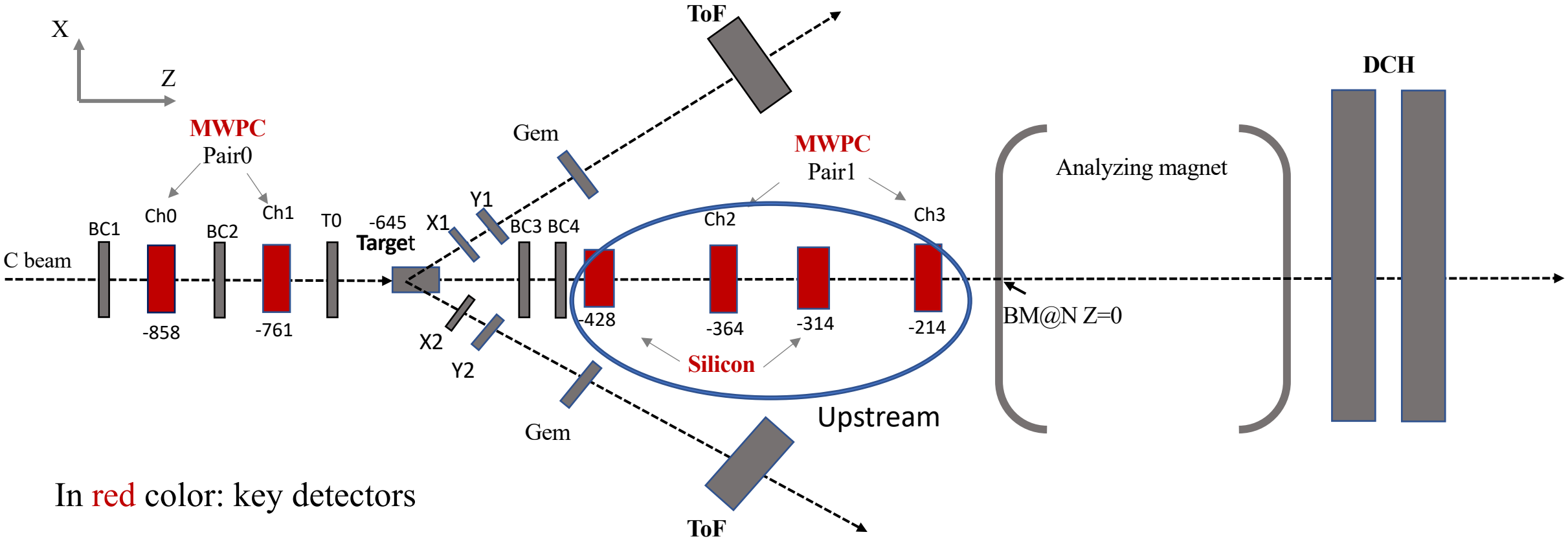
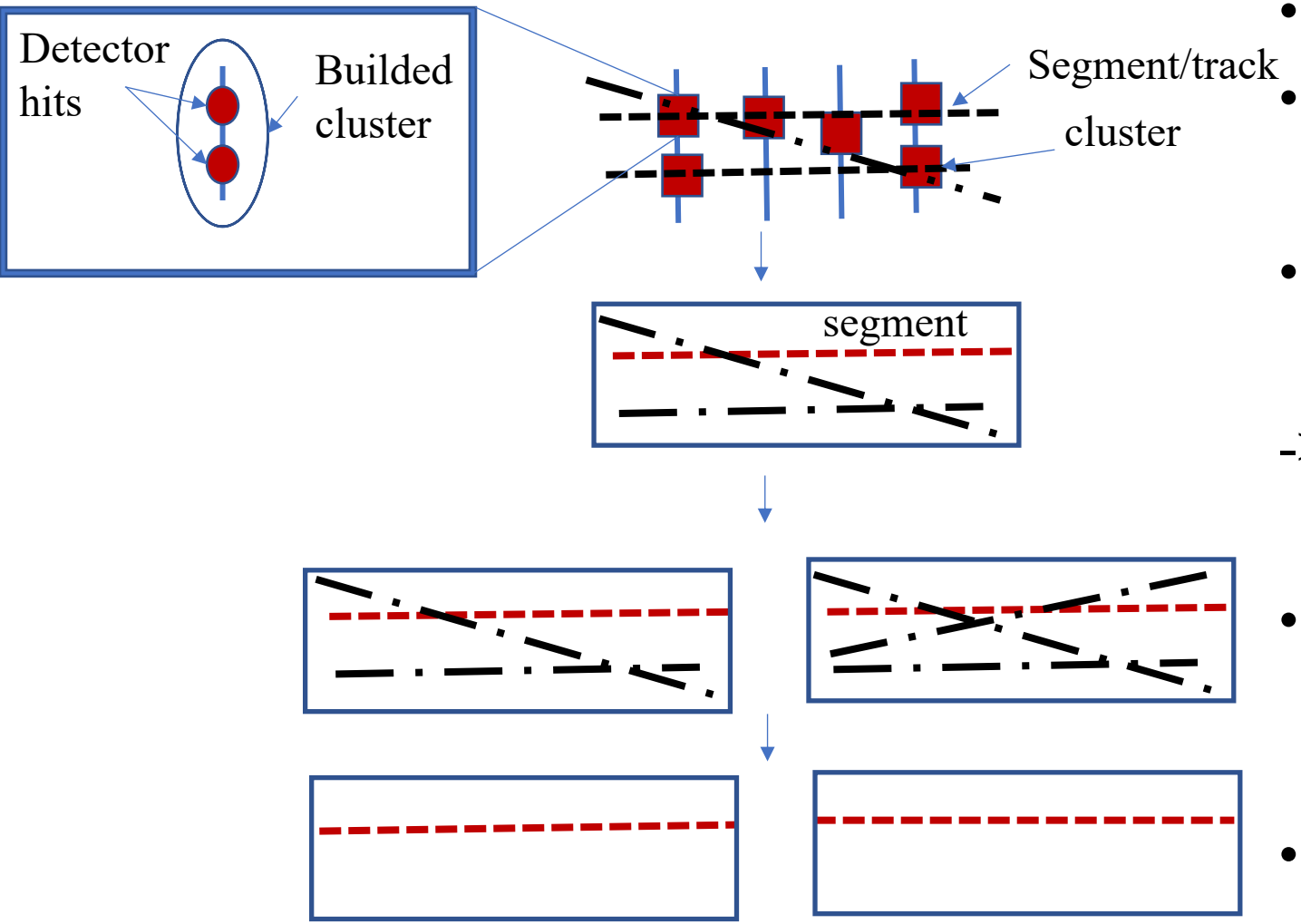


SRC RUN7 CONFIGURATION (2018):



In red color: key detectors

The reconstruction algorithm upstream the magnet
in each system (SiDet & MWPC)



- Hit reading & cluster building
- Track-segment candidates building

- Fitting with a straight line by using measurements

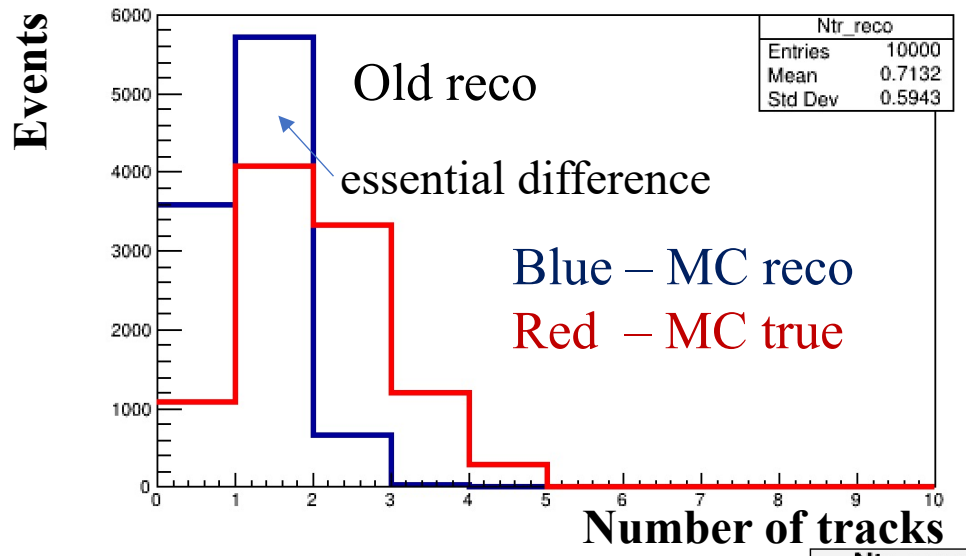
-> Select the best segment by χ^2 – criteria

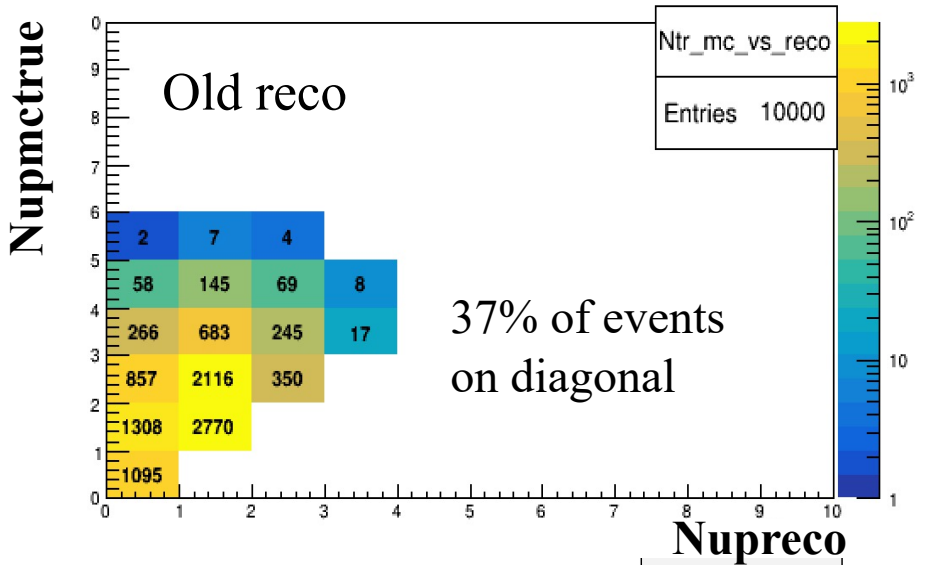
- Track-segments are matching between different detectors

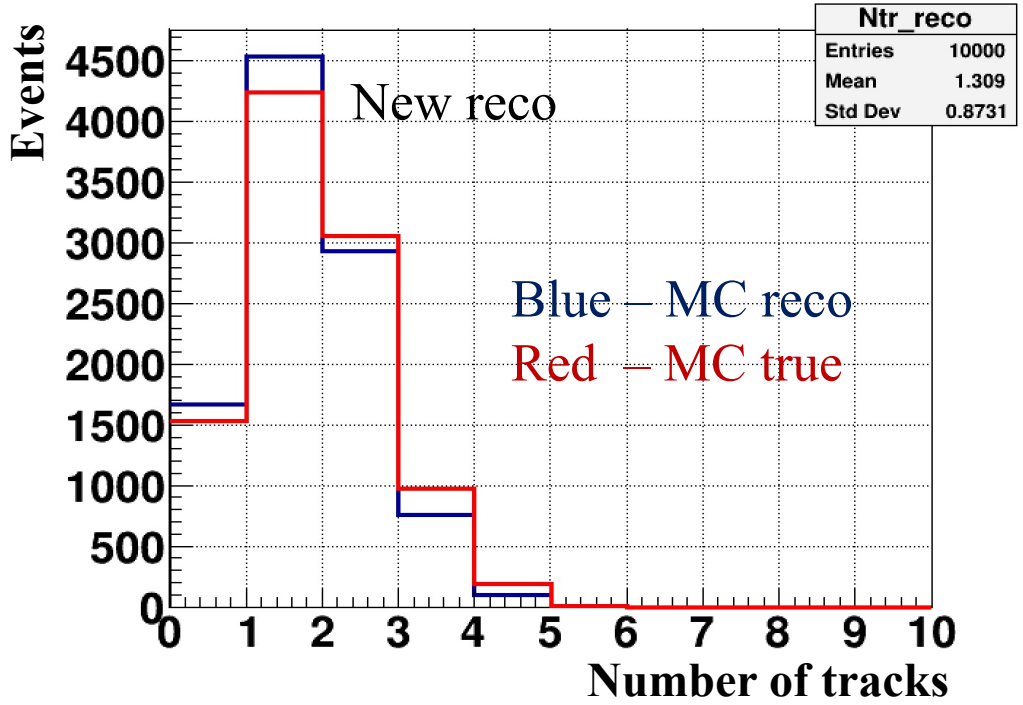
- Resulting tracks are fitted

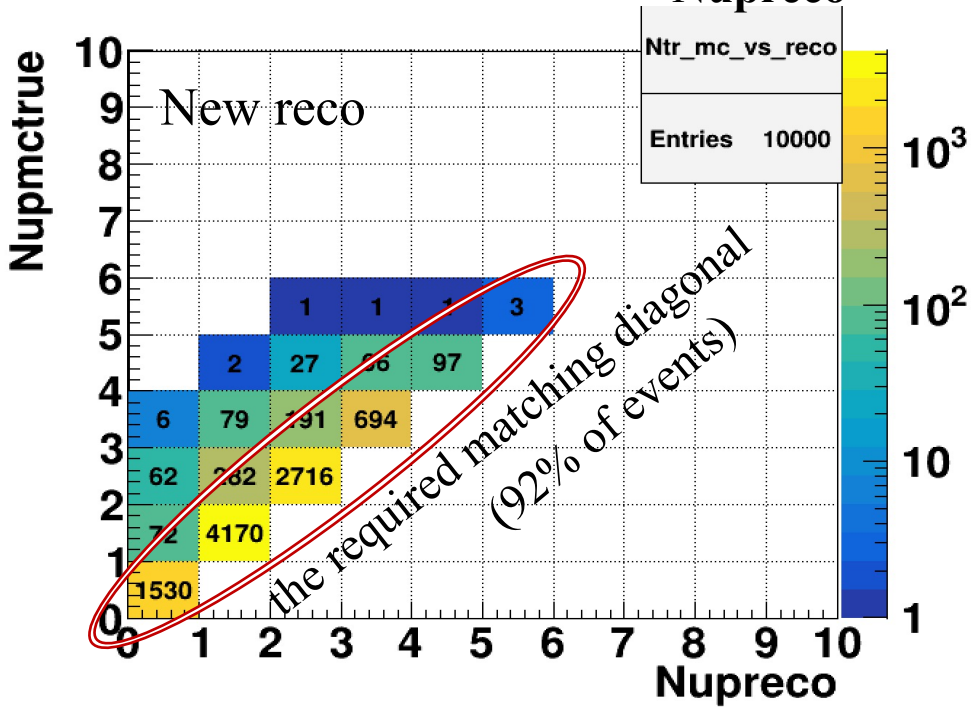
MC reco vs MC true: Upstream Reco Algo Improvement

DCM-SMM



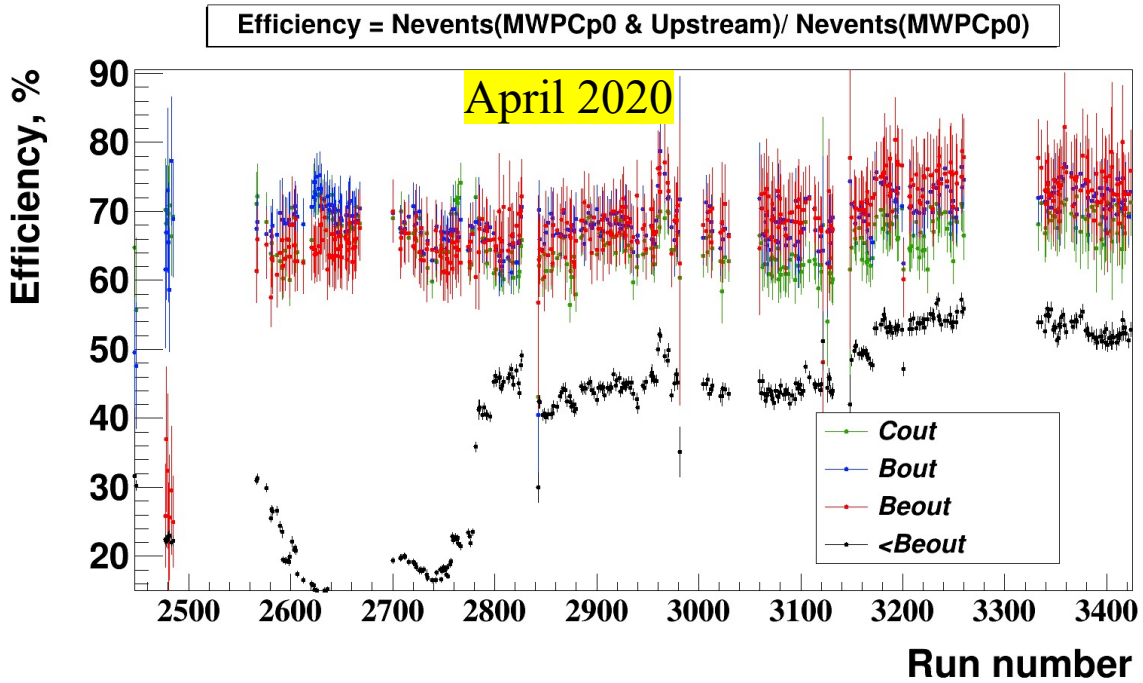






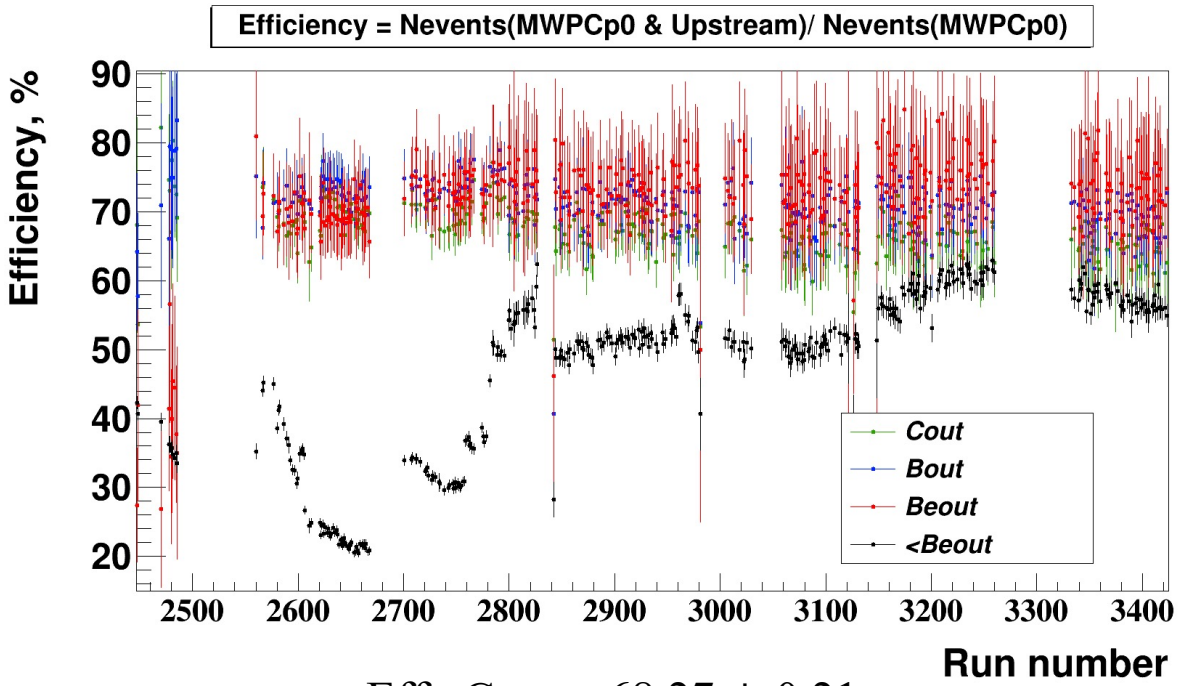
Detector and Algorithm Efficiency(SRC Data)

$$\text{Efficiency} = \frac{\text{N of events with tracks in the Upstream system}}{\text{N of events with tracks before the target(Pair0)}}$$



Eff Cout = 65.71 ± 0.16
Eff Bout = 69.04 ± 0.19
Eff Beout: 68.23 ± 0.26
Eff <Be out: 38.16 ± 0.04

Now



Eff Cout = 68.27 ± 0.21
Eff Bout = 71.56 ± 0.26
Eff Beout: 72.33 ± 0.36
Eff <Be out: 42.13 ± 0.06

Thank you for your attention!