

# sPHENIX Commissioning Progress

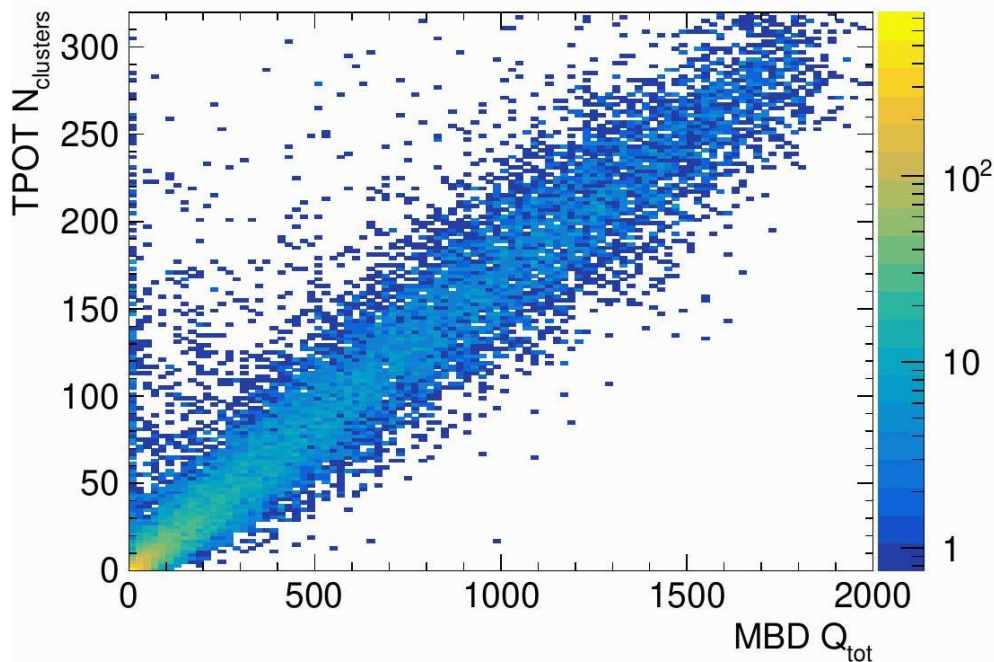
- The 2nd half of sEPD on the south side was successfully installed on July 5 and we plan to install its read-out electronics on July 19.



# sPHENIX Commissioning Progress (cont.)

- Sub-detectors are generally approaching taking physics data. Here is another example from yesterday's shift report: TPOT MBD correlation (#clusters in TPOT vs QTot in MBD) :

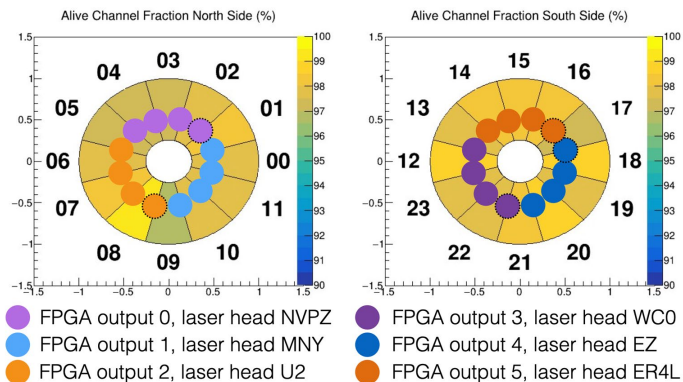
## TPOT MBD correlation



# sPHENIX Commissioning Progress (cont.)

- A couple TPC diffuse laser tests without beam have also been performed. Though it's not perfectly timed in yet, we have learnt quite a bit. We'll need to do this again on Thursday (after we fix the firmware).

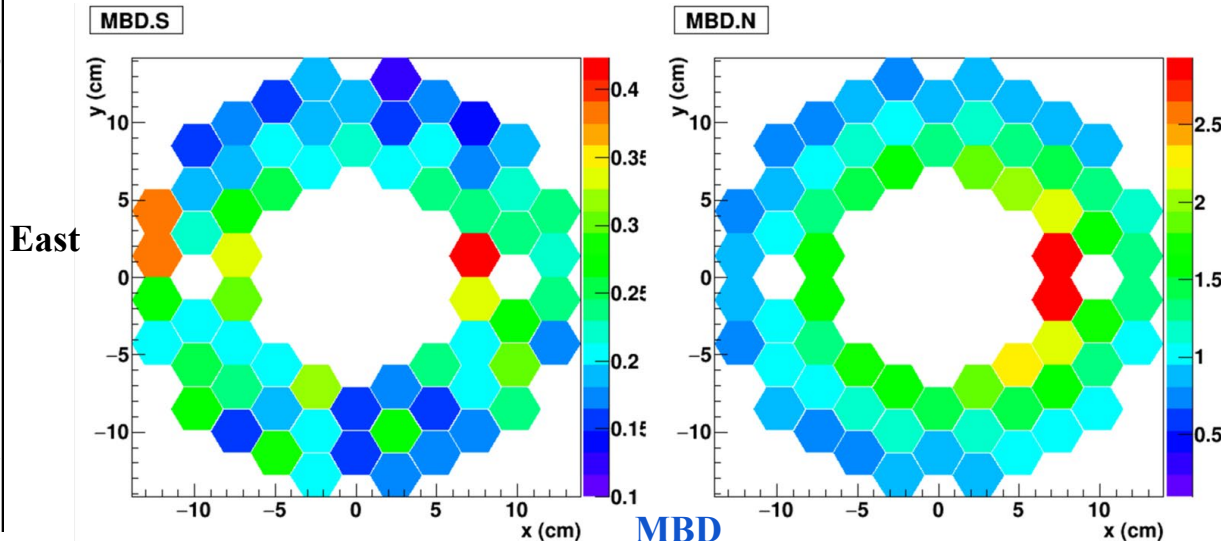
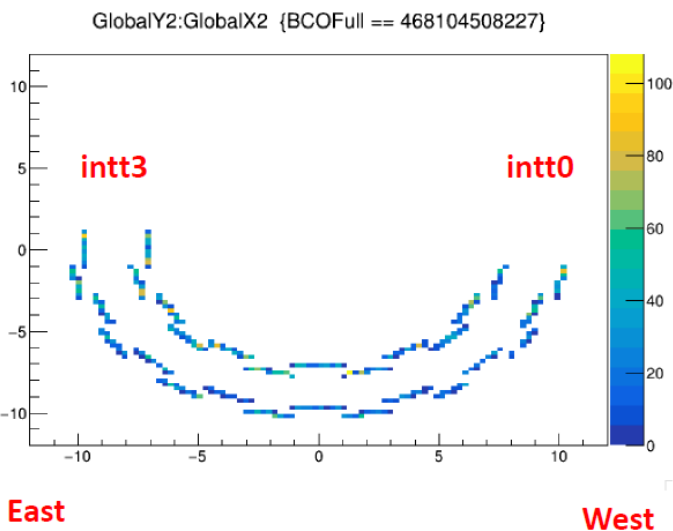
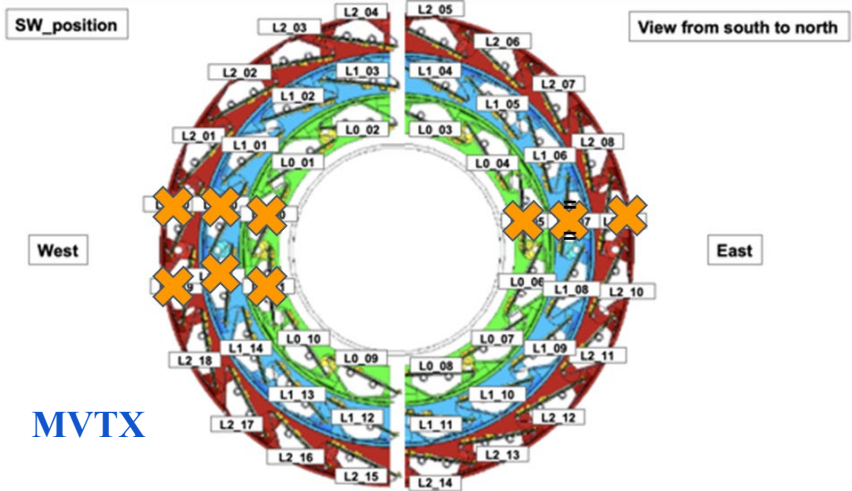
## TPC Diffuse Laser Channels



- During the RHIC downtime, we have taken quite a bit of *cosmic data* and *LED* data for calorimeters.
- There are more and more online monitoring plots from sub-detectors for our “Data Monitors” (shifters) to check — we started to have 4 shifters per shift about 2 weeks ago.

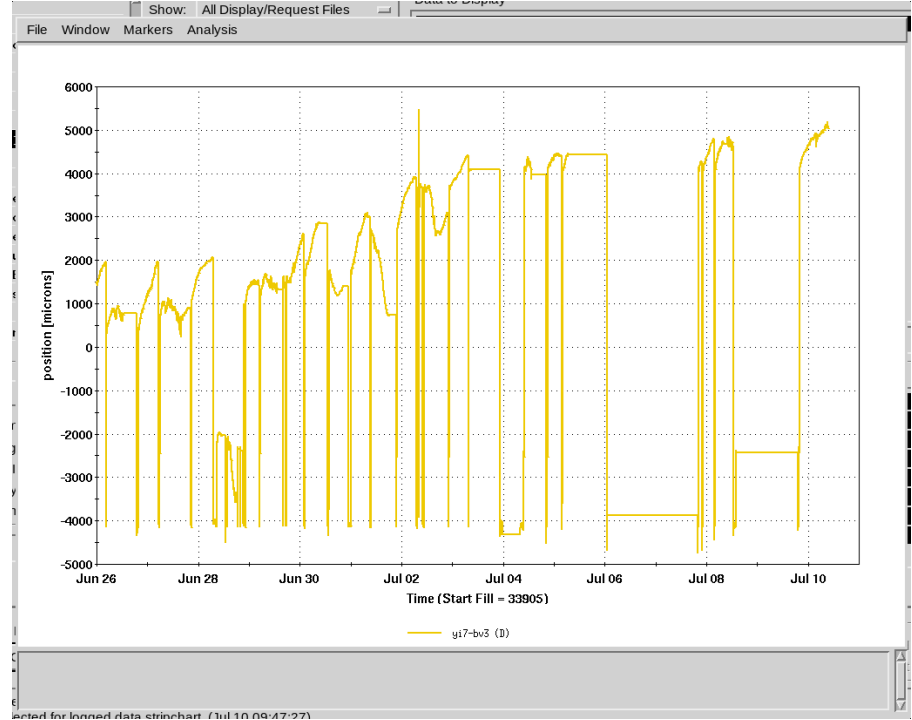
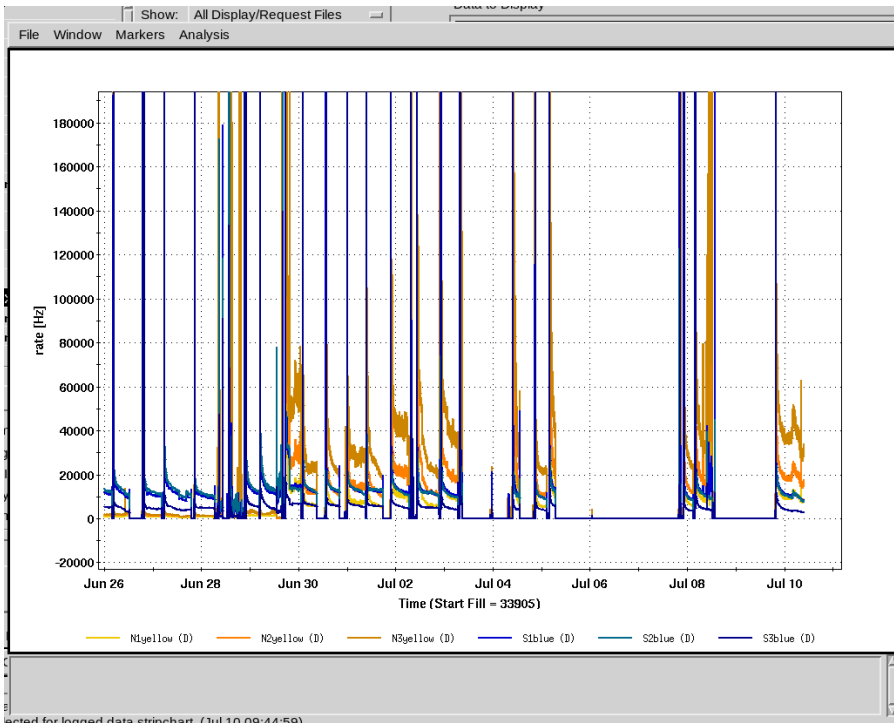
# Blue beam only : MVTX/MBD/INTT

- We continue to analyze the data taken during the blue-beam-only/0-crossing-angle run, with the goal to send something to MCR to reduce background



Angelika has noticed that the Yellow backgrounds became worse than the Blue ~June 30.

- The vertical angle has steadily increased at the same time.





# 12 week sPHENIX Commissioning Plan



- 2 weeks of stores with 6-28 bunches @ zero crossing angle ( $<2$  kHz) for initial tune-up of timing and trigger.
  - The magnet doors will be closed and the magnet ramped at the earliest at one end of this period.
- 2 weeks of stores with 111 bunches @ zero crossing angle (1-5 kHz) for optimizing trigger, plus data analysis & diagnosis.
  - The trigger developed in the first two weeks will provide physics triggers for all other detectors
- 1 week of machine studies of optimizing crossing angle.
  - The major goal of this period will be to demonstrate the narrower vertex distribution and reduced rates in the TPC allowed by the crossing angle. The evidence for this will come from the vertex distribution from the trigger and hit distribution in the TPC and the silicon detectors.
- 1 week of 111 bunches @ non-zero crossing angle for calorimeter timing/tune-up.
  - As the luminosity nears the design, the experiment will continue to collect data from as many of the sub-detectors as possible, and the radiation damage to the silicon photomultipliers will be carefully monitored.
- 4 weeks of 111 bunches @ non-zero crossing angle (1-5 kHz) for operating tracking detectors including TPC.
  - This running period is designed to collect data from all detectors which will asymptotically approach physics data at modest rate. Any detectors which are having problems taking data or keeping up with the rate will be debugged during this period.
- 2 week of 111 bunches @ non-zero crossing angle with increasing collision rates (15-20 kHz).
  - This period is a dry-run of operation for physics which will develop software and procedure for physics data taking, which immediately follows this period.

54 days after May 18, 2023.



# Compared to the 12 week Commissioning Plan



- 4 weeks of 111 bunches @ non-zero crossing angle (1-5 kHz) for operating tracking detectors including TPC.
  - This running period is designed to collect data from all detectors which will asymptotically approach physics data at modest rate. Any detectors which are having problems taking data or keeping up with the rate will be debugged during this period.
- 54 days after May 18, 2023, most sub-detectors can take data in big-partition/global-mode, except TPC and MVTX.
  - DAQ is trying to work out some quirks so that our DAQ can operate more smoothly and consistently.
  - We haven't completely understood the revtick issue.
- TPC group explores adding TPC to big-partition ~ Wednesday - 07/12
  - This would allow them to do monitoring runs when others are commissioning.