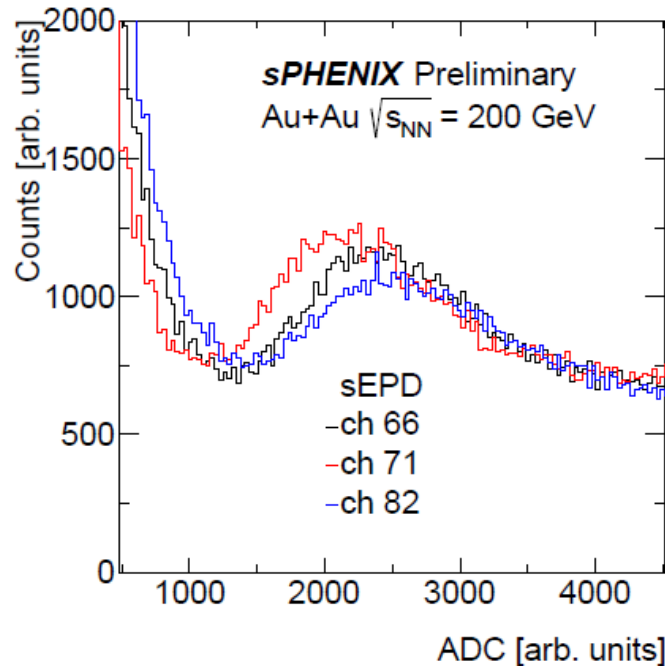


sPHENIX Commissioning Progress

- A prototype readout board with about 60 channels for sEPD was installed on July 19, and we have been able to read it out successfully to find minimum-ionizing-particles. We'll therefore go ahead to install the full readout board in the next Maintenance Day.



Plot made less than a day after installation.

Figure 1: MIP distributions for 3 channels from the sEPD test electronics with beam taking with nominal bias voltage settings.

sPHENIX Commissioning Progress

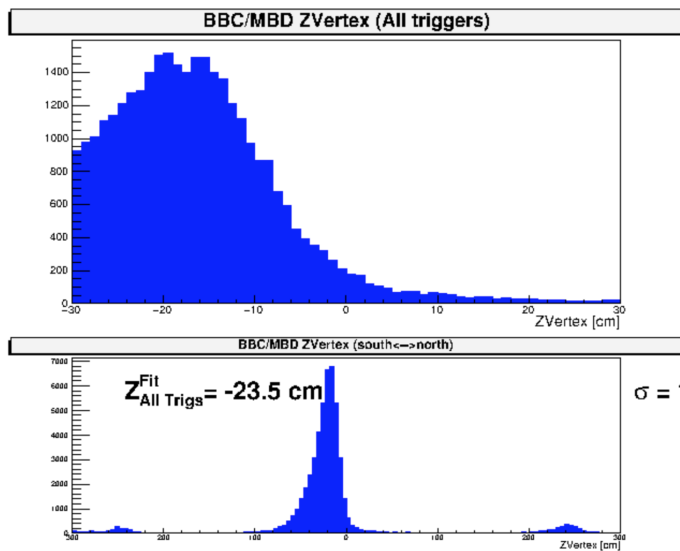
- TPC will turn on High Voltage as much as possible at a safe low-gain setting, and exercise data taking (by experts for now).
- In single-beam study on July 24, we found that after further collimation (which is possible when the beam emittance/size is much reduced near the end of the store), MVTX saw significantly fewer readout “errors”; and in immediate future, we will exploit this feature to operate MVTX some (3) hours after a beam store is established.
- Sub-detectors such as HCAL are in the stage of reading out at higher and higher rates.
- We have also connected with $\frac{1}{4}$ of the Shower Max Detector and taken data, and plan to install the other $\frac{3}{4}$ before/in the coming Maintenance Day.

sPHENIX Commissioning Progress

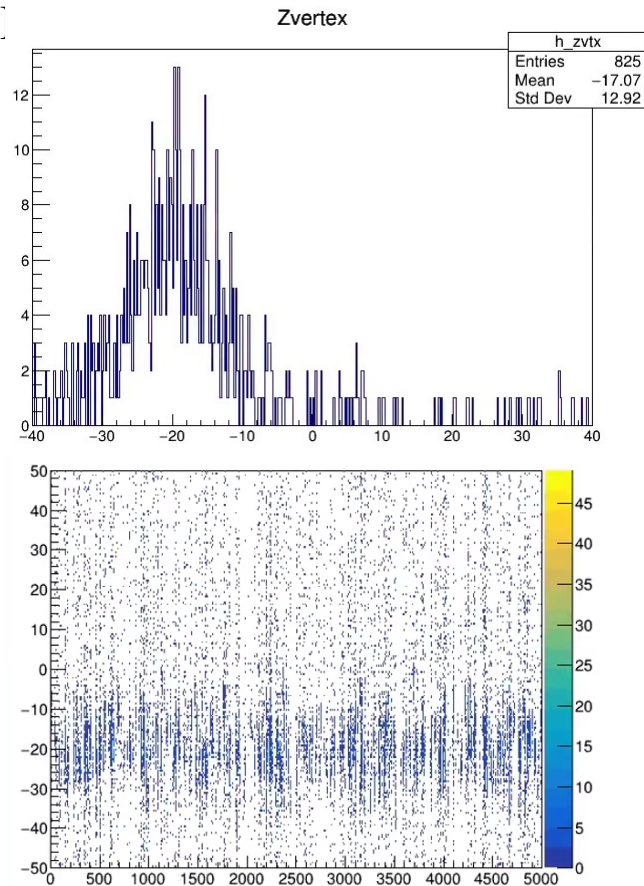
- INTT is able to confirm the z-vertex position found by

MBD Online Monitor

Run #20869 Events: 62923 Date:Sat Jul 8 03:00:53 2023



INTT offline analysis



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.

68 days after May 18, 2023.

