

sPHENIX Status

RHIC Coordination Meeting

April 30, 2024

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sPHENIX Run Coordinator

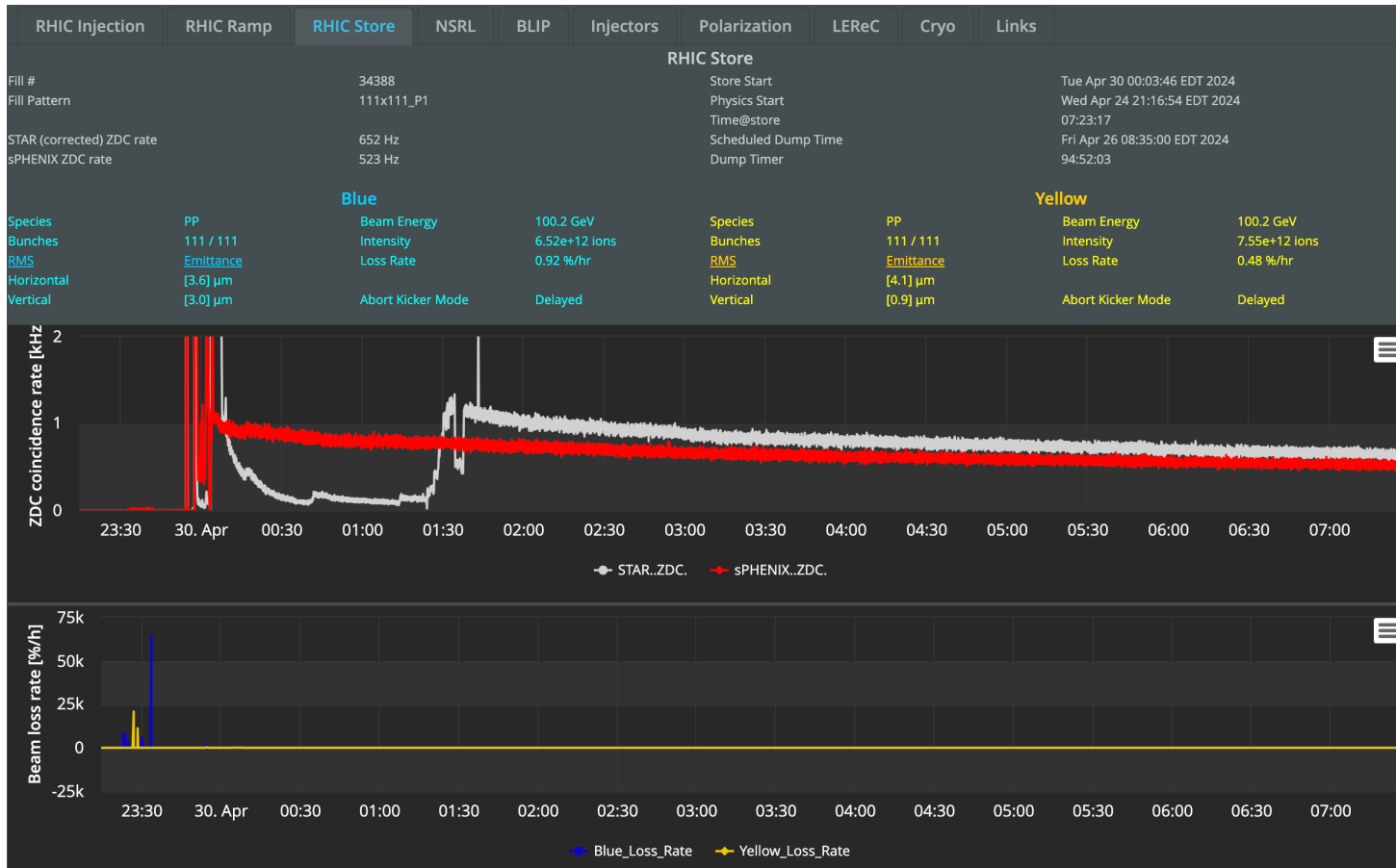


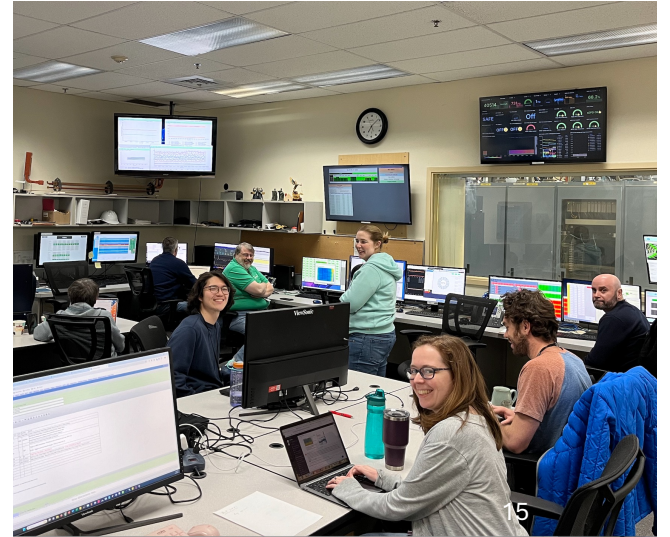
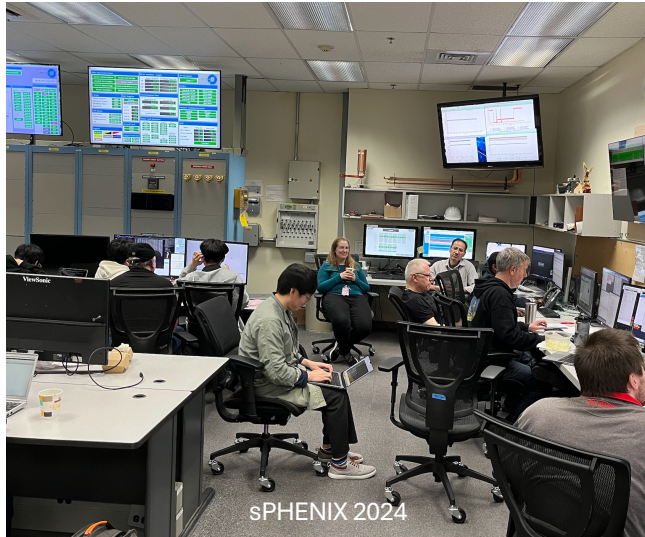
4/30/24

sPHENIX 2024



sPHENIX is feeling the love.....





Running last night with all subsystems (except TPC/TPOT)

Running for 0:05:25

Run: 40789

Multi Event Buffering: 0, DEAD4N: 4

Host	Status	Busy Rat	Count	Data Volume (Mf)	Run	Host	Status	Busy Rat	Count	Data Volume (Mf)	Run
gl1daq			680533	1329	40789	lnt0			1975631	426	40789
seb00 - EmCal (NZS)	not busy	0.00%	680538	32523	40789	lnt1			1964322	585	40789
seb01 - EmCal (NZS)	not busy	0.00%	680547	32524	40789	lnt2			1978610	318	40789
seb02 - EmCal (NZS)	not busy	50.00%	680572	32525	40789	lnt3			1905099	262	40789
seb03 - EmCal (NZS)	busy	29.79%	680569	32525	40789	lnt4			1973461	265	40789
seb04 - EmCal (NZS)	not busy	0.00%	680596	32526	40789	lnt5			1860488	244	40789
seb05 - EmCal (NZS)	not busy	0.00%	680601	32526	40789	lnt6			1951140	301	40789
seb06 - EmCal (NZS)	not busy	0.00%	680611	31182	40789	lnt7			1912059	258	40789
seb07 - EmCal (NZS)	not busy	0.00%	680618	32527	40789	mvtx0			24858	25129	40789
seb08 - EmCal (NZS)	not busy	0.00%	680626	31182	40789	mvtx1			23341	23583	40789
seb09 - EmCal (NZS)	not busy	0.00%	680633	32528	40789	mvtx2			24548	24820	40789
seb10 - EmCal (NZS)	not busy	0.00%	680638	32528	40789	mvtx3			23126	23370	40789
seb11 - EmCal (NZS)	not busy	0.00%	680646	32528	40789	mvtx4			24149	24414	40789
seb12 - EmCal (NZS)	not busy	0.00%	680653	32529	40789	mvtx5			20942	21138	40789
seb13 - EmCal (NZS)	not busy	0.00%	680660	32529	40789						
seb14 - EmCal (NZS)	busy	7.45%	680908	32536	40789						
seb15 - EmCal (NZS)	not busy	0.00%	680908	32536	40789						
seb16 - HCal West (N)	not busy	0.00%	680908	32536	40789						
seb17 - HCal East (NZ)	not busy	0.00%	680908	32536	40789						
seb18 - MBD (NZS)	not busy	0.00%	680908	10778	40789						
seb20 - ZDC/sEPD (N)	not busy	0.00%	680658	17706	40789						

σ (ZDCN) = σ (ZDCS) = 3.3 mb

σ (ZDCN & S Coincidence) = 0.23 mb

Ratio of ~ 14.5 singles/coincidence

σ (pp inelastic) = 42 mb

σ (MBD N&S >=1) = 23 mb [55% of inelastic]

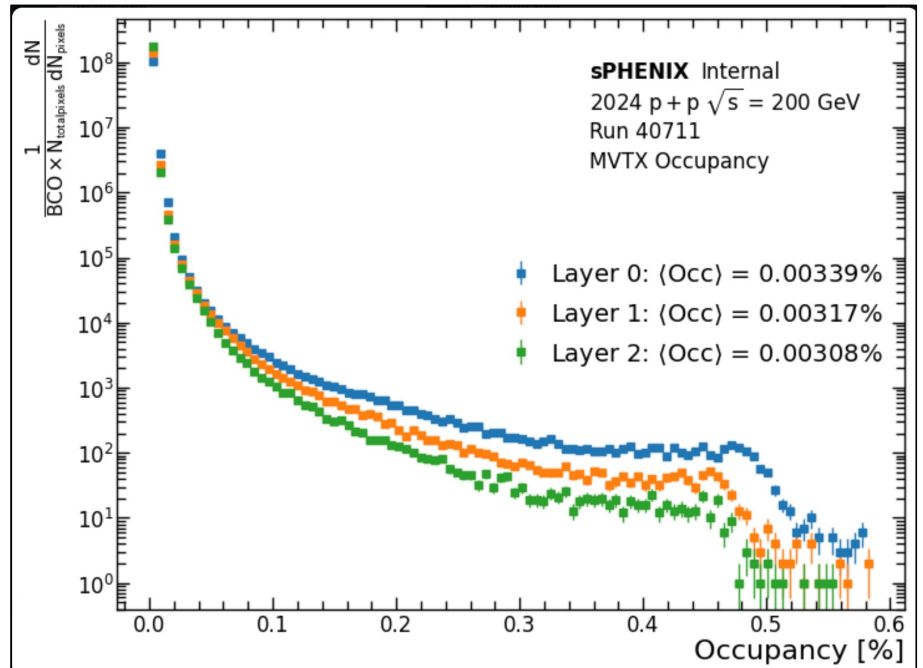
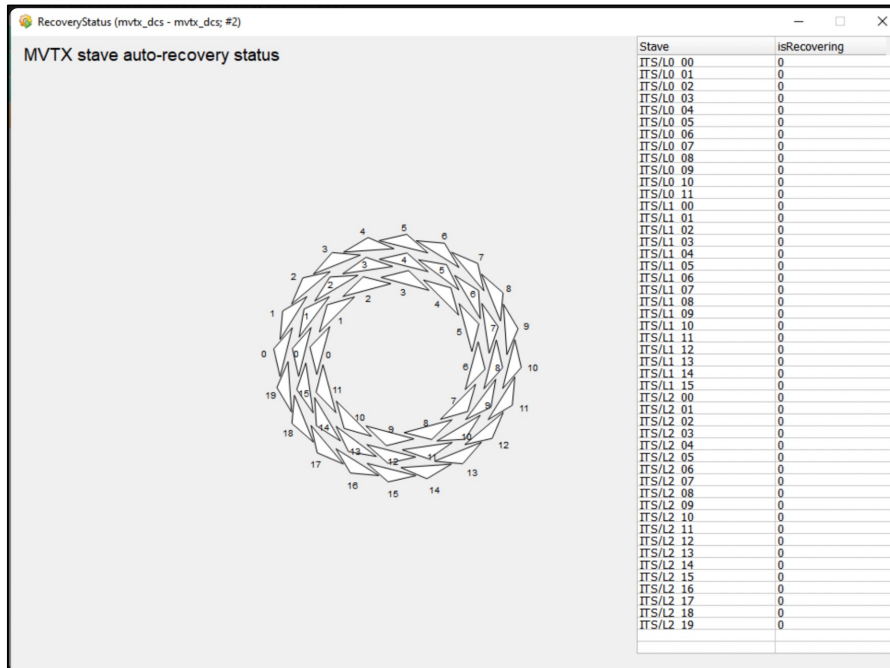
Ratio of (MBD N&S >=1) / ZDC Coincidence = 23 mb / 0.23 mb = 100

Trigger Input Control

L1 Server OK

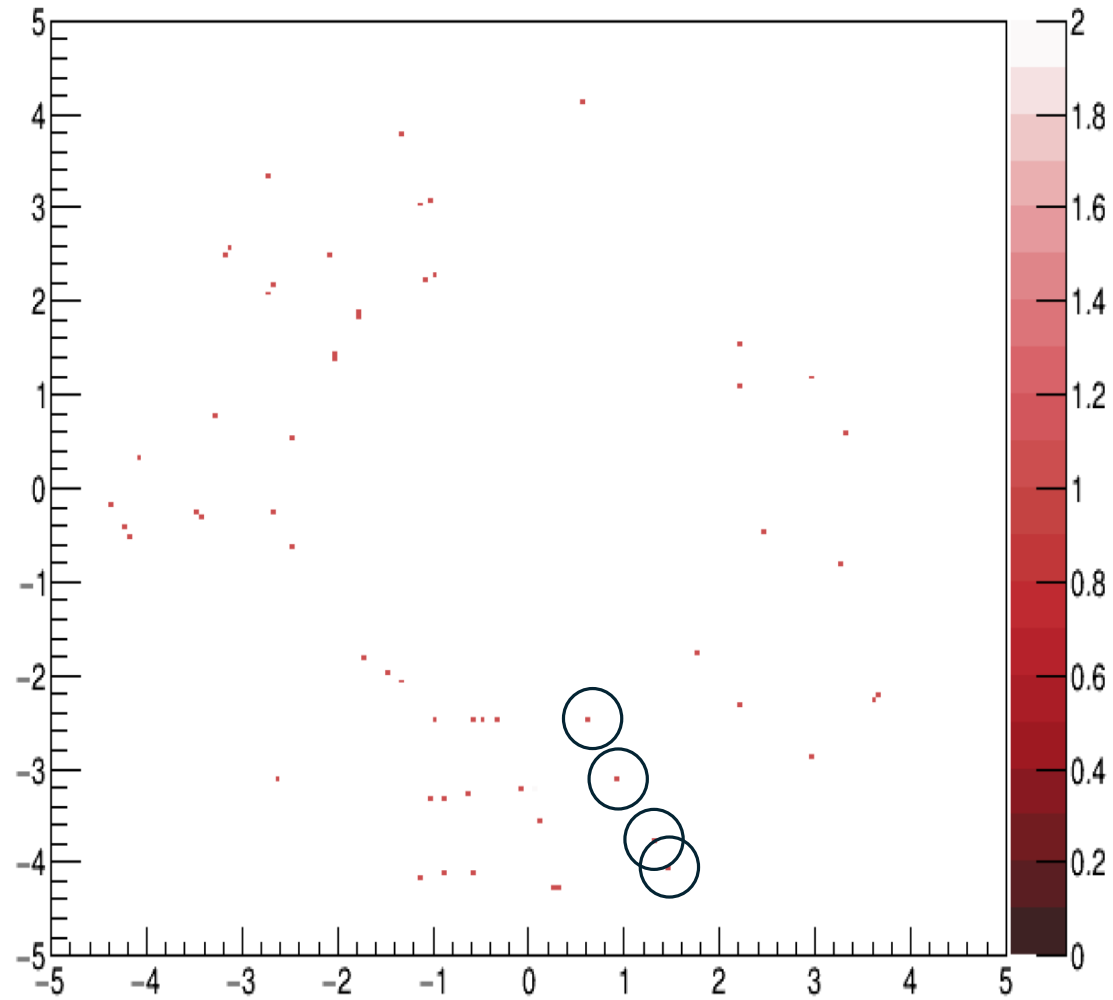
			Raw	Live	Scaled
0: Clock	off	<input type="checkbox"/>	940000.06 Hz	783612.08 Hz	0.00 Hz
1: ZDC North	off	<input type="checkbox"/>	7506.86 Hz	634.94 Hz	0.00 Hz
2: ZDC South	off	<input type="checkbox"/>	8492.61 Hz	711.58 Hz	0.00 Hz
3: ZDC Coincidence	off	<input type="checkbox"/>	505.97 Hz	40.91 Hz	0.00 Hz
4: Random	off	<input type="checkbox"/>	3058.23 Hz	251.59 Hz	0.00 Hz
5: HCAL Singles	off	<input type="checkbox"/>	0.00 Hz	0.00 Hz	0.00 Hz
8: MBD S >= 1	off	<input type="checkbox"/>	94406.96 Hz	7842.02 Hz	0.00 Hz
9: MBD N >= 1	off	<input type="checkbox"/>	72064.36 Hz	5938.26 Hz	0.00 Hz
10: MBD N&S >= 1	0	<input type="checkbox"/>	42003.87 Hz	3494.65 Hz	3494.65
11: MBD N&S >= 2	off	<input type="checkbox"/>	21993.77 Hz	1832.24 Hz	0.00 Hz
12: MBD N&S >= 1, vtx < 10 cm	off	<input type="checkbox"/>	7976.80 Hz	674.45 Hz	0.00 Hz
13: MBD N&S >= 1, vtx < 30 cm	off	<input type="checkbox"/>	20705.91 Hz	1738.25 Hz	0.00 Hz
14: MBD N&S >= 1, vtx < 60 cm	off	<input type="checkbox"/>	35111.29 Hz	2928.91 Hz	0.00 Hz
15: HCAL Singles + MBD NS >= 1	off	<input type="checkbox"/>	0.00 Hz	0.00 Hz	0.00 Hz

MVTX Status



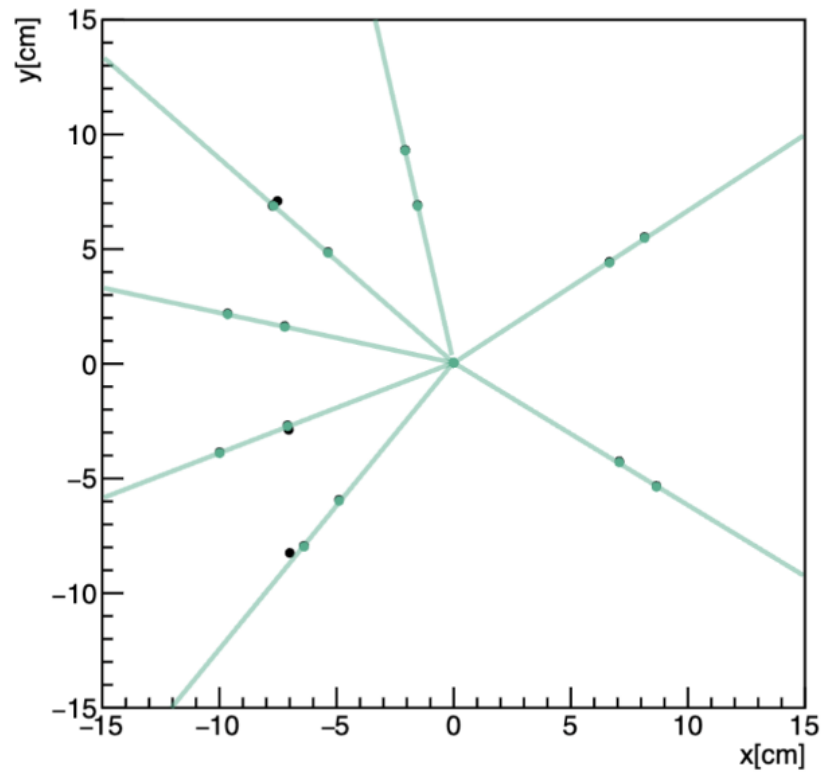
We are not seeing any auto-recoveries so far. Running in full streaming mode..
Quickly working on MVTX analysis.

ClusY:ClusX {EventID == 33 && NPixInClus > 1}

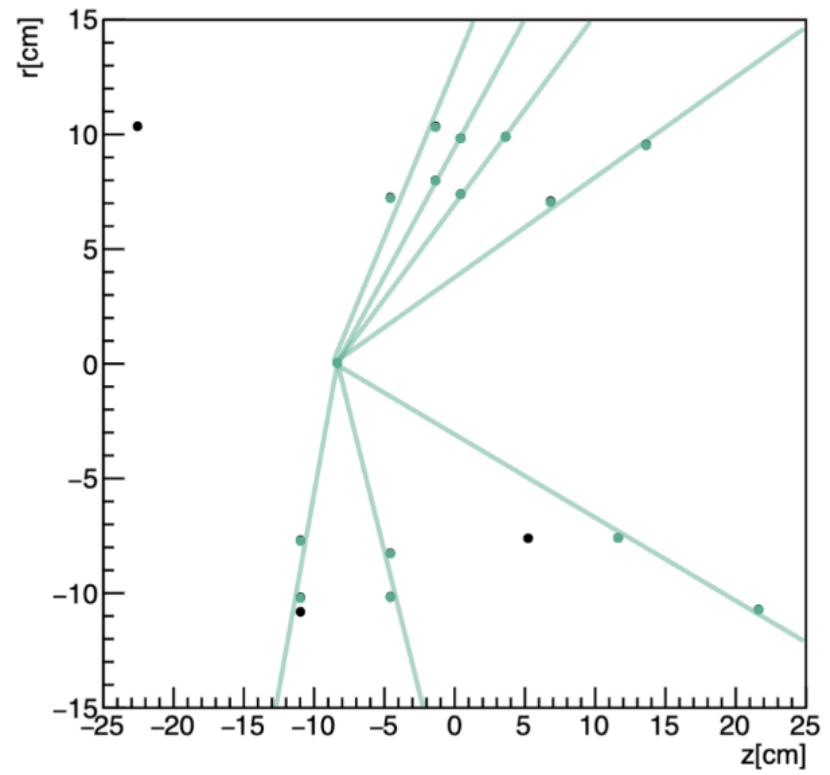


INTT Display

x-y plane of event 769



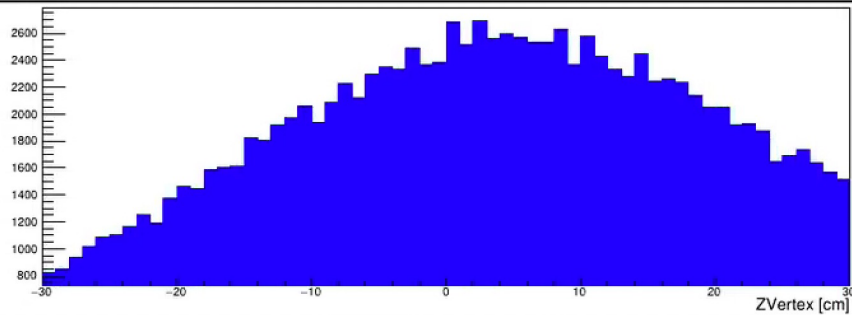
z-r plane of event 769



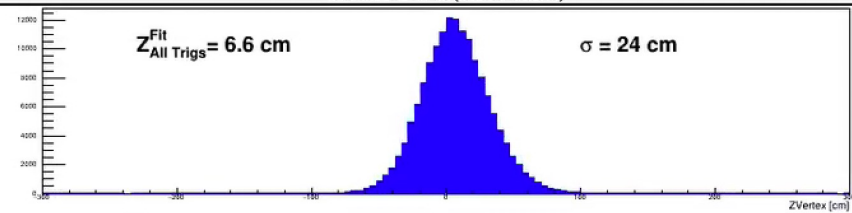
BBC/MBD ONLINE MONITOR

Run #40809 Events: 222199 Date: Tue Apr 30 07:39:17 2024

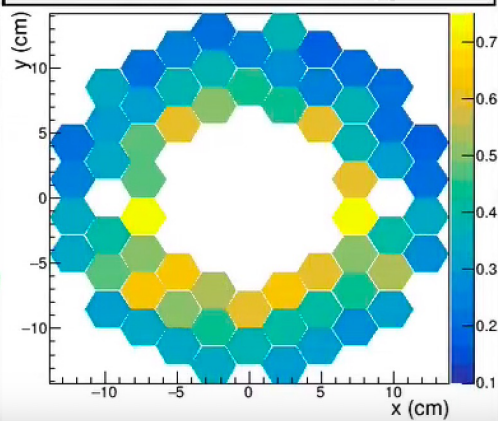
BBC/MBD ZVertex (All triggers)



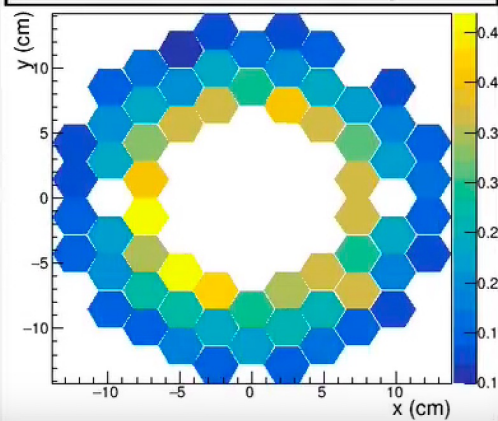
BBC/MBD ZVertex (south<-->north)



BBC/MBD South Hitmap

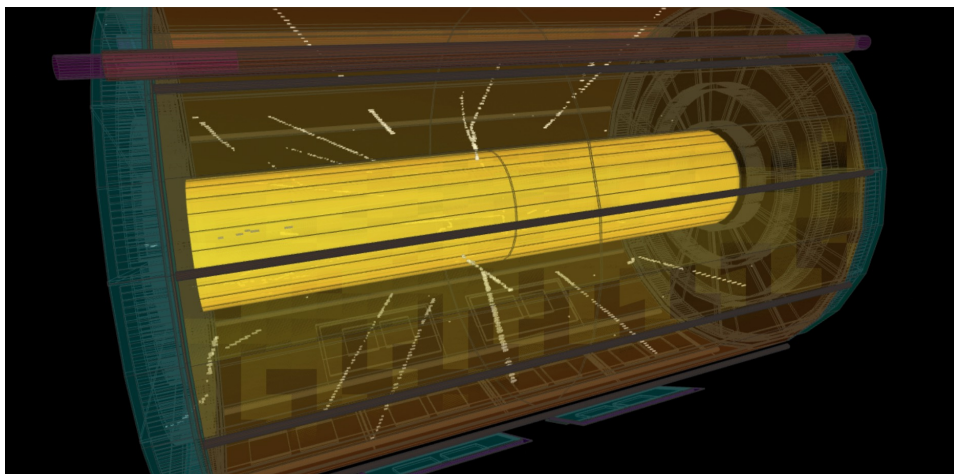
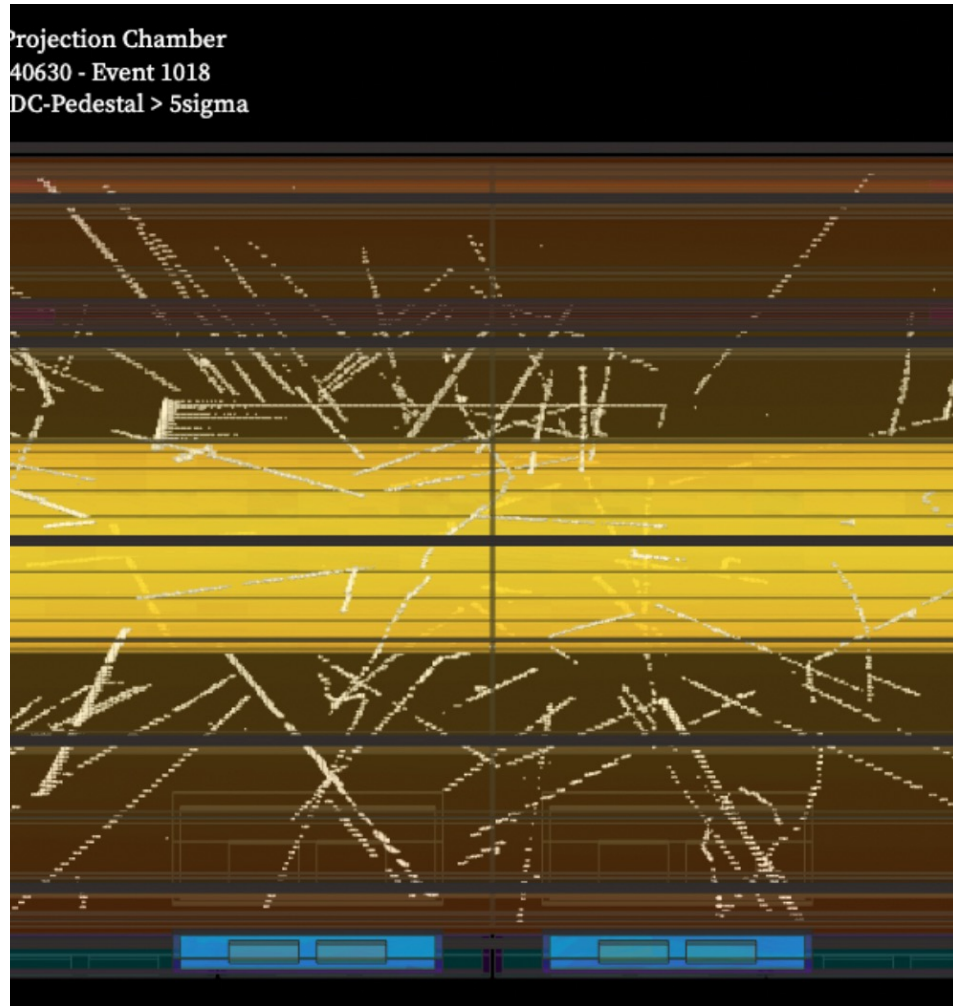
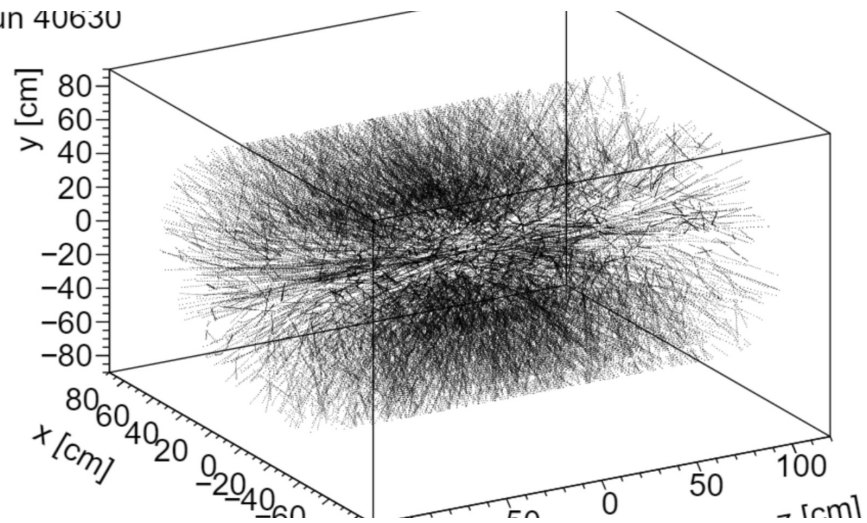


BBC/MBD North Hitmap

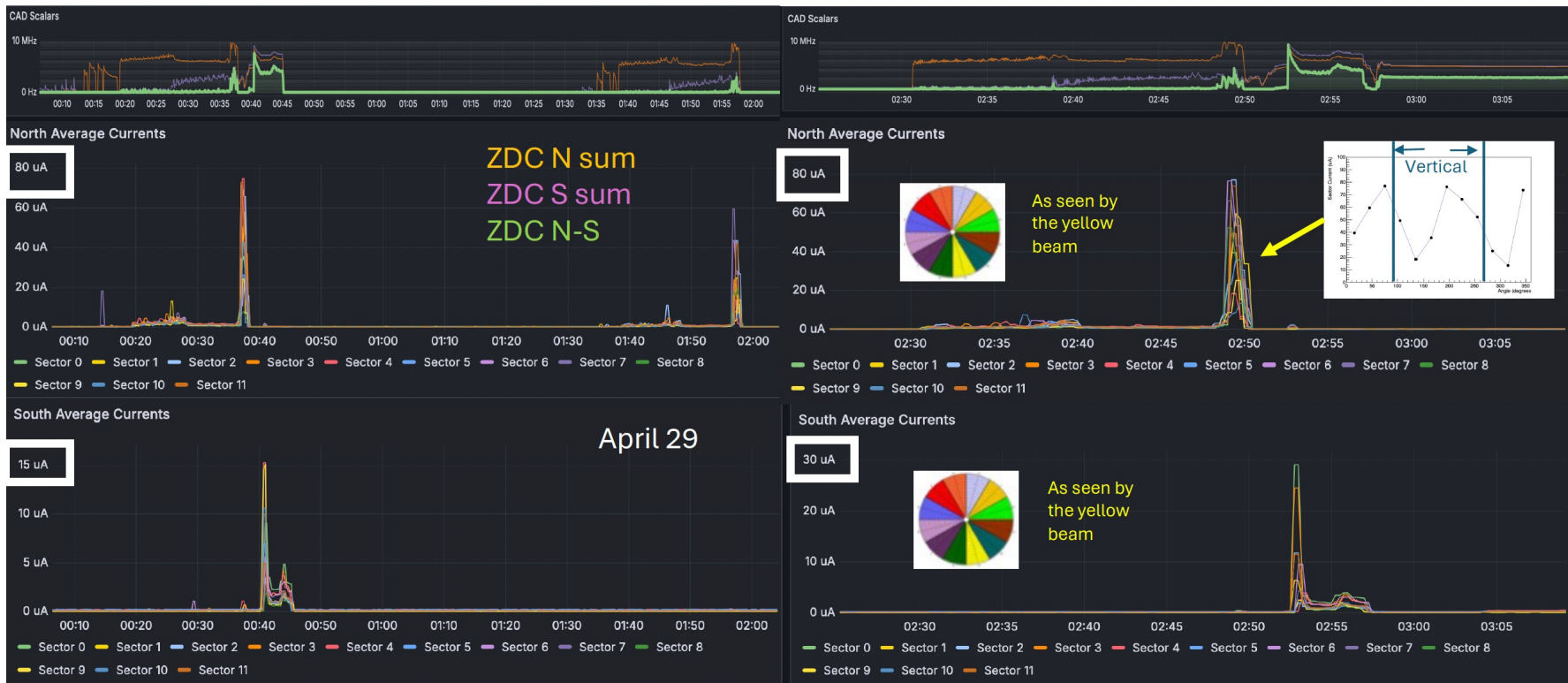
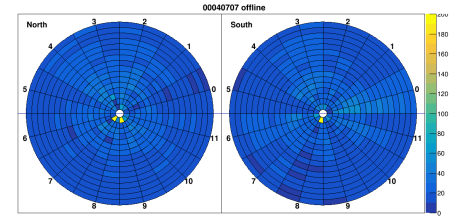


Want to confirm z-offset with MVTX and INTT from last night before asking for any changes...

Run 40630



sPHENIX sEPD SiPM Currents vs ZDC activity April 29. Note the **different** North vs South **Scales**



Problematic 111x111 beam attempt ~midnight

Good store for 111x111

Week #2 - starting Monday, April 22, 2024

- Magnet valve repair done Monday/Tuesday, keeping magnet off
- Should see stores overnight (note this would be one long store left in)
 - Low luminosity is good, any crossing angle that works for C-AD
 - Not worrying about polarization at this point...
- Expert crews including DAQ/Trigger/MBD need to be available

- Focus on timing in MBD and getting MBD (no vertex) trigger setup
- Focus on checking ZDC signal to RHIC, and ZDC lemo trigger
- Then timing in HCal, EMCal, sEPD, ZDC/SMD relative to MBD trigger (i.e., all ADC systems)

- Depending on stability of beams, turn INTT on to check operations
 - Need fast (one day!) feedback on average x,y,z beam position.

- Careful decision for turning on MVTX, TPC/TPOT (expert decisions)
 - Low luminosity fills or smaller number of bunches (to be determined) (depending on conditions)
- Potentially first check on MVTX resets sent to MCR

Week #3 - starting Monday, April 29, 2024

- Plan “Physics Quality” ADC system data taking at 15 kHz with minimum bias and “some HCal energy” trigger (using cosmic lemo).
- EMCal, HCal, MBD, sEPD, ZDC/SMD should be physics ready including full monitoring.

- TPC checks with B field in steps
- Hopefully more regular beam/stores at moderate luminosity
- Full MVTX background checks (dedicate significant time as needed)
Potential single beam studies, steering, etc.
- Potential first running at low rate with everyone in Big Partition

- TPC new firmware needs to be running stably
[zero suppression, BCO alignment, busy signal, etc.]
Initial testing anticipated ~April 12...must monitor progress.

Having internal discussions on bringing TPC fully online.

May leave magnet off this entire week.

May want low luminosity store during the day – to be determined.

