Run24 AuAu commissioning status

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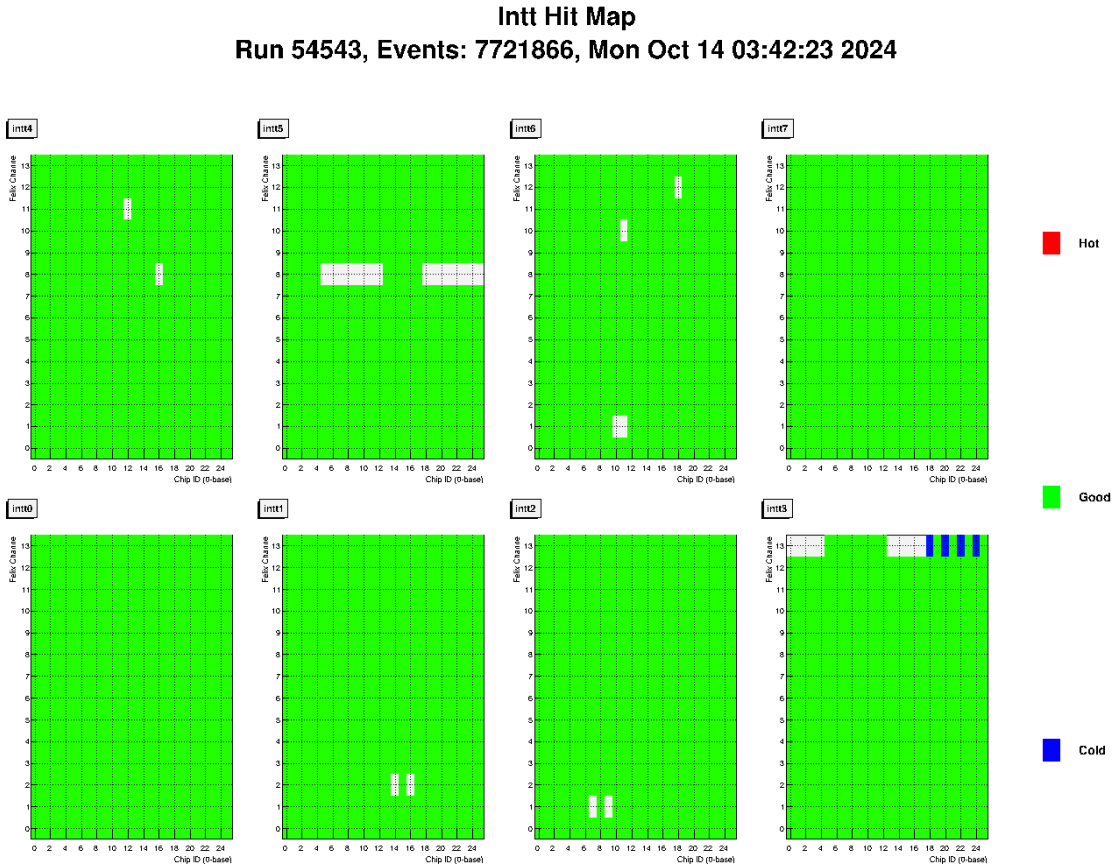
What data we took?

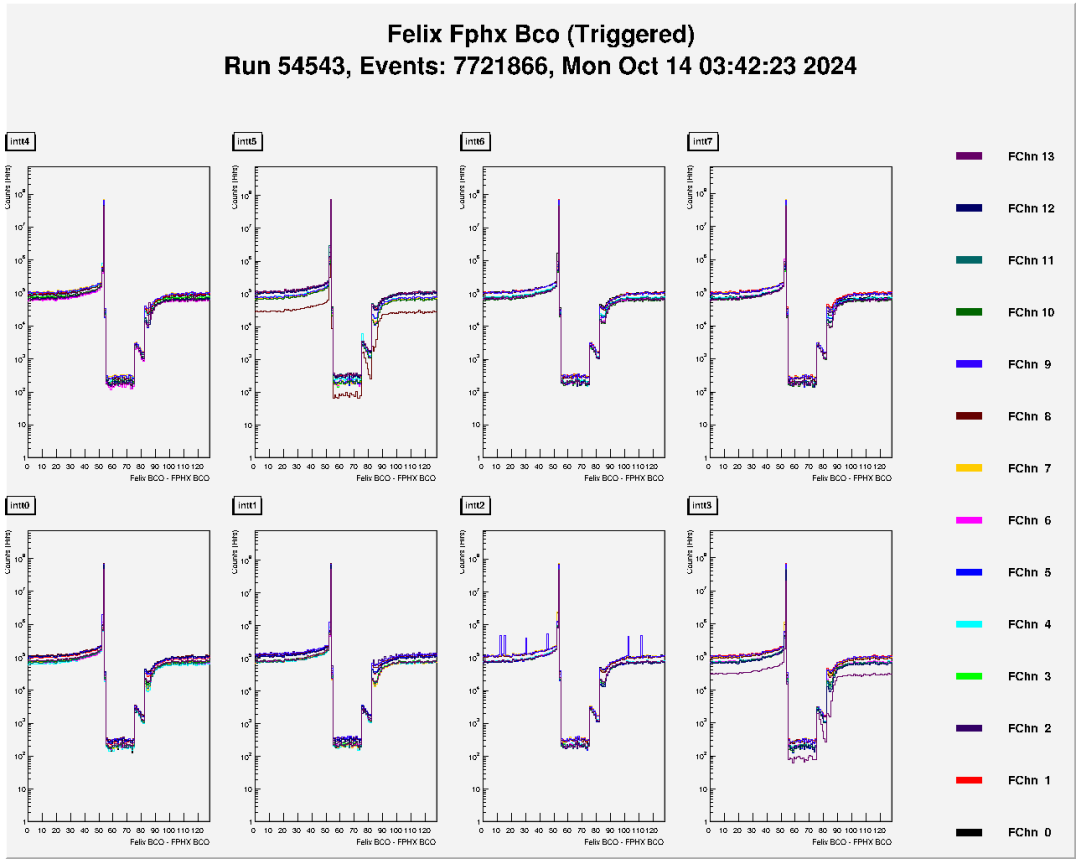
Date/Time	Run#	Run Type	Mag	Link	Duration (min)	Event	MBD-NS	Active Felix List	DAC 0	L1 Delay	n_coll	open time	Modebit
2024/10/12 23:32	54485	physics	On		51min	13M		All Felix	35	114	100	60	intt_triggermode
2024/10/13 0:29	54486	physics	On		1hour	14.8M		All Felix	35	114	100	60	intt_triggermode
2024/10/13 1:44	54487	physics	On		1hour	14.8M		All Felix	35	114	100	60	intt_triggermode
2024/10/13 2:49	54488	physics	On		20min	5M		All Felix	35	114	100	60	intt_triggermode
2024/10/13 3:24	54489	physics	On		22min	5.5M		All Felix	35	114	100	60	intt_triggermode
2024/10/13 3:53	54490	physics	On		1hour	14.6M		All Felix	35	114	100	60	intt_triggermode
2024/10/13 4:58	54491	physics	On		40min	9.6M		All Felix	35	114	100	60	intt_triggermode
2024/10/13 6:01	54493	physics	On		1hour	14.1M		All Felix	35	114	100	60	intt_triggermode
2024/10/13 7:09	54494	physics	On		12min	4.2M		All Felix	35	114	100	60	intt_triggermode
2024/10/13 7:30	54495	physics	On		1hour	13.6M		All Felix	35	114	100	60	intt_triggermode
2024/10/13 8:35	54496	physics	On		1hour	13.5M		All Felix	35	114	100	60	intt_triggermode
2024/10/13 9:41	54497	physics	On		42min	9.1M		All Felix	35	114	100	60	intt_triggermode
2024/10/13 10:25	54498	physics	On		14min	3.1M		All Felix	35	114	100	60	intt_triggermode
2024/10/13 18:52	54527	physics	On		20min			All Felix	35	114	100	60	intt_triggermode
2024/10/13 19:15	54528	physics	On		1hour			All Felix	35	114	100	60	intt_triggermode
2024/10/13 20:24	54529	physics	On		20min			All Felix	35	114	100	60	intt_triggermode
2024/10/13 21:05	54530	physics	On		50min			All Felix	35	114	100	60	intt_triggermode
2024/10/13 22:21	54531	physics	On		1hour			All Felix	35	114	100	60	intt_triggermode
2024/10/13 23:24	54532	physics	On		37min			All Felix	35	114	100	60	intt_triggermode
2024/10/14 0:22	54534	physics	On	plot	1hour			All Felix	35	114	100	60	intt_triggermode
2024/10/14 1:28	54535	physics	On	plot	1hour			All Felix	35	114	100	60	intt_triggermode
2024/10/14 3:31	54543	physics	On	plot	10min			All Felix	35	114	100	60	intt_triggermode
2024/10/14 3:49	54544	physics	On	plot	1hour			All Felix	35	114	100	60	intt_triggermode
2024/10/14 4:55	54545	physics	On	plot	1hour			All Felix	35	114	100	60	intt_triggermode
2024/10/14 6:04	54546	physics	On	plot	1hour			All Felix	35	114	100	60	intt_triggermode
2024/10/14 7:10	54547	physics	On	plot	1hour			All Felix	35	114	100	60	intt_triggermode
2024/10/14 8:15	54548	physics	On	plot	1hour			All Felix	35	114	100	60	intt_triggermode
2024/10/14 9:18	54549	physics	On	plot	43min			All Felix	35	114	100	60	intt_triggermode
2024/10/14 18:57	54584	physics	On		11min			All Felix	35	114	100	60	intt_triggermode
2024/10/14 19:51	54587	physics	On		30min			All Felix	35	114	100	60	intt_triggermode
2024/10/14 20:54	54588	physics	On		30min			All Felix	35	114	100	60	intt_triggermode
2024/10/14 21:58	54589	physics	On		30min			All Felix	35	114	100	60	intt_triggermode
2024/10/14 21:33	54590	physics	On		30min			All Felix	35	114	100	60	intt_triggermode
2024/10/14 22:07	54591	physics	On		30min			All Felix	35	114	100	60	intt_triggermode
2024/10/14 22:26	54592	physics	On		30min			All Felix	35	114	100	60	intt_triggermode
2024/10/14 22:43	54593	physics	On		30min			All Felix	35	114	100	60	intt_triggermode
2024/10/14 22:59	54594	physics	On		30min			All Felix	35	114	100	60	intt_triggermode

- Lots of (more than hundred millions events) INTT physics data were taken in big partition.
  - All subsystems are in, but MVTX data is suffering from the auto recovery issue.
  - Need to check correlation between INTT vs other subsystems.
- Manami is now volunteering to input good runs in the run log spreadsheet
  - But this work can be performed by remote people

Online monitoring plot

- Online monitoring plots has been updated for AuAu data and working good (Joseph).





INTT FPHX parameter in database

```
sphnx07:~>psql -h sphnxdaqdbreplica1 daq --command "select * from intt_setting"
 runnumber | n_collisions | open_time | readout_mode | dac0 | dac1 | dac2 | dac3 | dac4 | dac5 | dac6 | dac7
-----------+--------------+-----------+--------------+------+------+------+------+------+------+------+------
     54076 |          100 |        49 | triggered    |   35 |   45 |   60 |   90 |  120 |  150 |  180 |  210
     54244 |          100 |        60 | triggered    |   35 |   45 |   60 |   90 |  120 |  150 |  180 |  210
     54361 |          100 |        60 | triggered    |   35 |   45 |   60 |   90 |  120 |  150 |  180 |  210
     54121 |          100 |        60 | triggered    |   35 |   45 |   60 |   90 |  120 |  150 |  180 |  210
     54267 |          100 |        60 | triggered    |   35 |   45 |   60 |   90 |  120 |  150 |  180 |  210
     54167 |          100 |        60 | triggered    |   35 |   45 |   60 |   90 |  120 |  150 |  180 |  210
     54178 |          100 |        60 | triggered    |   35 |   45 |   60 |   90 |  120 |  150 |  180 |  210
     54154 |          100 |        60 | triggered    |   35 |   45 |   60 |   90 |  120 |  150 |  180 |  210
     54484 |          100 |        60 | triggered    |   35 |   45 |   60 |   90 |  120 |  150 |  180 |  210
     54466 |          100 |        60 | triggered    |   35 |   45 |   60 |   90 |  120 |  150 |  180 |  210
     54371 |          100 |        60 | triggered    |   35 |   45 |   60 |   90 |  120 |  150 |  180 |  210
     54168 |          100 |        60 | triggered    |   35 |   45 |   60 |   90 |  120 |  150 |  180 |  210
     54156 |          100 |        60 | triggered    |   35 |   45 |   60 |   90 |  120 |  150 |  180 |  210
     54483 |          100 |        60 | triggered    |   35 |   45 |   60 |   90 |  120 |  150 |  180 |  210
     54179 |          100 |        60 | triggered    |   35 |   45 |   60 |   90 |  120 |  150 |  180 |  210
     54273 |          100 |        60 | triggered    |   35 |   45 |   60 |   90 |  120 |  150 |  180 |  210
```

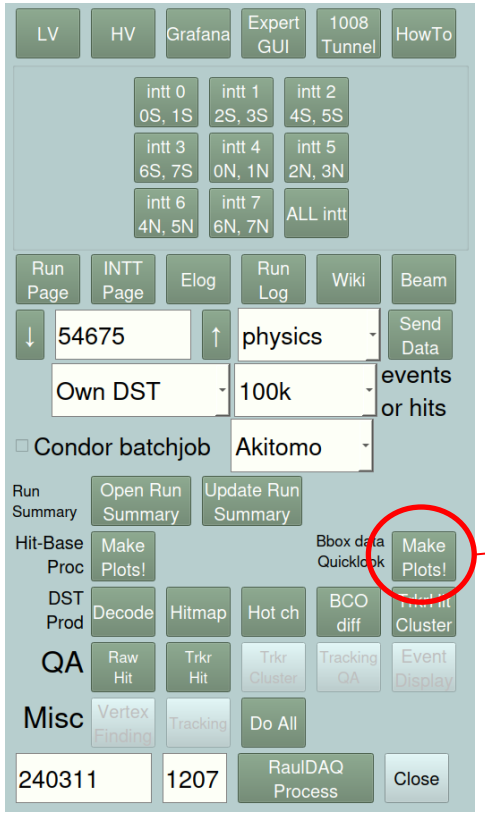
- Joseph's script automatically input fphx parameters into database when start a new run
- Tomoya's script searches into log files and input fphx parameters into database for old runs

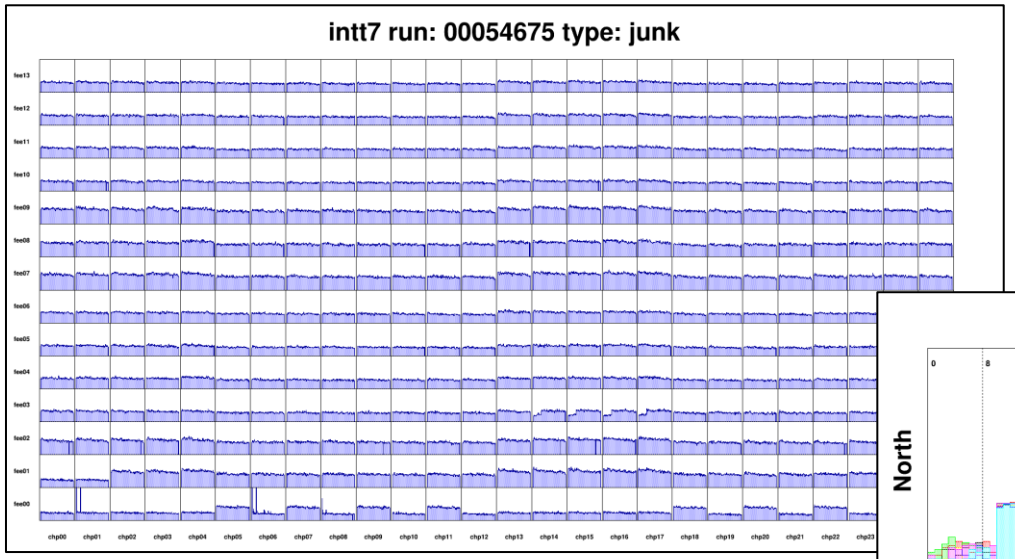
Status for AuAu commissioning task

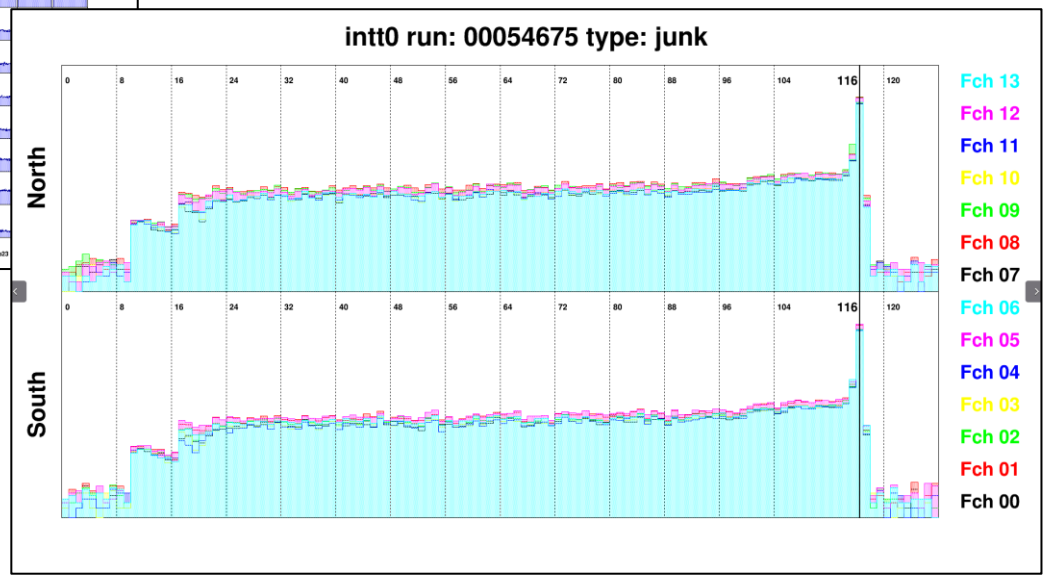
Task	Duration	Points	Beam condition	Other subsystem condition	Priority	Field	Trigger	Comment
Timing scan	5 min x 6 points x 2 sets	lvl1 = 112, 113, 114, 115, 116, 117	6x6 bunch preferred	gl1 timing work finished	1 (Done!)		GL1	
DAC0 scan	5 min x 6 points x 2 sets	DAC0 = 15, 20, 25, 30, 35, 40	High intensity	No need	2 (Done)			
DAC scan	10 min x 8 points x 2 sets (6M events/per point)	8 DAC parameter sets (inner layer)	Any AuAu data	(if possible) GI1, MBD, ZDC	7 (Done)	Zero field (preferred)	Min. Bias (preferred)	After tiimed in, Small n-collisions (3 upto 7), Vertex Z dist. peaked at ~0 cm,Outer layer is fixed at DAC0=30 or 35.
Low bias scan	20 min x 2 points x 2 sets	Bias = 50V, 75V	Any AuAu data	No need	3 (Done)	Zero field (preferred)	Min. Bias (preferred)	hopefully after DAC scan DAC0=35
Noise test	10 min x 2 points x 2 sets	Mode = triggered, streaming	No beam needed	No need	6		GL1	Data has to be taken with GL1 for the streaming readout
Nice dataset	more than 20 min (> 10M events)		Any AuAu data	GI1, MBD, ZDC	8 (Done!)	Zero field	Min. Bias	After tiimed in, Small n-collisions (3 upto 7), Vertex Z dist. peaked at ~0 cm, DAC0=30 or 35
Digital Ctrl Scan	5 min x 2 points x 2 sets*	Digital Ctrl = 2, 10	Any AuAu data	No need	5	Any	Any	With beam. How many statistics we need~6Mhits in INTT
Mixup Events	5min x ? points x 2 sets	No special run request	Low to high beam rates	No need	4			Open time dependence

- Timing scan DAC0 scan, Nice dataset DAC scan, Low bias scan: Done!
  - Joseph, Tomoya, Mai, Manami just took calibration runs overnight!
- Digital Ctrl Scan : Takahiro/Itaru are investigating how the FPHX parameter (DigiCtrl) can properly be set
- Mixup Events : Mai will implement Offline QA plots (consulting with Xudong)

Bbox data quick check



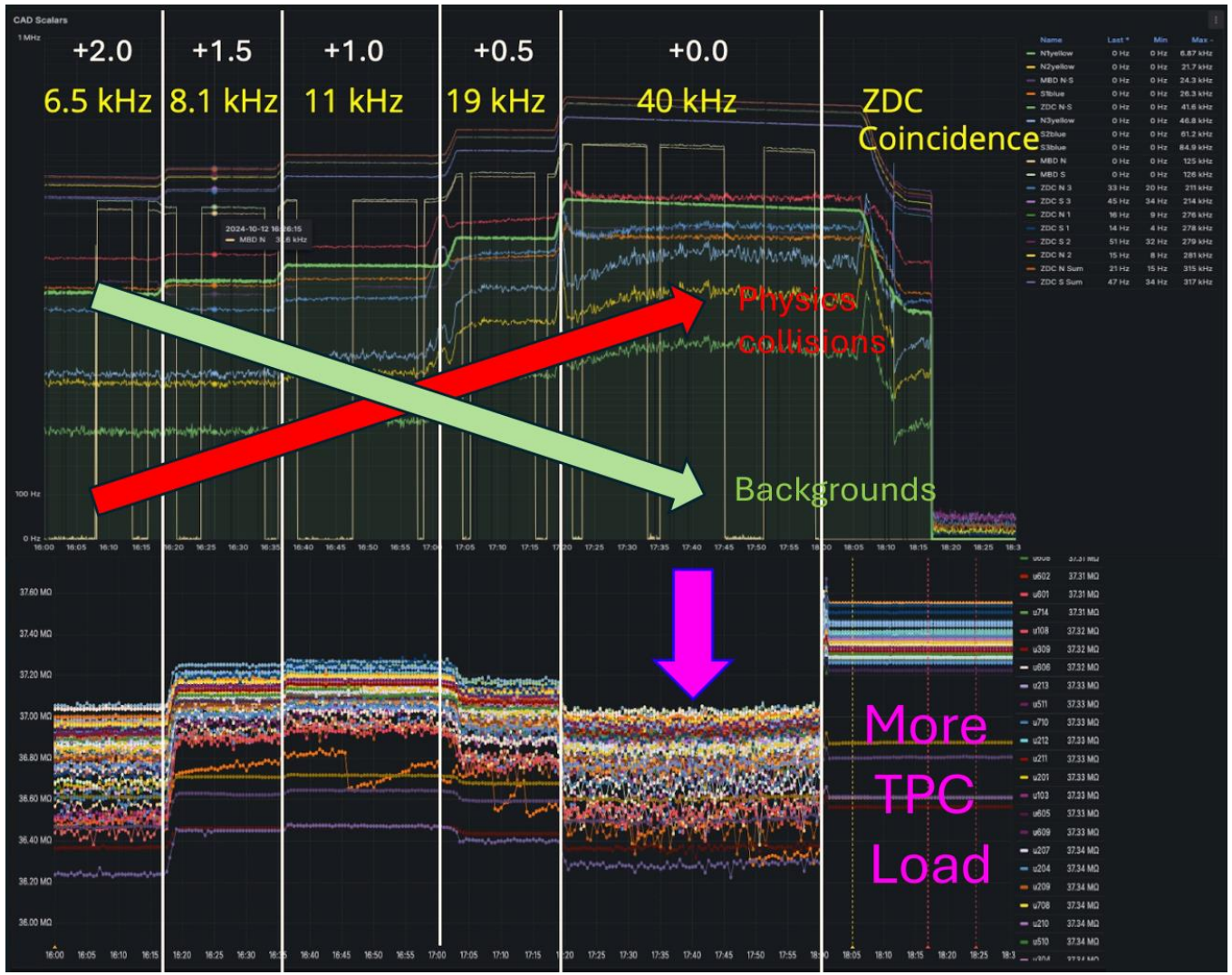




Data process is very fast and done processing 100k events in 10 sec!

- Joseph's new analysis code running on intt server machine to quickly check the most recent data on bbox, then show channel-by-channel plots like Genki's Hit-base plots.
- This software can be used to check data between runs

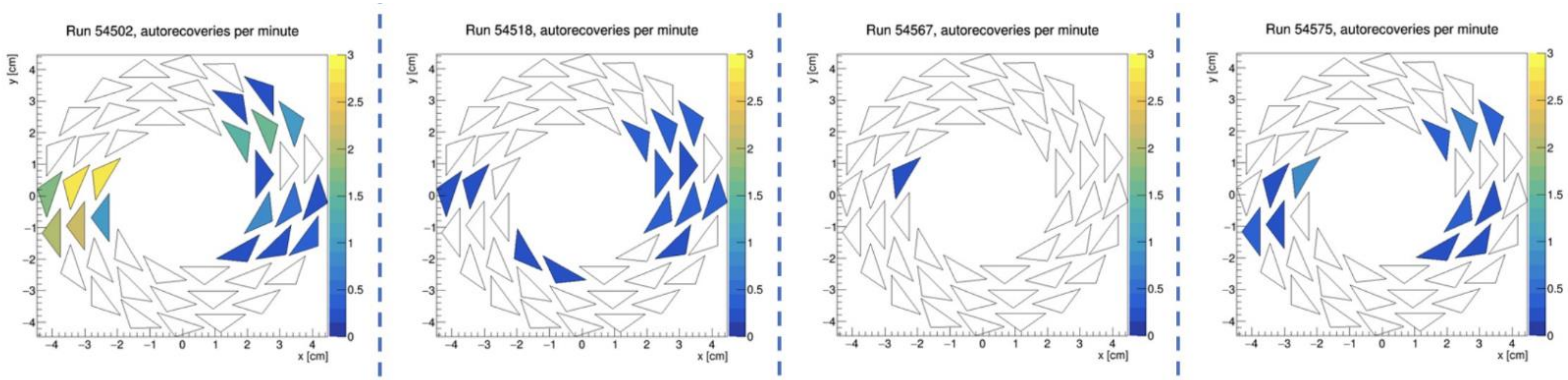
TPC status



- TPC is working!!
- TPC load test showed some optimal beam crossing angle.
  - Survived at ZDC coincidence = 40kHz
  - The beam crossing angle changed from 2-mrad to 1-mrad based on the load test.
- Data acquisition rate is 4-5kHz now (limited by the bandwidth to bbox)

- Some of beam crossing angle crossing scan data is taken in big partition. Tomoya will work on z-size for the runs

MVTX status



Baseline configuration
1x1 bunches
2 mrad crossing
0mm global radial change
No bump

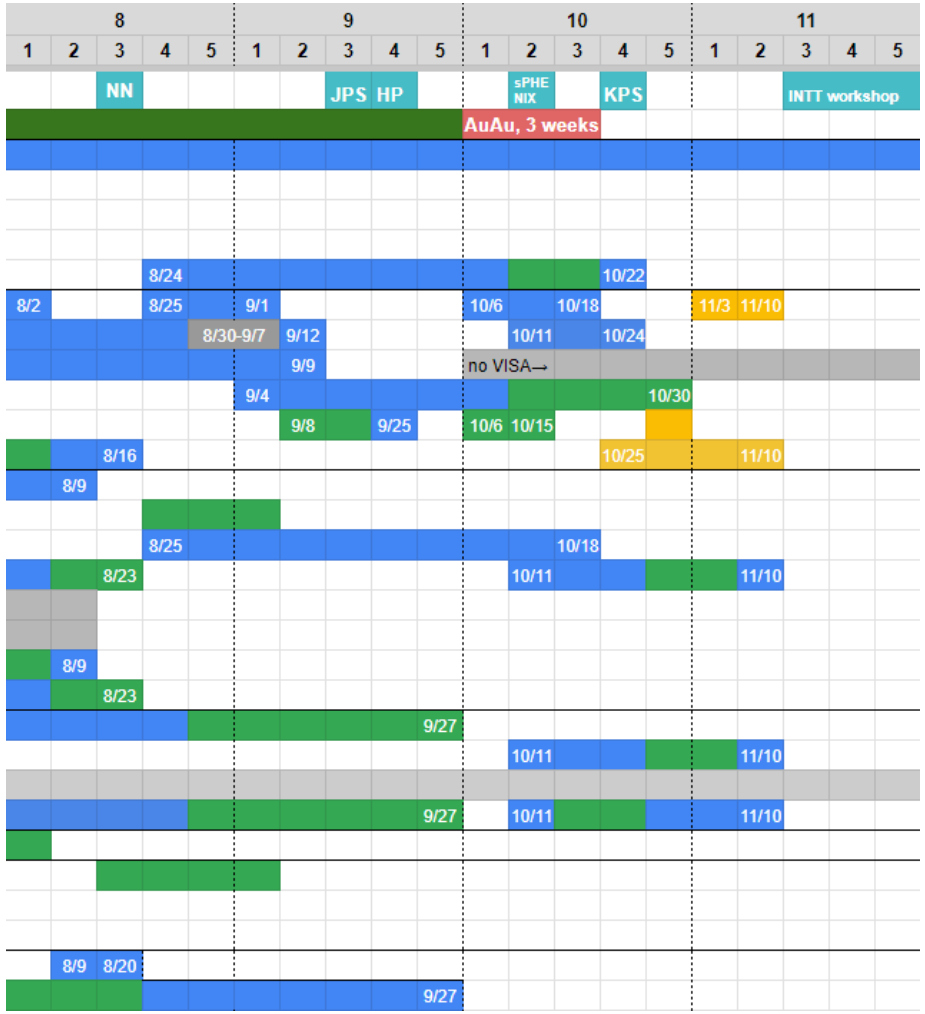
Yellow optimization
1 bunch
1 mrad crossing
-0.5mm global radial change
-8mm bump in 8 o'clock arc

Blue optimization
1 bunch
1 mrad crossing
-0.41mm global radial change
No bump

Final optimization
1x1 bunches
1 mrad crossing
-0.39mm global radial change
Yellow -8mm bump in 8 o'clock arc

- MVTX still has a lot of backgrounds, which ends up with persistent auto-recovery mode.
- MVTX group is coordinating with C-AD team to adjust beam condition to find a better beam optics to have less background to MVTX
- Now they are considering "trigger mode" option…

BNL Travels and INTT Experts



INTT experts currently on site:

- Rachid, Joseph, Yasuyuki, Itaru, Akitomo, Manami, Mai, Tomoya, Takahiro

No INTT stuff 10/30 – 11/3?

What is the Cheng-Wei's travel plan?

Schedules

- Au+Au commissioning runs until October 21st
- 2 person Watch shift continues until November 5th

- BUP deadline November 3rd
- PAC meeting on November 7th
- INTT analysis workshop at Korea University on November 18th - 29th .
- Collaboration meeting on December 12th - 13th at BNL