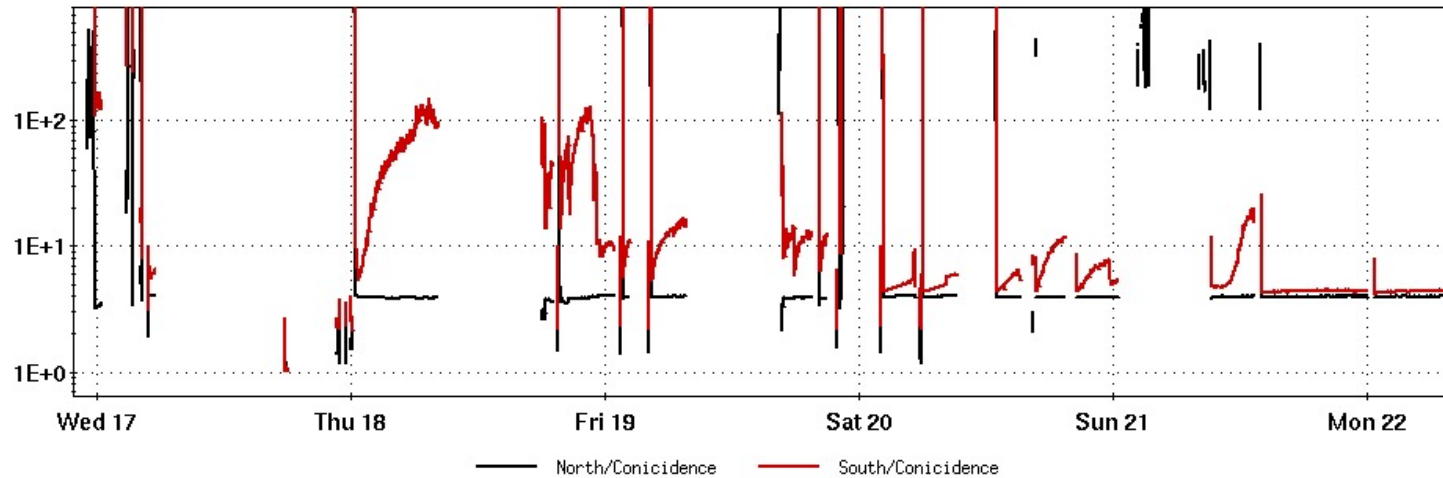


sPHENIX-INTT Commissioning Status

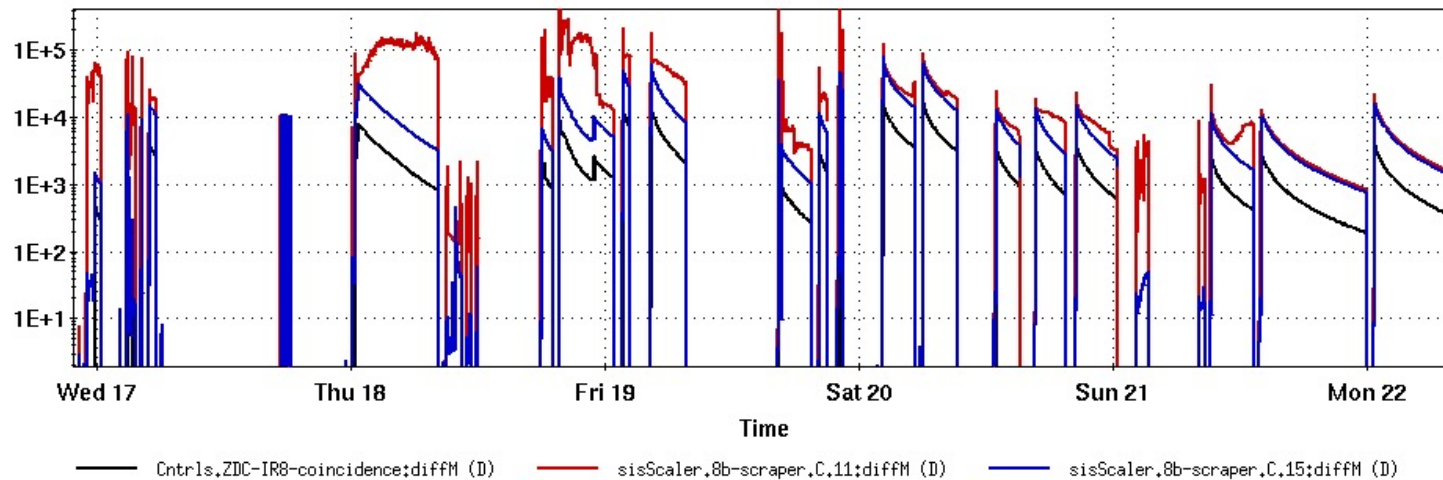
RIKEN/RBRC

Itaru Nakagawa



Clean Beam?

- ZDC singles/coincidence
- background measure
- Black: North
- Red: South
- Much improved 2nd night
- South still significantly less clean than North until last night
- Now very nice looking!



Plot by Ben Kimelman

Timeline of Period 1 (May 9-23)

- Fri May 5 Begin Run Party
- Tue May 9 Power off to carriage for electrical inspections and repairs
- Fri May 12 First sweep
- Wed May 17 Begin to see counts in ZDC scalers
- Thu May 18 Beams brought into collision at 8 o'clock
- Thu May 18 BHSO gives approval to operate, enabling magnet cooldown and gas
- Sun May 21 First reasonable MBD triggers to MBD+HCAL
- MBD+EMCAL ongoing
- MBD+INTT tomorrow morning

Courtesy of John Haggerty

Commissioning milestones

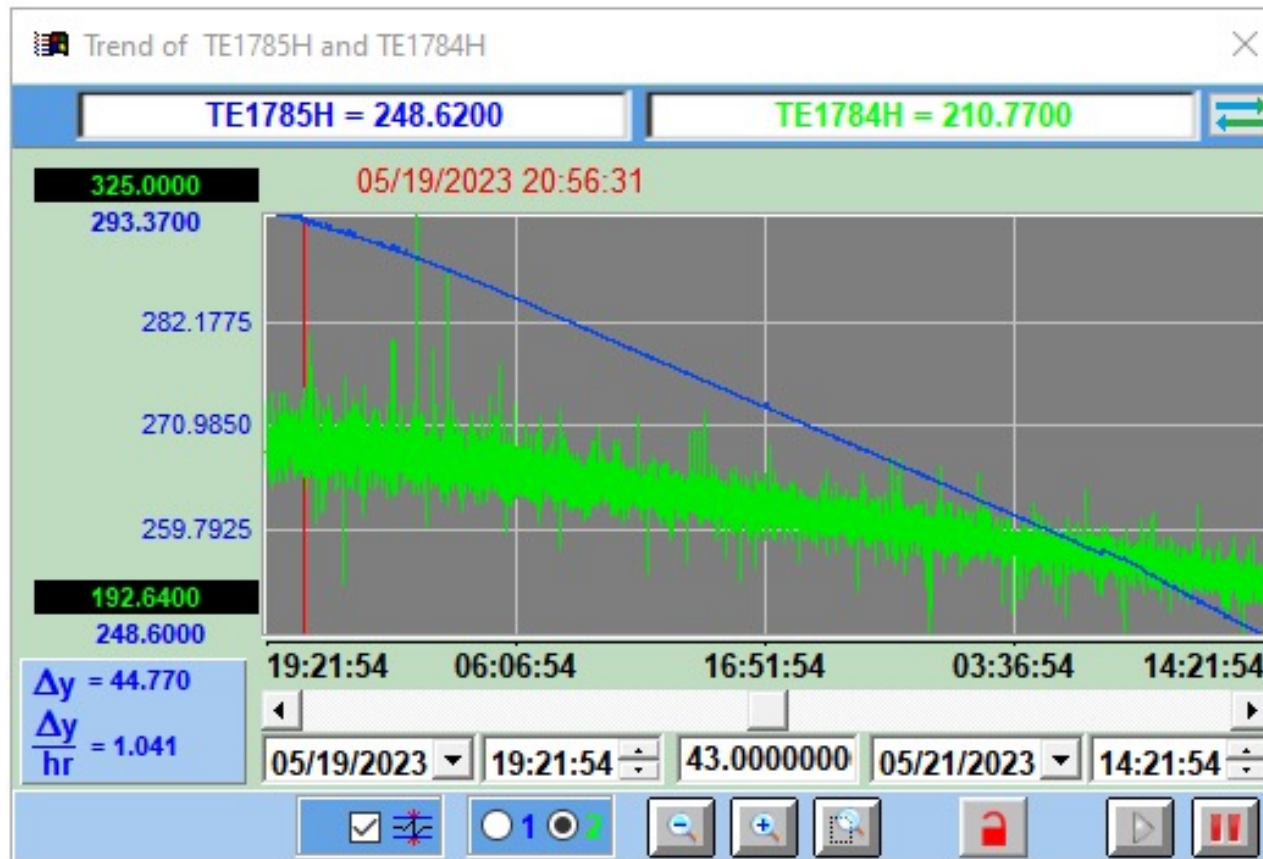
- ✓ Operation of detector without access
- ✓ Shift crews capable of monitoring the detector and alarms
- ✓ Magnet power supplies ready and cryo cooldown begun
- ✓ Gas flowing to TPC+TPOT, N₂ for cooling and humidity control
- ✓ Most systems connected to the GL1/GTM
- ✓ Beam clock stable to collisions
- ✓ TPC electronics (FEE+FELIX) operated regularly
- ✓ INTT calibration runs
- ✓ Calorimeters taking data with TP, LED, and MBD triggers

Courtesy of John Haggerty

Status Overview

- Minimum Bias Trigger commissioning ongoing
 - Definitely triggering on collisions
 - Definitely can provide "clean" trigger on central collisions (i.e. biased)
 - Instabilities observed of phase w.r.t. 56 MHz clock → investigating
 - In touch with RF group
 - RF group fixed 56 MHz w.r.t. 9 MHz Friday
 - sPHENIX started using rev tick Saturday
 - L1->G1 communication not fully working (no timing cut yet)
- Calorimeter commissioning ongoing
 - Definite calorimeter-MBD correlation observed
- Magnet cool-down started Friday
- Flow of operating gas to TPC and TPOT started Friday
 - TPOT commissioning started Saturday

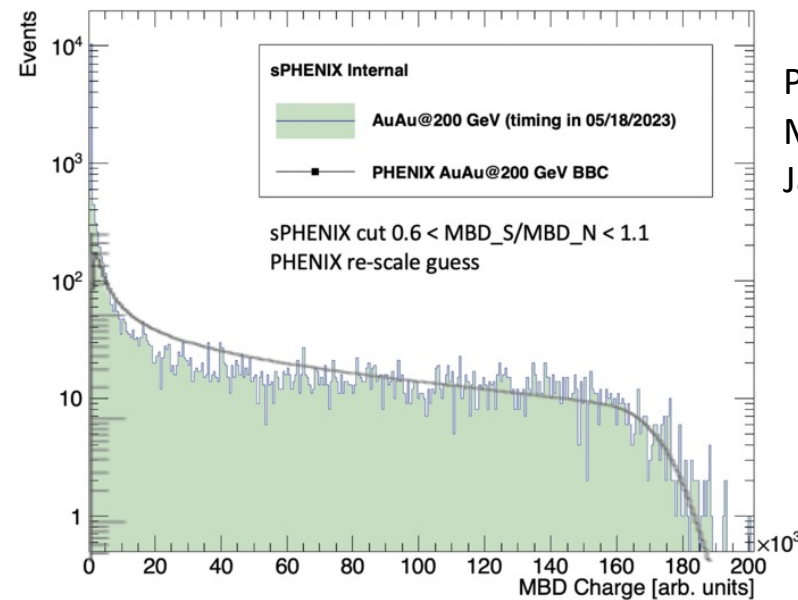
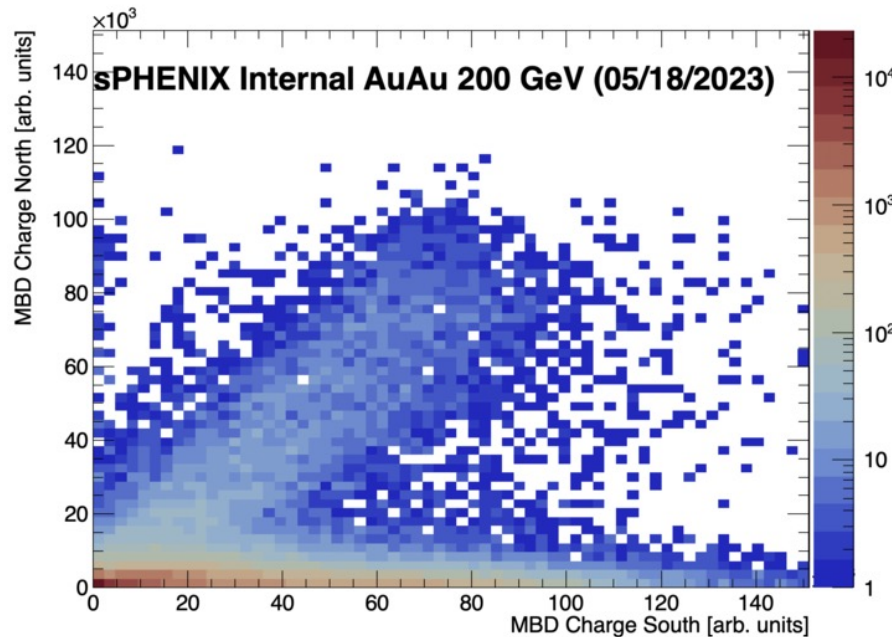
sPHENIX Magnet Cool-Down



- Started 5/19
- To be ready by the end of May

Plot by Kin Yip

Evidence of collision trigger

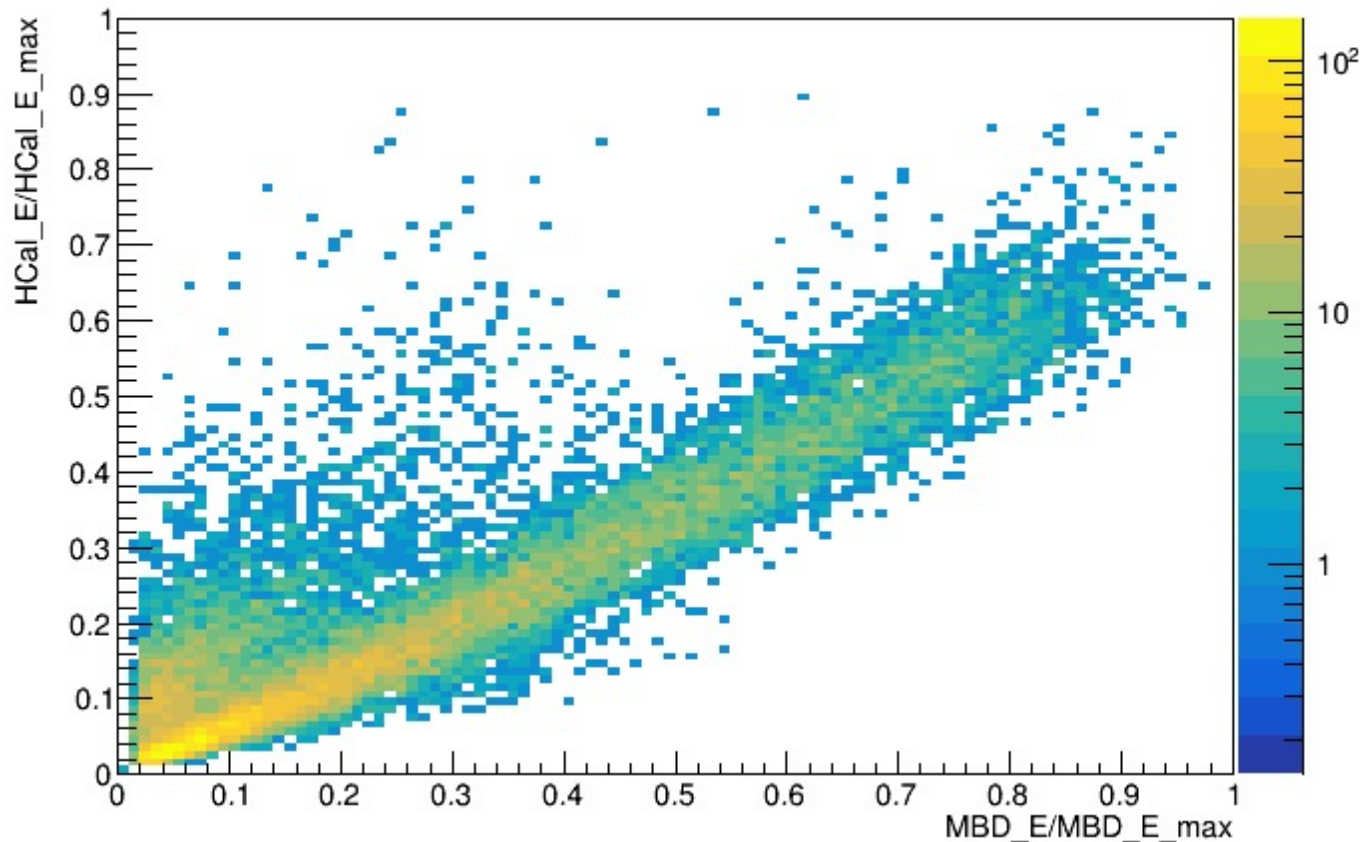


Plot by Jamie, Dan Lis,
Mickey, Abdul,
Jaebeom, Joey

- First night's data \rightarrow triggering mostly on junk
- But when selecting N-S correlation \rightarrow charge distribution as expected from collisions

HCal-MBD Correlation

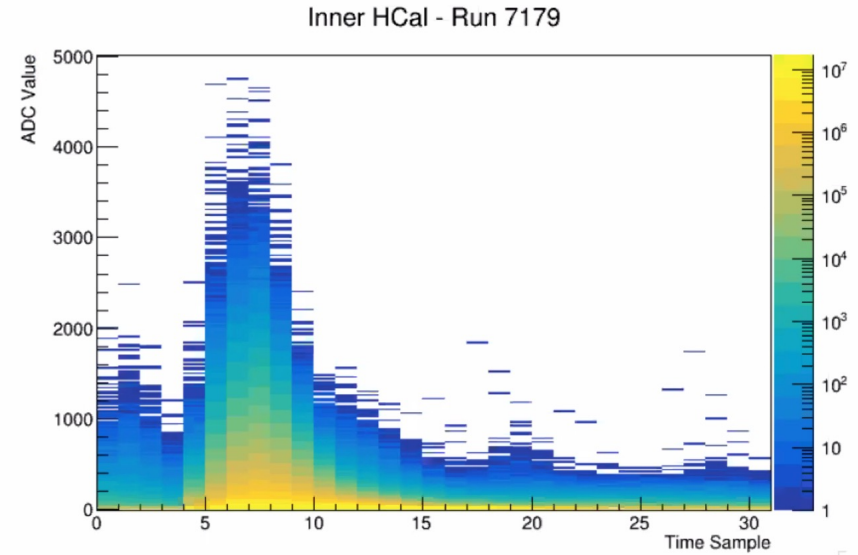
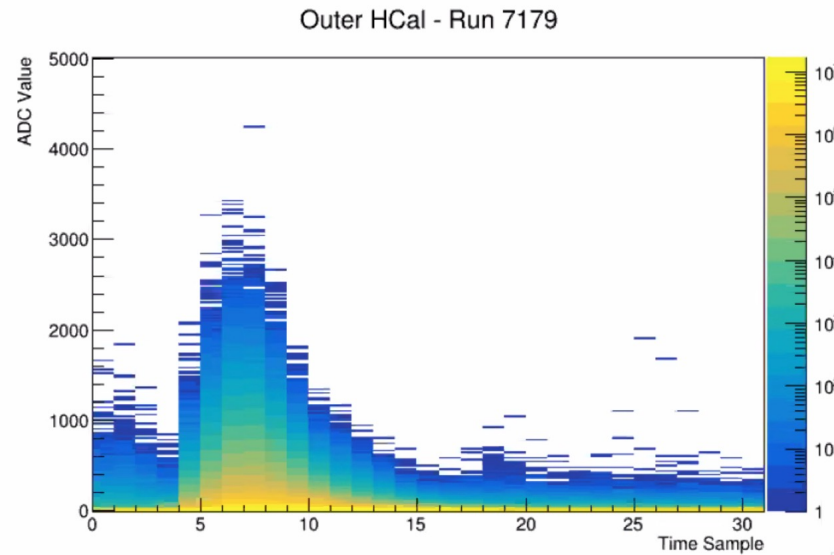
MBD-HCal correlation



- Last night's data
- MBD coincidence trigger with > 20 tubes on each side
- ➔ trigger on central events, i.e. "clean"

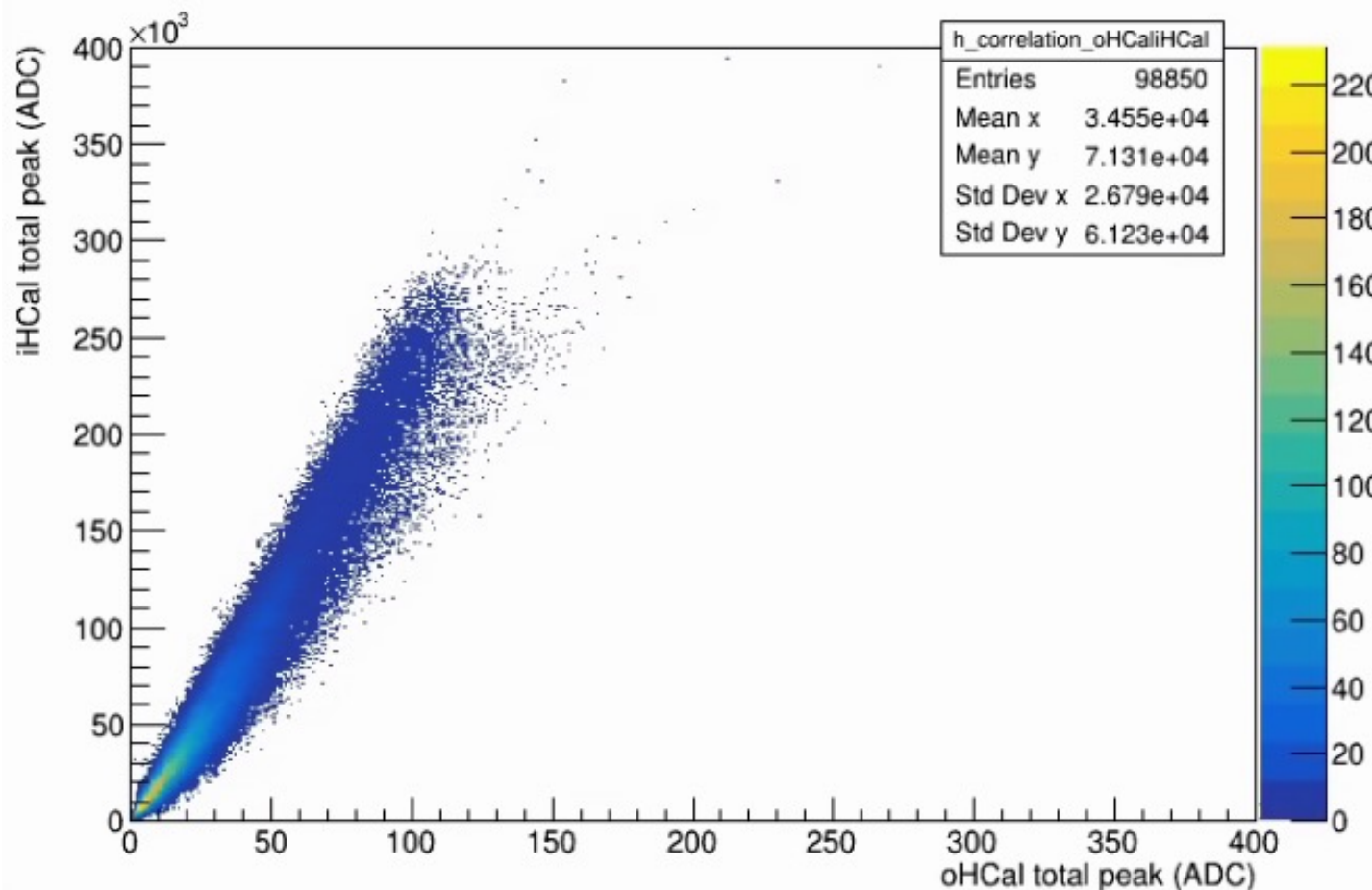
Plot by Hanpu, Shuhang, Oliver, Virginia, Dan Lis, JaeBeom

Hcal Timing



- MBD coincidence with 20 hits
- L1delay: 156
- Long store → there might be debunching
- We did a time scan and found two of out-of-time bunchcrossings

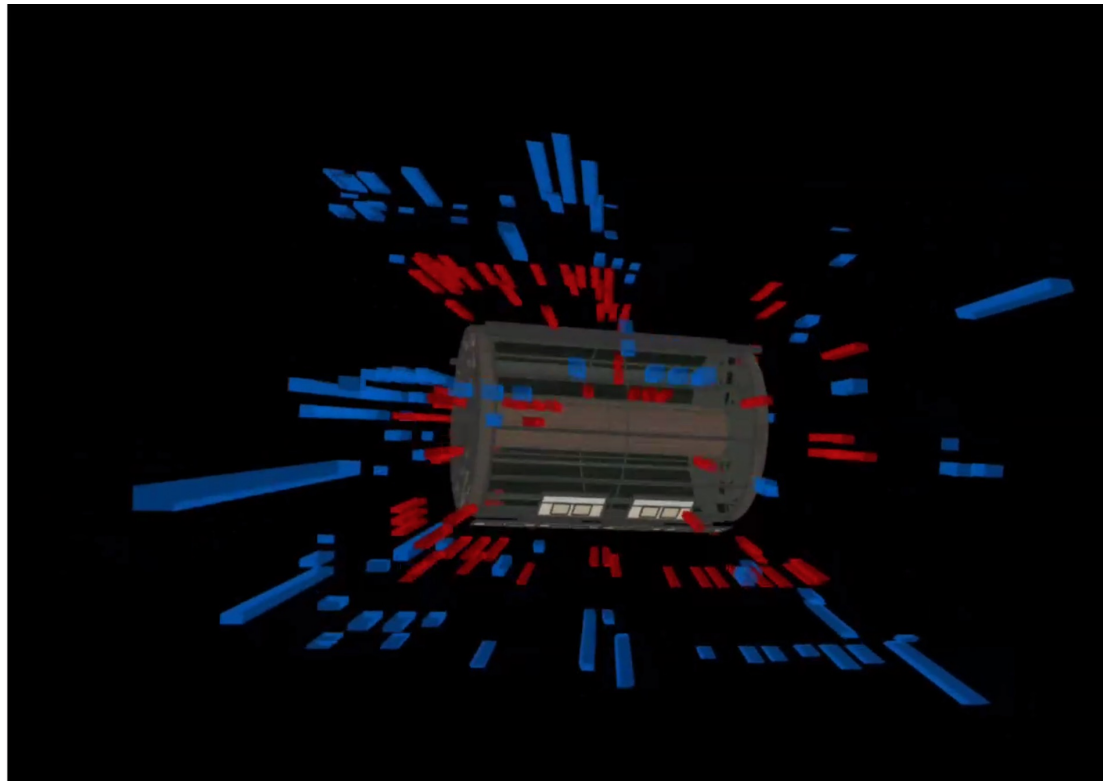
iHCal-oHCal Correlation



- Last night's data
- MBD coincidence trigger with > 20 tubes on each side
- ➔ trigger on central events, i.e. “clean”

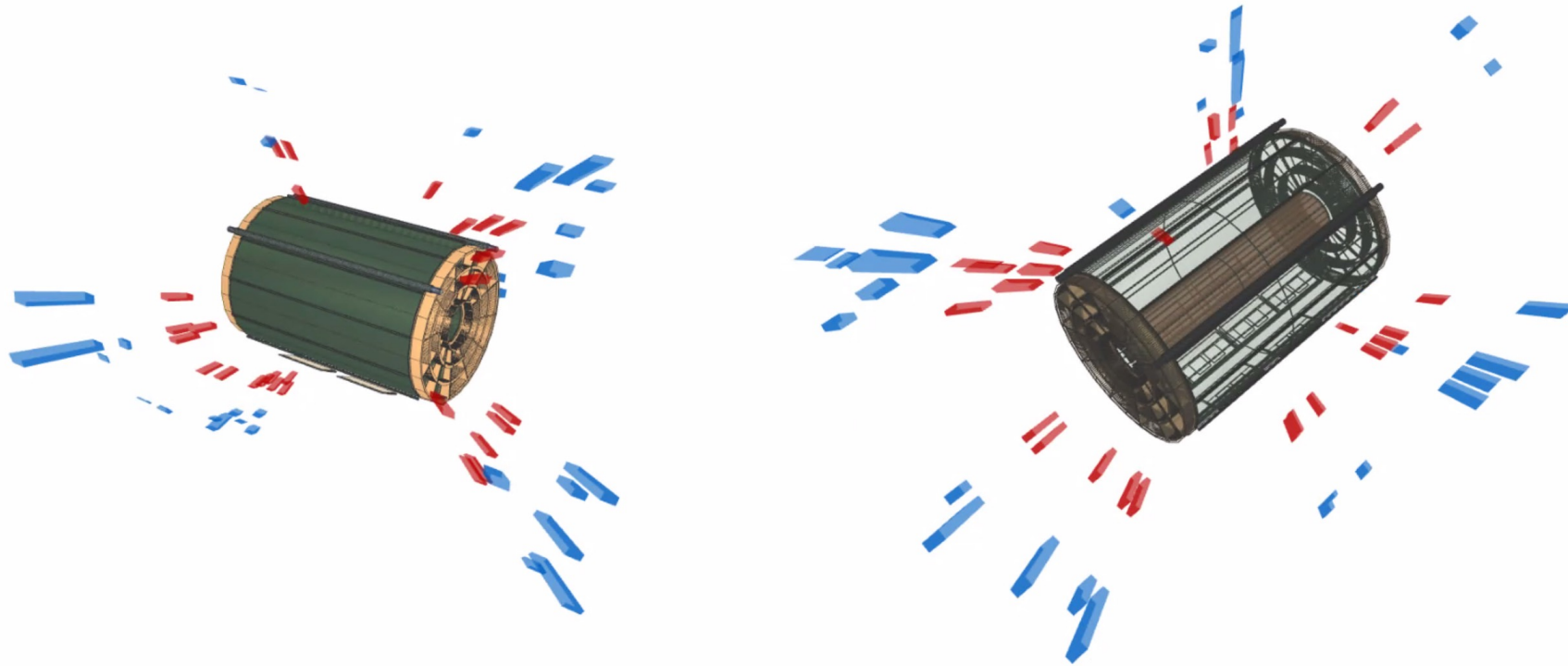
Plot by Hanpu, Shuhang, Oliver, Virginia, Dan Lis, JaeBeom

HCAL Event Display



Plot by Shuhang, Hanpu, Dan Lis, JaeBeom, Oliver, Virginia, Ejiro

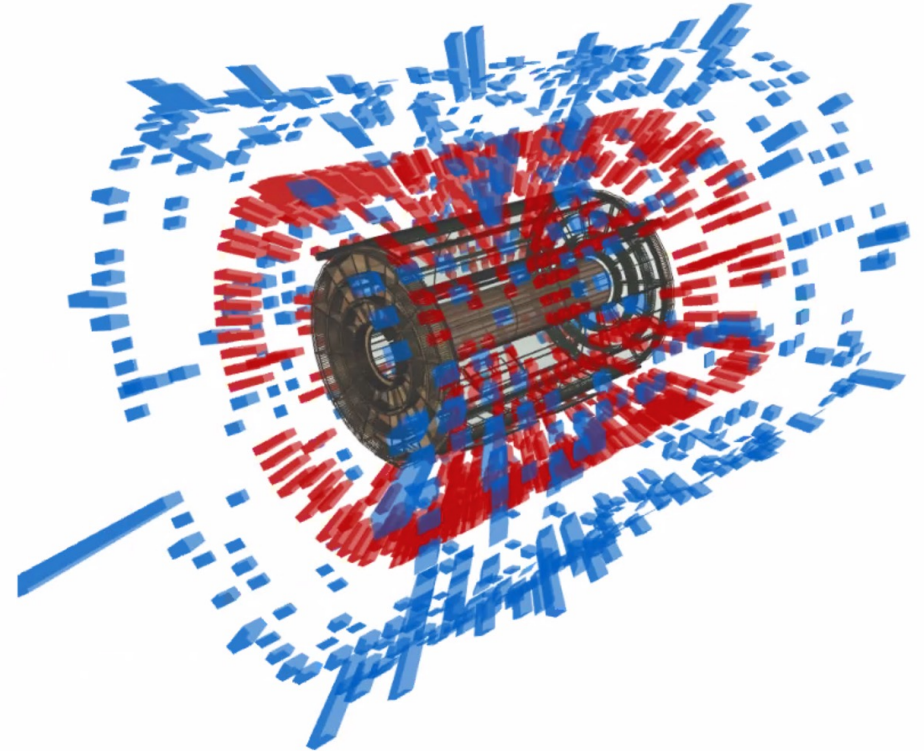
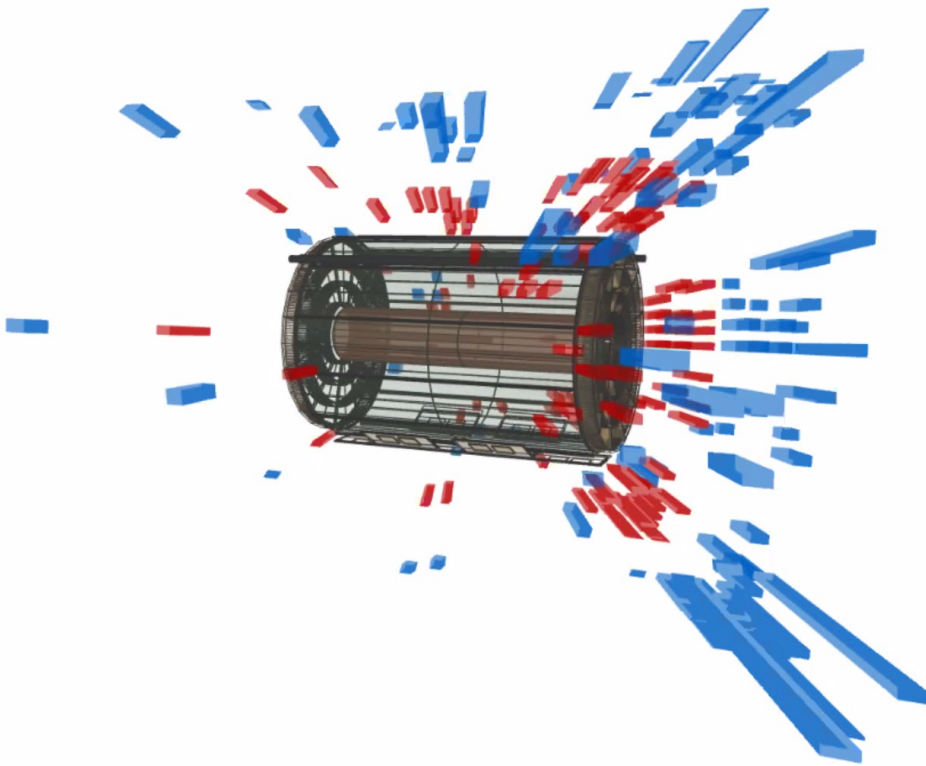
Event displays



2023/5/22

Plot by Shuhang, Hanpu, Dan Lis, JaeBeom, Oliver, Virginia, Ejiro

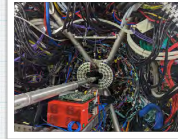
Event displays (2)



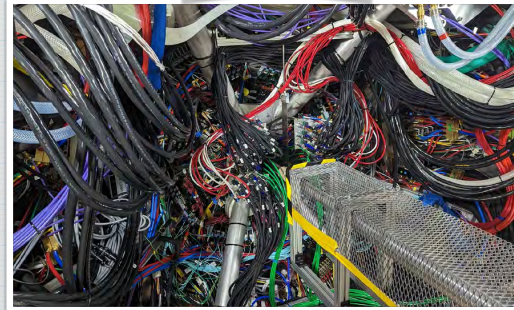
INTT Status

- Hardware commissioning w/o beam has been completed.
- The focus is now DAQ, decoder, operation GUI, analysis software developments.

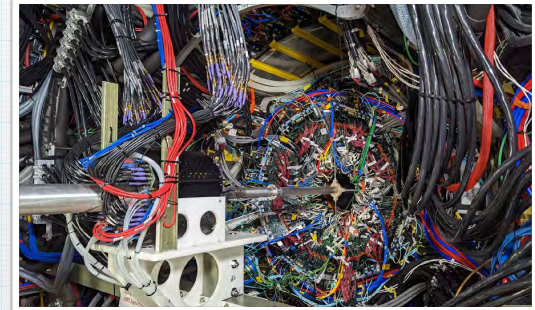
INTT installation and commissioning



A view without MVTX cables.



South



North

Now, MBD is installed on the south side as well.

taken on Apr/7
9

Plan for this week

- Plug-in INTT into the big partition (rcdaq standalone has been tested with pedestal data.)
- Time-in INTT with MVD LVL1 trigger thru GTM tomorrow morning.
- First attempt to operate INTT bias voltage with beam.
- First attempt to take beam data.