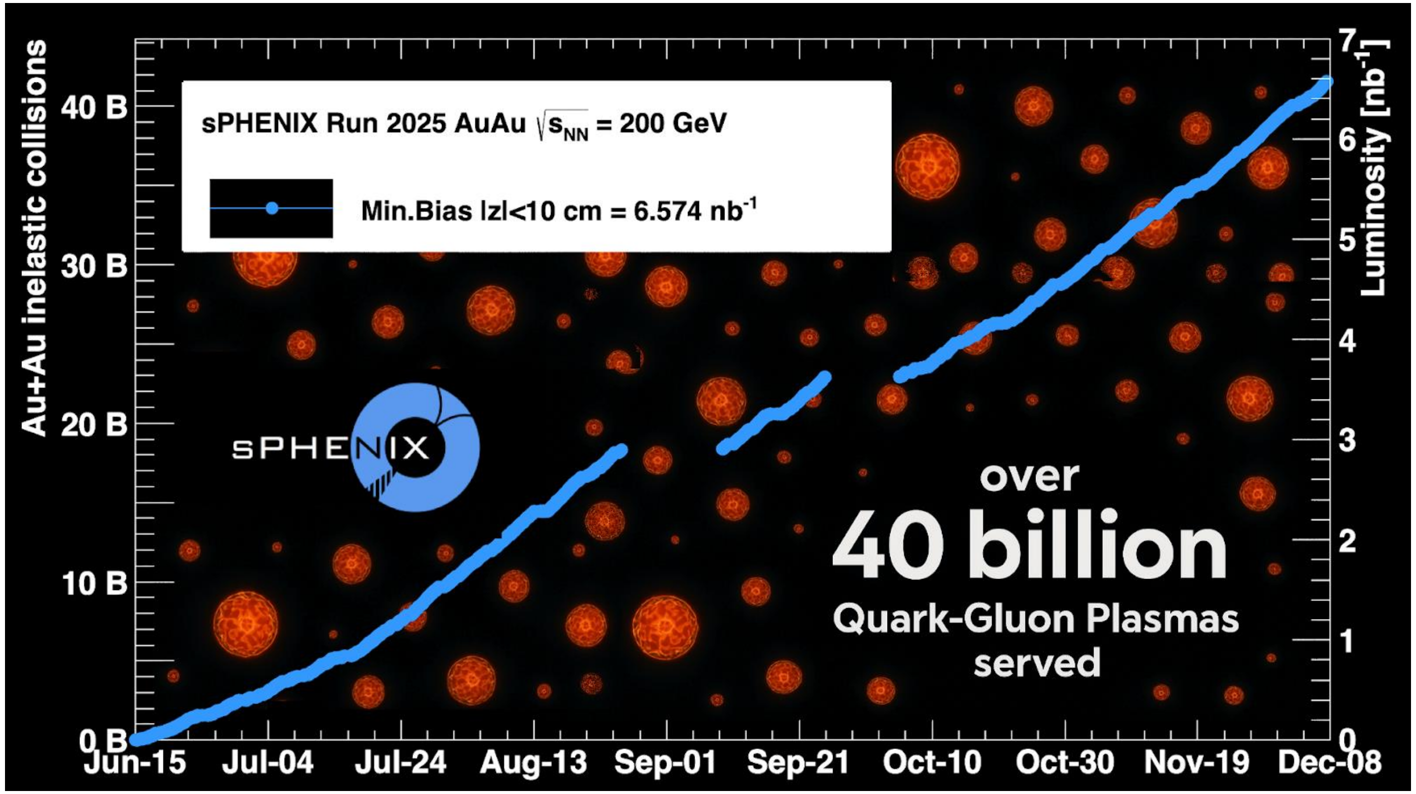
sPHENIX & INTT Status

Yuko Sekiguchi
RIKEN

RBRC meeting on December 11

End of Au+Au runs

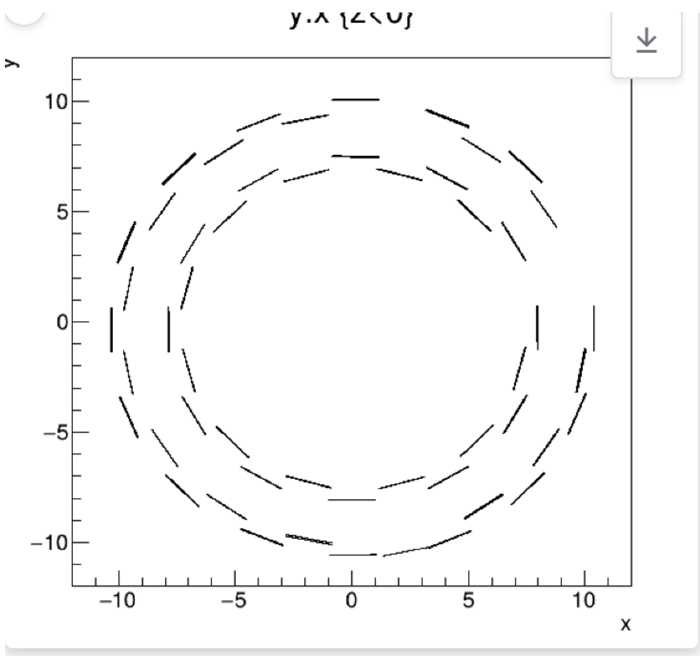
- Au+Au run ended on December 8 at 8:45 AM
- 94% of the goal ($6.57 nb^{-1}/7 nb^{-1}$) is achieved

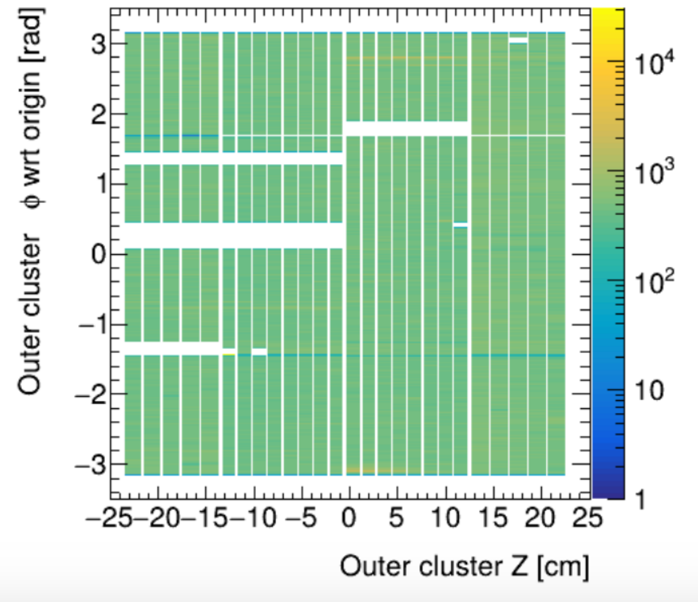


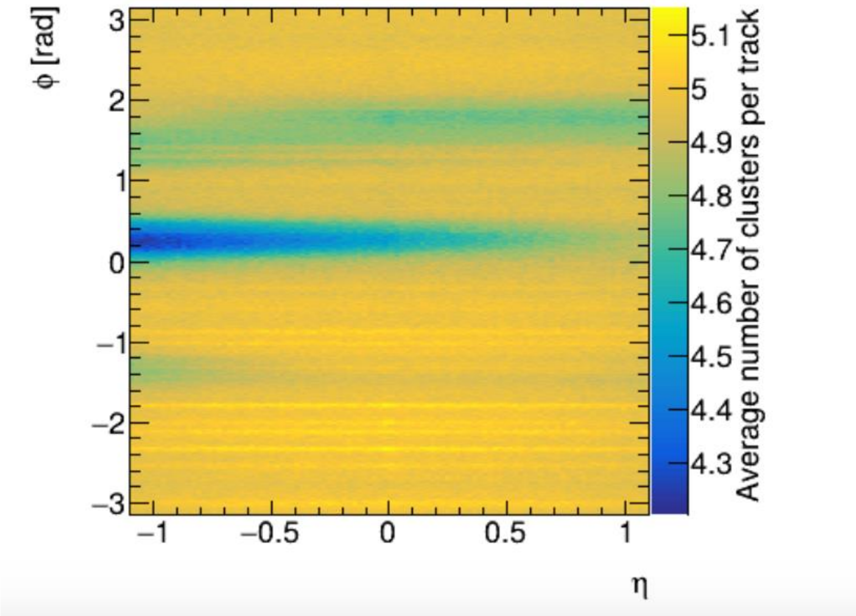
Dec 8 at counting house w/ last Au+Au collision

Problem of INTT2

- The empty half-ladder frequently occurred in intt2 for two days from December 5th.
    - These ladders connected to C1, C2, and C3 in ROC5S and they are sharing a single optical driver.
- With this issue, the 2.6% acceptance was lost
- The condition improved naturally and we decided not to do anything for now.





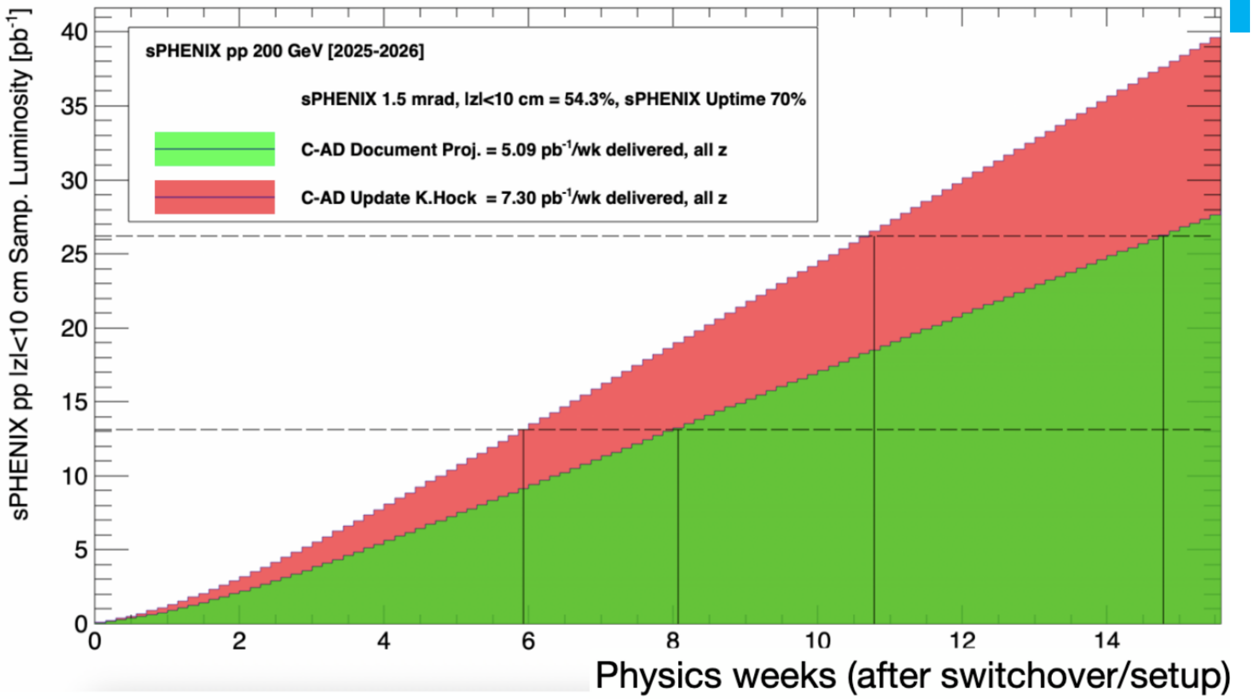


Water leak due to EMCAL

- Water detected in N magnet bore due to EMCAL on December 5.
- NTT tripped off (Bias + LV), EMCAL shut off.
- Tanner found the leak in N most carriage bay.
- Clean up HCAL panels and install leak mitigation system.
- The leak monitoring cable is enable.

Switch to pp runs

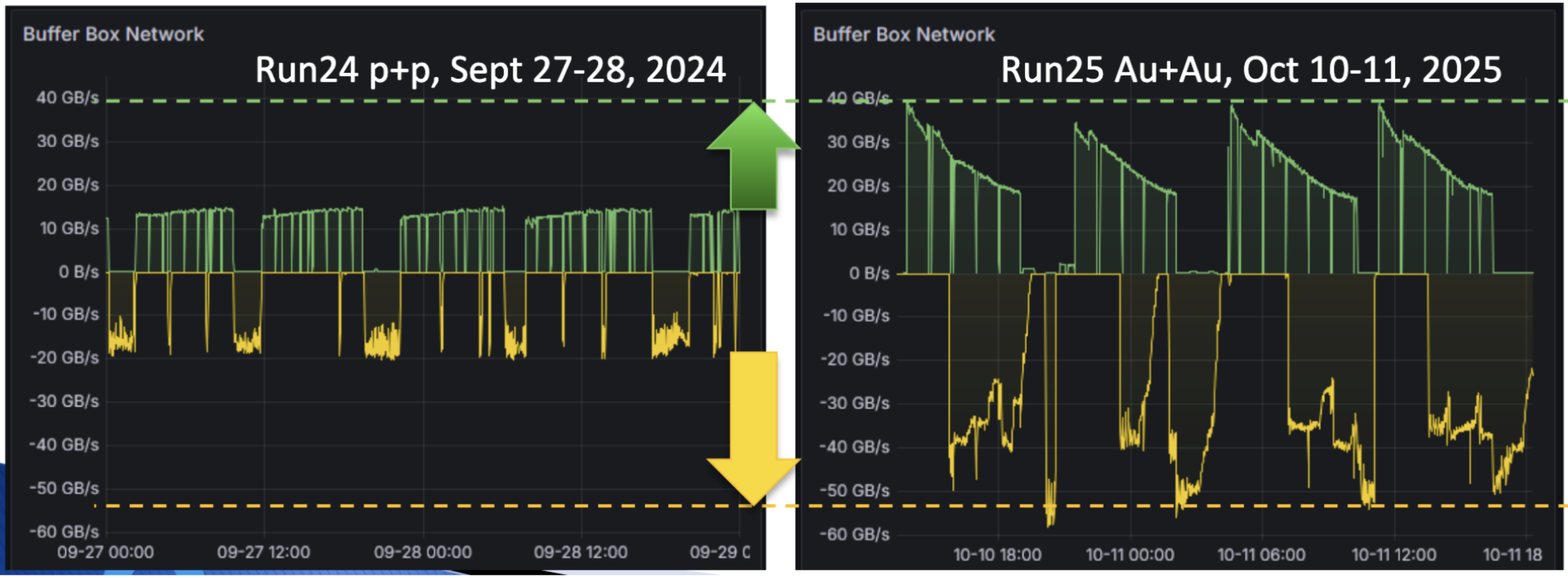
- Very smooth transition to pp after Au+Au stopped
  - Proton beams at flattop on December 9
  - MBD was timed in the mid-night and took calo runs
- Expect physics: December 12-14
- sPHENIX commissioning: December 15-19
- The run25 continues until January 20
  - 4.5 pb^{-1} can be achieved with a few weeks



Dataset	Existing Run-24 *p+p* dataset	Total dataset with a "few weeks" of Run-25 *p+p*	Total dataset with 7 weeks of Run-25 *p+p*
All-subsystem triggered	13 pb^{-1}	18 pb^{-1}	26 pb^{-1} **Double the dataset!**
Streaming tracker-only	2.9 pb^{-1}	4.5 pb^{-1} **Meet the target!**	11 pb^{-1} **>2x target!**

Data throughput Run24 vs Run25

- We will be able to run a much higher streaming fraction thanks to more and better buffer boxes
  - Run24: 14 GB/s
  - Run25: 35 GB/s (we have occasionally done 40 GB/s, but risky)



Green: sPHENIX logging rate
-Factor of 2.5 improvement from Run 24
-determines pp streaming fraction

Yellow: Data migration to SDCC
-Also significantly improved in Run 25

INTT commissioning

- The INTT will be operated in streaming mode using the same configuration as last year

Task	Person in charge	Duration	Points	Beam	Subsystem	Field	Trigger	Detail
Timing Scan	1008 Guys Analysis: Ryotaro	~1h	Lv1=108, 109, 110, 111 (105,106,107)	Physics	Standalone	Any	MBD	After GTM is finalized with Trigger mode
DAC0 Scan	1008 Guys Analysis: Cheng-Wei +NCU student	~1h	Dac0=15,20,25,30,35,40	Physics	Standalone	Any	MBD	111x111 At nearly the maximum beam intensity Streaming mode
Renew Mask	1008 Guys Raul			Physics	Standalone	Any	Any	Unmask the half-ladder-level mask and test. Test at the same time as timing scan
Online/offline QA	Joseph/Yuko							Update the threshold for the hitmap of the OM Update the OM guide Update the offline guide

Summary

- Au+Au collisions are completed on December 8
- Leak issue due to EMCAL happened on December 5
  - Clean up HCAL panels and install leak mitigation system.
- Empty half-ladder issue frequently occurred for two days from December 5
  - Naturally recovered and figure crossed the status continues
- Water detected in N magnet bore due to EMCAL on December 5.
  - NTT tripped off (Bias + LV), EMCAL shut off.
  - Clean up HCAL panels and install leak mitigation system.
- Very smooth transition to pp
  - Proton beams at flattop on December 9
  - MBD was timed in the mid-night and took calo runs
  - Expect physics: December 12-14
  - sPHENIX commissioning: December 15-19
  - The run25 continues until January 20
- The INTT will be operated in streaming mode using the same configuration as last year

Technical implementation for TPC streaming modes

- Default mode: redo what we have done in the past
  - Begin fill: 50us extended readout (36us physics +14us edge inefficiency) * up to 13kHz trigger -> up to 45% streaming, and limit to 35GB/s (redline Bbox stability limit)
  - Later in fill: transition to 100% streaming via extended readout+self trigger, like AuAu operation in August
- Backup mode: new firmware if we need to reach higher streaming fraction w/ extended readout
  - TPC FEE firmware update to support 100us streaming per trigger [TPC talk, Takao & John K. testing]
  - Support variable 0-100% extended trigger readout for up to 10kHz GL1 trigger