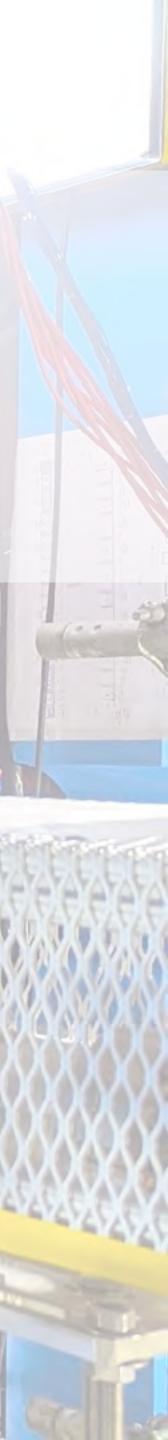
INTT Barrel installation and commissioning status

<u>G. Nukazuka (RIKEN)</u> J. Bertaux (Purdue Univ.), R. Cecato (BNL) J. Hwang (Korea Univ.), I Nakagawa (RIKEN) R. Nouicer (BNL), C.W. Shih (NCU) M. Shimomura (NWU), and many people worked onsite/offsite



- Feb/: Transportation of INTT from Physics building to 1008. •
- Feb/28 Mar/1 : Installation •
- Mar/2 Mar/31: Preparation and the 1st commissioning
- Apr/1 current: Debugging, investigations, and optimizations (also commissioning).
- Apr/21 : Pedestal measurements started (detector study).

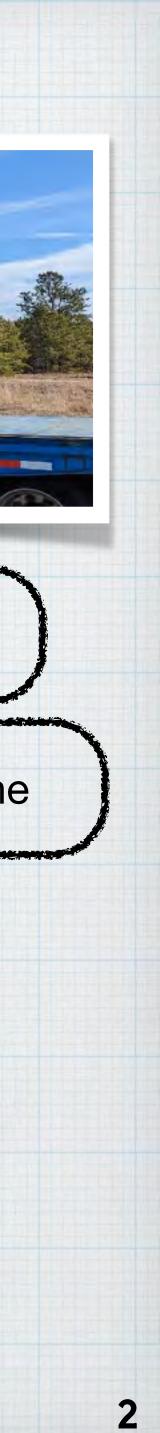




Mar/30: MVTX installation done

Apr/14: MBD installations done

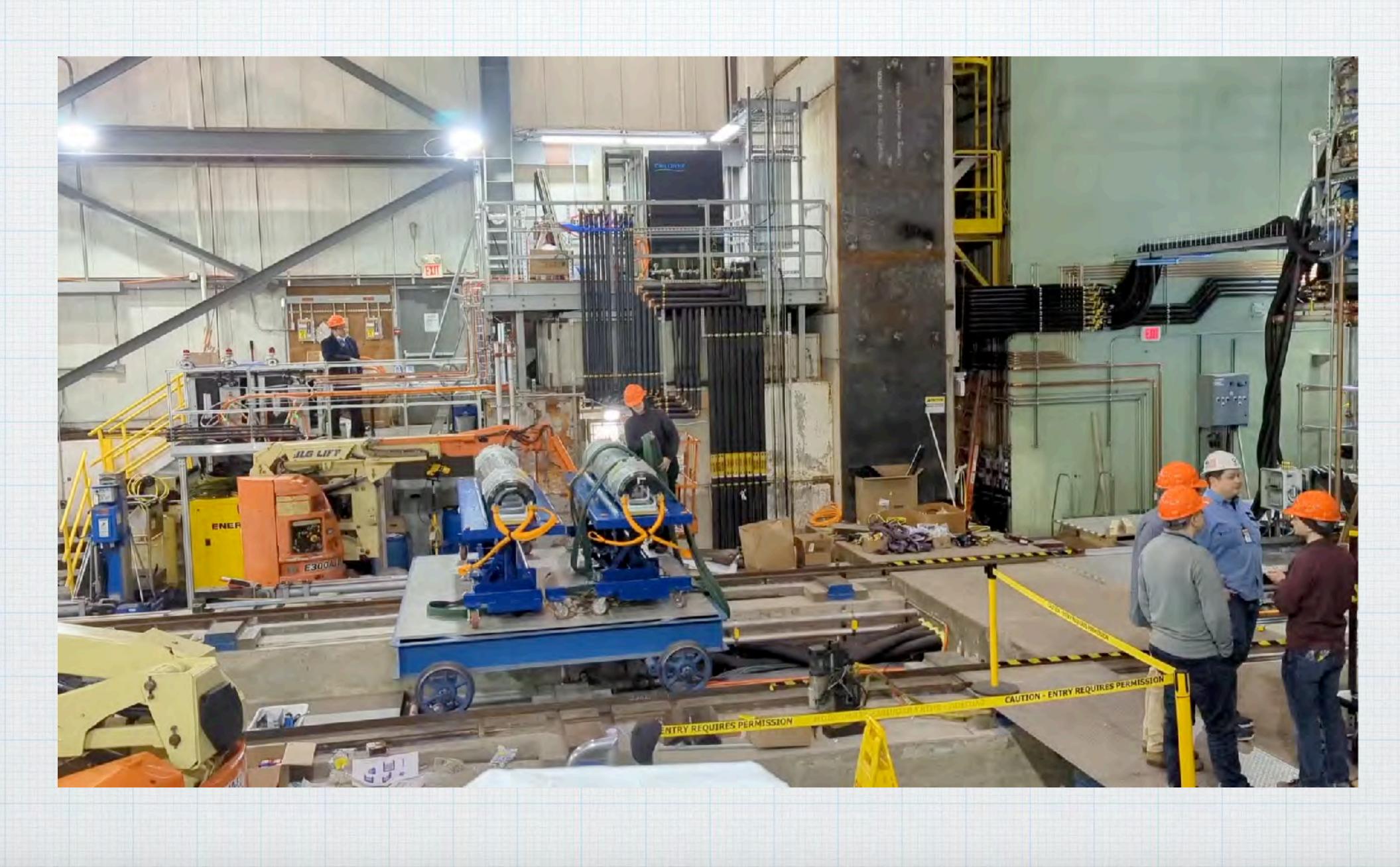




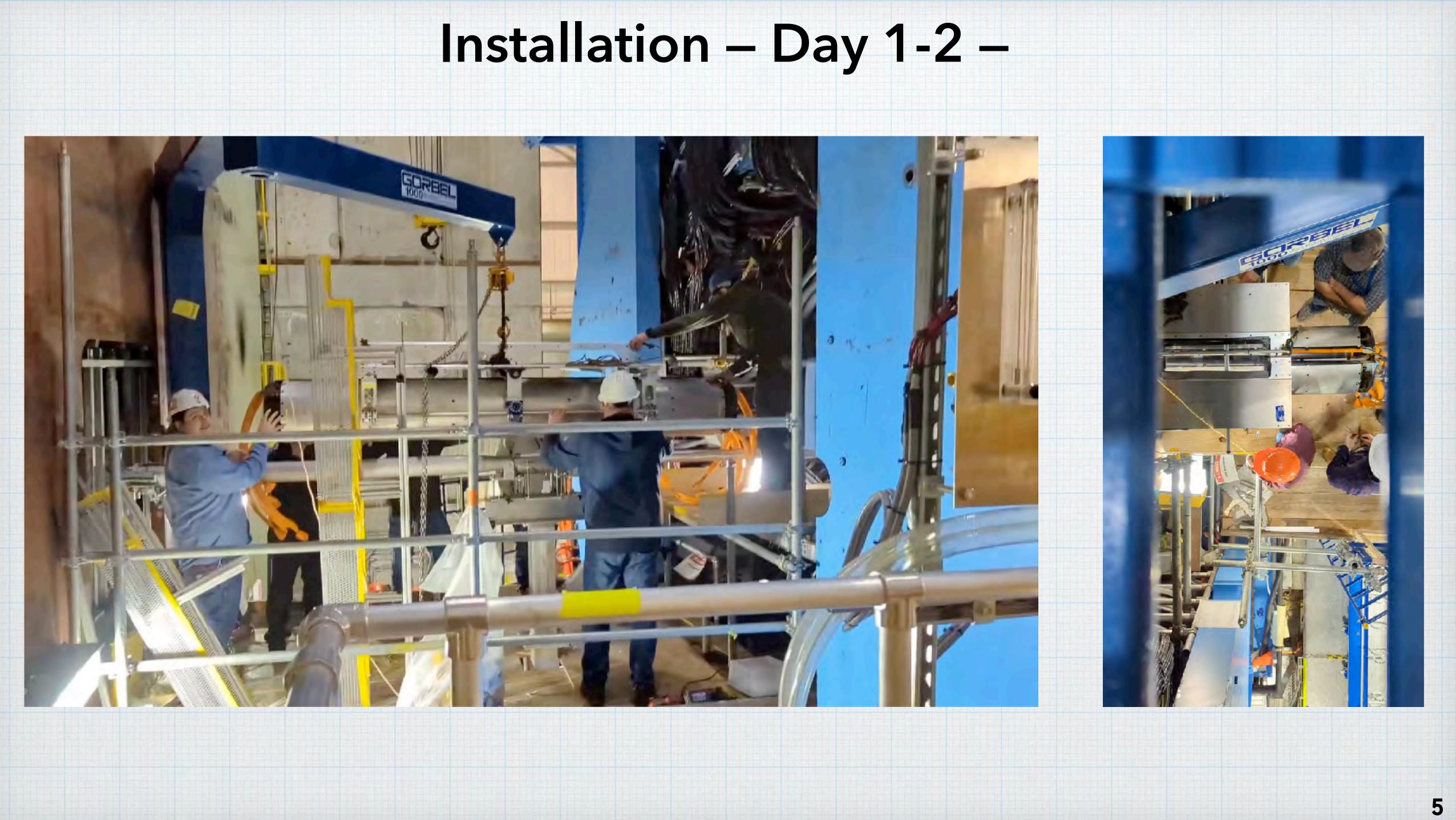
Transportation HITS OF THE PARTY ALC: N Site Maintenance 日

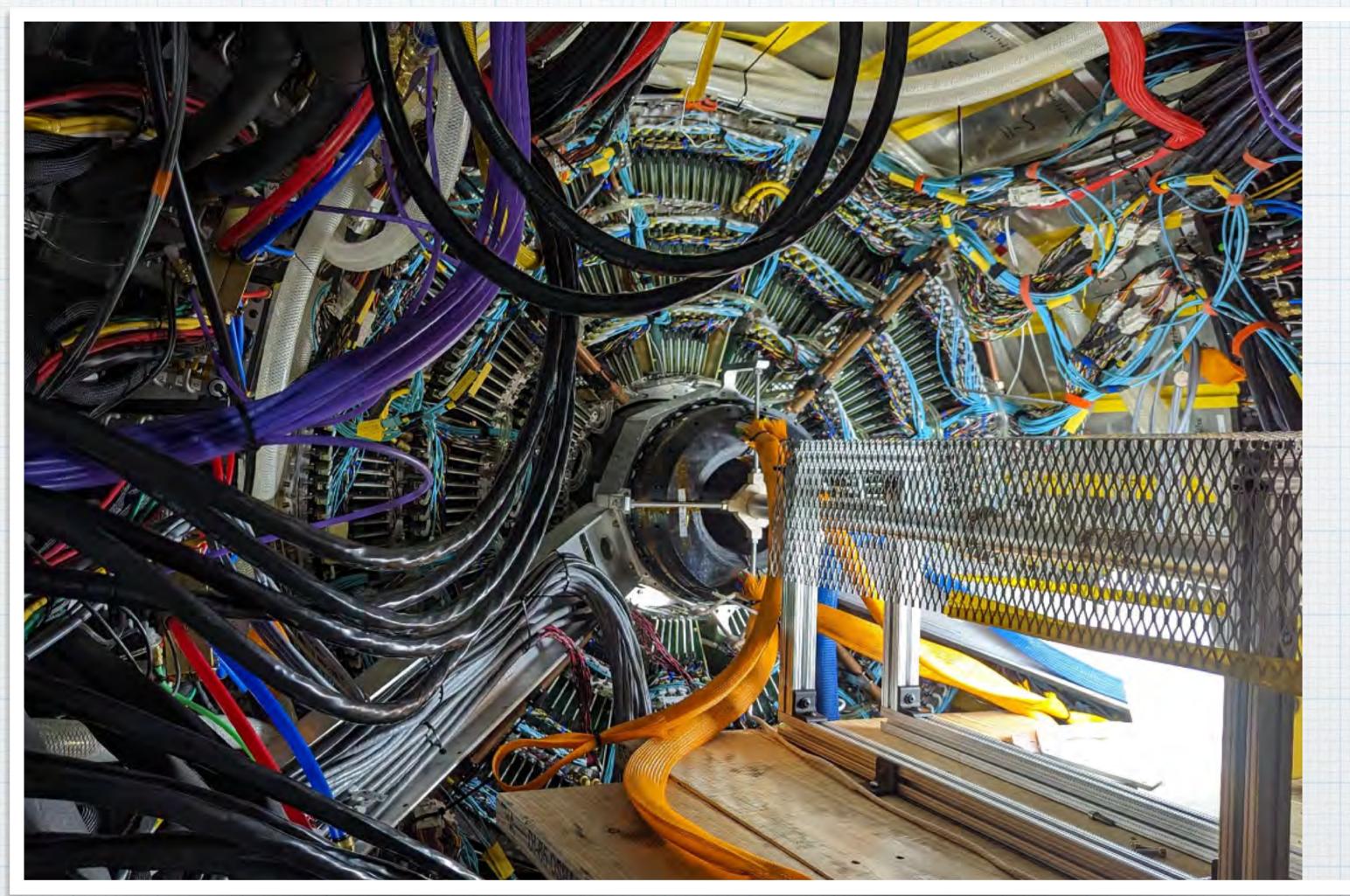


Installation – Day 1–



4

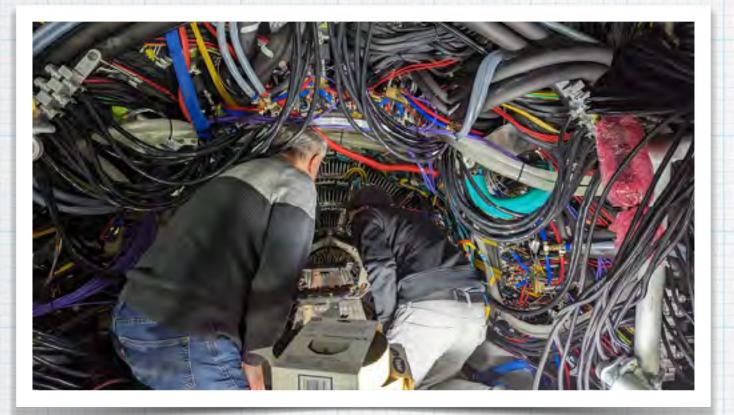




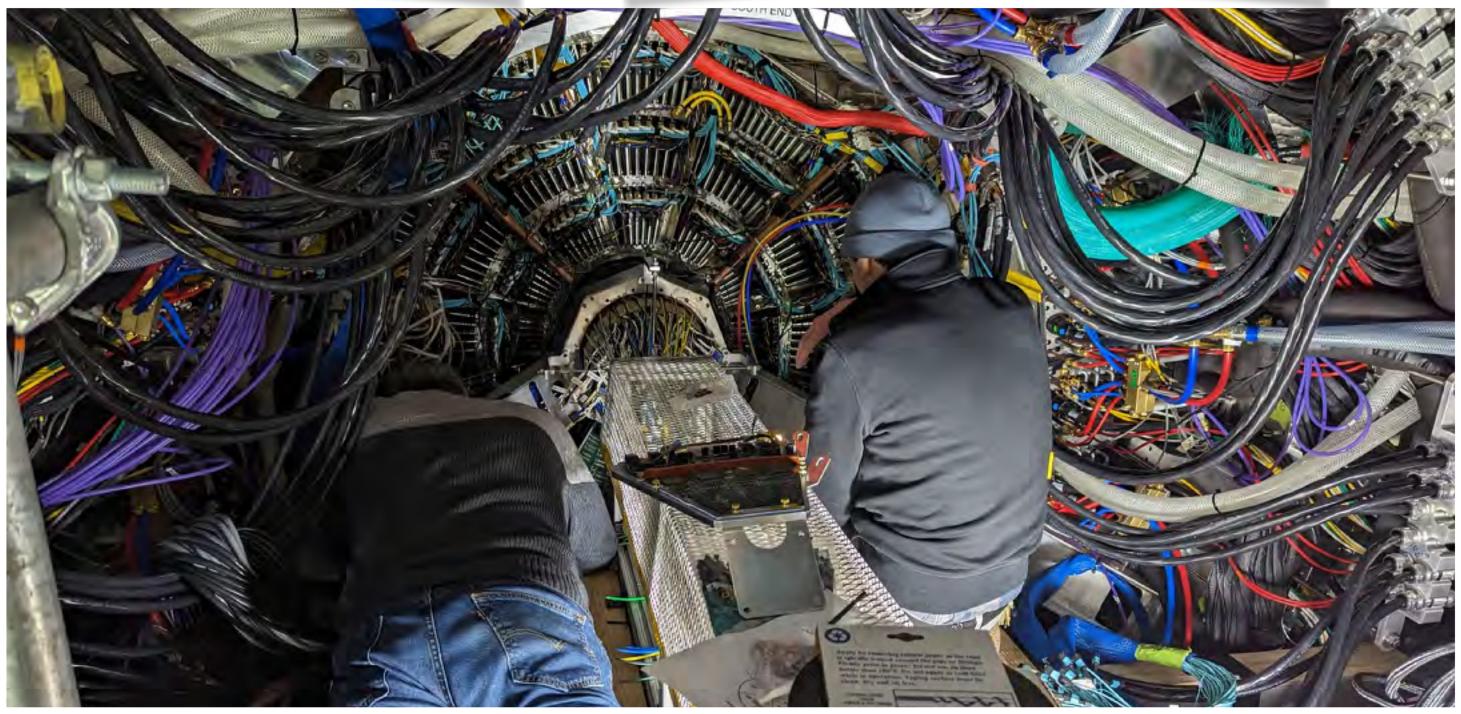
North just after installation

taken on Mar/1

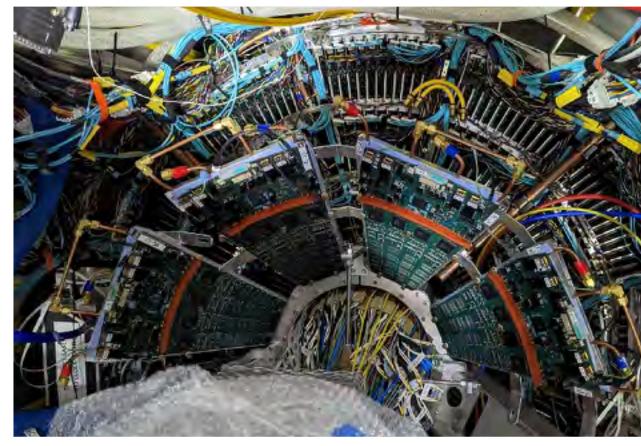
6

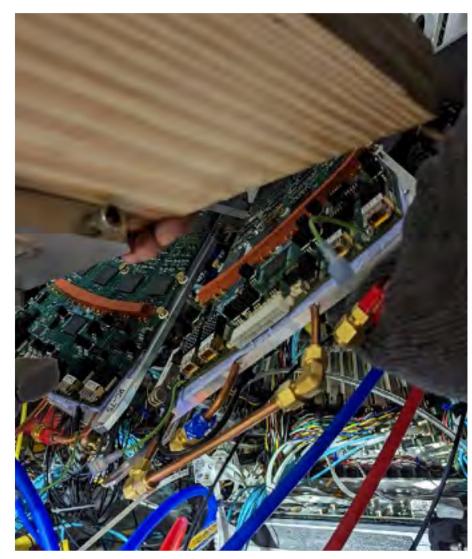






ROCs installation for the South side

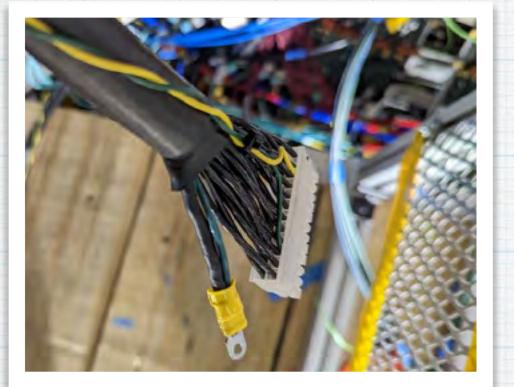




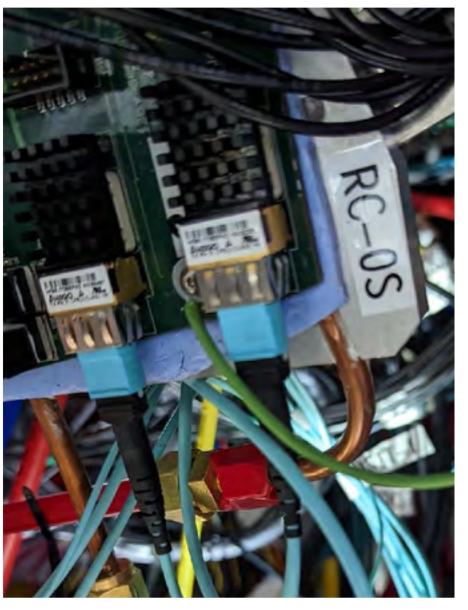
taken on Mar/10





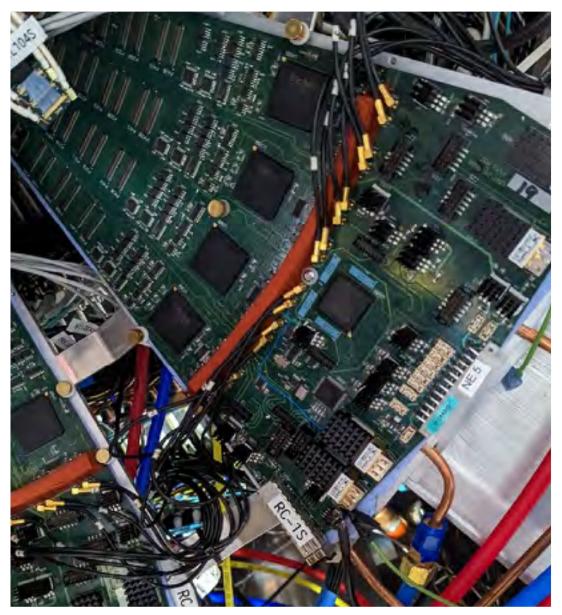


ROC power 16 cables



Slow Control & Data fibers $(1 + 4) \times 16 = 80$ cables

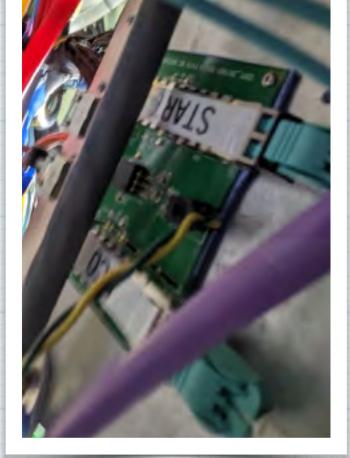
Cable Connections...



HV cables $112 \times 2 = 224$ cables



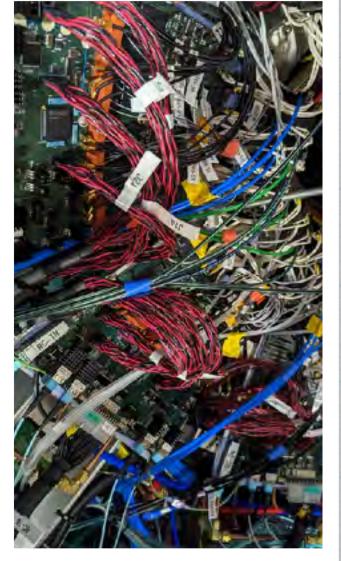
Conversion Cables 112 cables



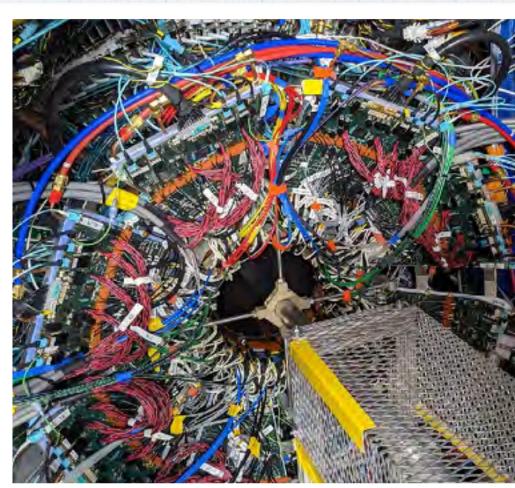


Clock fibers $3 \times 16 = 48$ cables

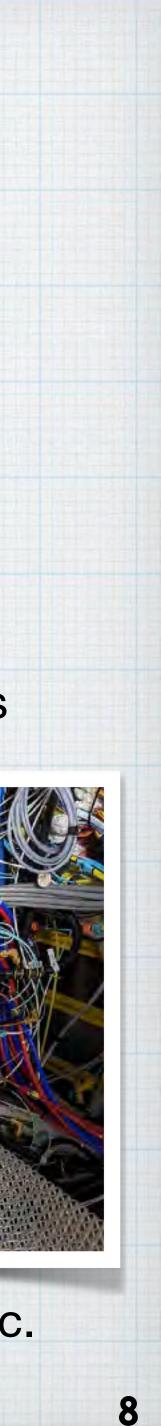
Thermistors 112 + 16 = 128 cables

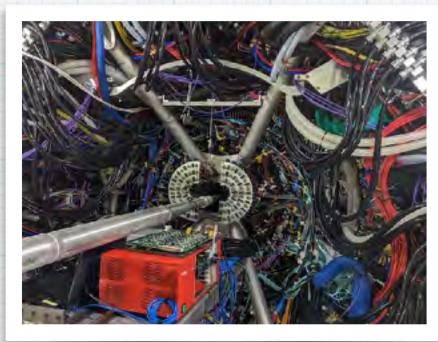


Ladder FPHX power $4 \times 16 = 64$ cables

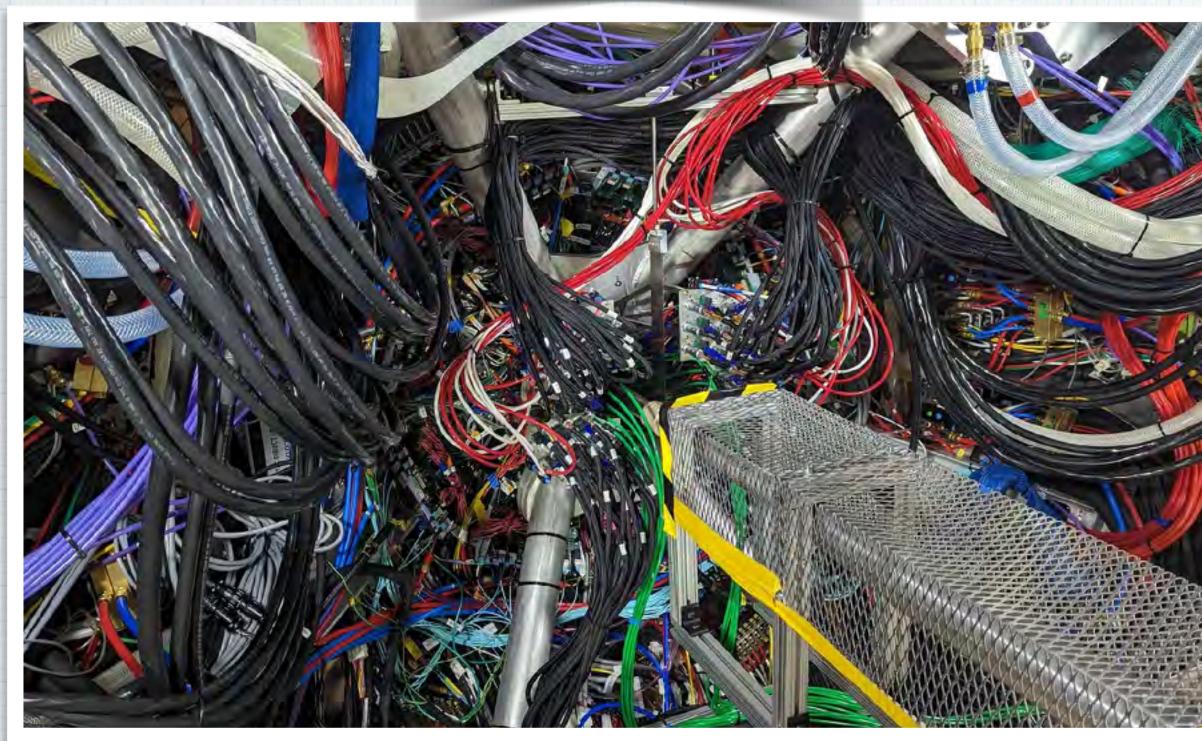


Cooling, Nitrogen, etc.



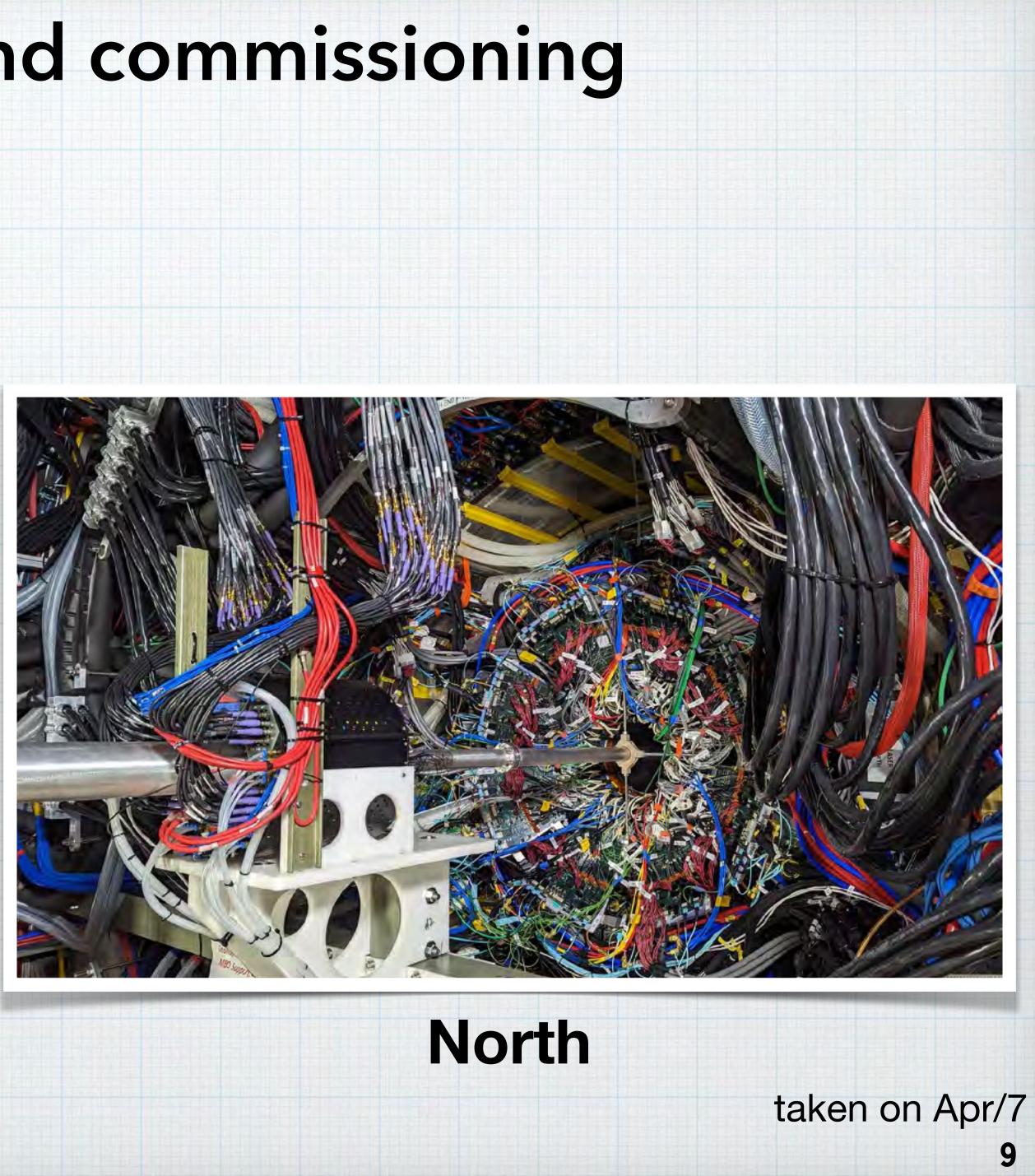


A view without MVTX cables.



South

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



Commissioning

Calibration measurements of all ladders were started:

- with temporary equipment (ladder cooling, ROC cooling, DAQ)
 - The final cooling systems for the ladder and ROC were installed.
- from the South side for MVTX installation and testing on the North. -

Softwares for the commissioning were:

Felix (Raul) -

-

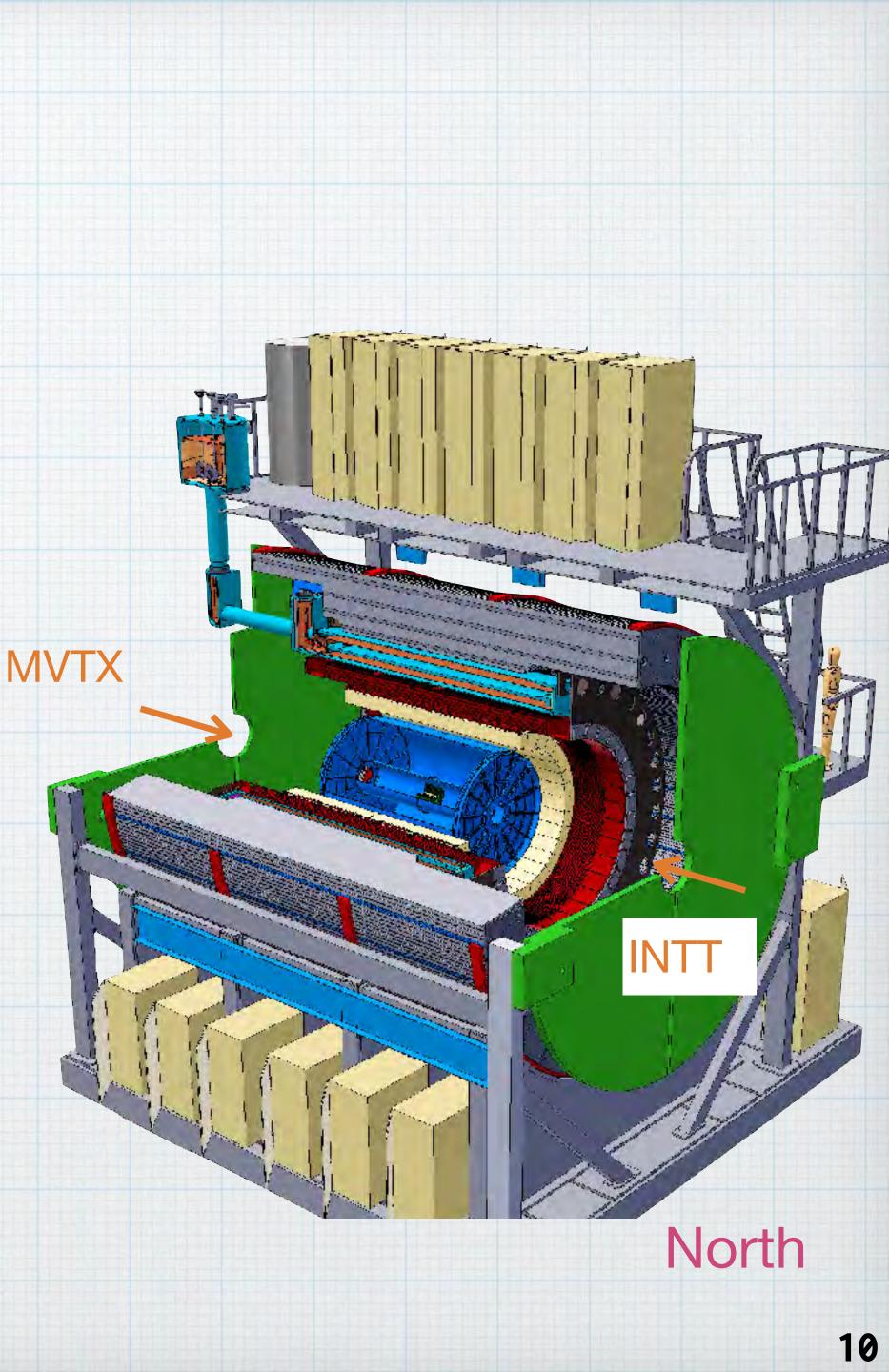
: the developments were not completed, but it works well for the 1st commissioning.

- Low Voltage GUIs for ROC/ladder power (Mai, Maya, Wei-Che, and Jaein) -: It worked well though some improvements are needed.
- High Voltage GUI for bias (Joseph) -

: It worked well. The mapping issues and strange behaviors due to hardware were always involved and confused us.

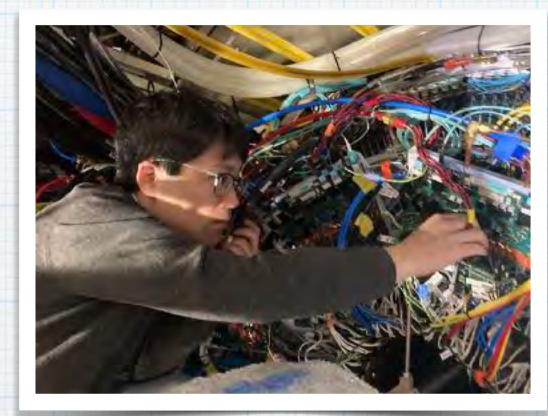
- Felix DAQ GUI (Genki) -
 - : It worked well. Some more features are needed.
 - Calibration database (Cheng-Wei)
 - : It worked well if CW's hard care.
- Map generator (Cheng-Wei) -
 - : It worked well.

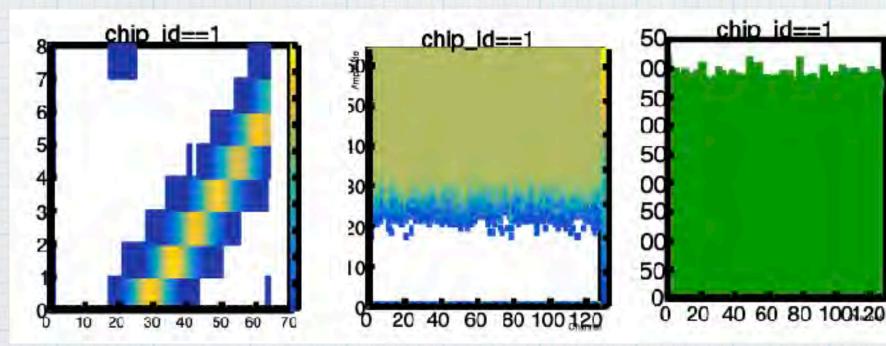
South



1st Commissioning: Calibration

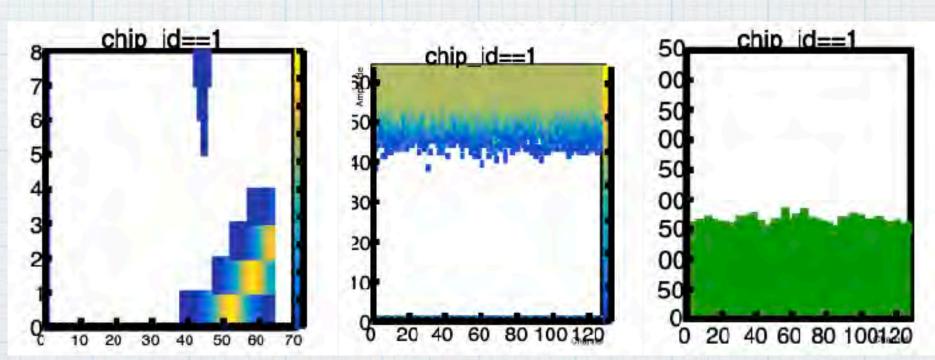
- We connected cables just after the installation.
 After checking connectivity by eye, we tried calibration measurement.
- To proceed with tests for all ladders in a limited time, we increased DAC settings to suppress noise (it doesn't mean the noise comes from the silicon sensors).
- We found and fixed lots of things:
 - incorrect connections
 - wrong cable mapping
 - ROC/conversion cables replacements
 - failure of the LV/HV modules
 - tons of human errors 😢





Calibration results with the standard configuration.

Currently, 1 FELIX board (2 ROCs, 14 half-ladders) is operated simultaneously.



A typical calibration results in the 1st commissioning.



Calibration results: An example ROC: RC-0N Data: calib_packv5_032723_1847.npy Felix ch1 Felix ch0 Felix ch2 Felix ch3 Felix ch4 **Felix** ch6 1 and 1 1 miles 1 -



Felix ch	ROC port	Ladder
\bigotimes	B1	B1L101N
1	C2	B0L000N
2	D1	B0L100N
3	A2	B1L001N
4	B2	B0L101N
5	C3	B1L000N
6	D2	B1L100N

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Current Status and Next Steps

- are in good condition.
- studies.
- We will proceed with the short-term plan presented by Itaru:

Short Term Plan

- Establish pre-measurement routine for the day.
 - Check RACK power status
 - Check cooling
- Establish summary report of the day format. (Cheng-Wei & Genki)
- Complete all S&N ROC calibration and address in newly discovered problem in the latest data. (Cheng-Wei)
- LV/Bias monitor (plot voltage/current as a function of time) to be developed within ignition scheme for LV.

Preparation of the whole operation is ongoing.

We confirmed from the commissioning that more than 98% of the channels

Since last Friday (Apr/21), we have taken self-trigger data for detailed

Data Taking Plan

- Noise data for all ROCs by self-trigger. (3hours) • Noise study with light on/off for a few ROCs. DAC0=15. (1hour)
- DAC0 scan for noise rate study (3hours)
- DAC scan (First attempt to observe MIP in IR) with self-trigger mode. (3hours)
- Test 2 vs 1 ROCs modes calibration data taking with the latest DAQ version. (1h)
- Make sure no difference in results between two modes.
- Take calib data North and South fibers together in 2 ROCs mode. (1h)
- Make sure nothing odd happen.



The sPHENIX shift was already started.

SPHIFTS	SPHENIX Shift Signup Run 2023 Compact menu	 (1) To Signup: First select your Institution and Name, then choose a signup sheet (2) To view schedules: choose a signup sheet 					
		Institutions			 People 	~	
		Sign-up Sheets:	Experiment Operations	OR	Shift Table: reduced view		
	Week	Period Co	ord.	Shift	Shift Leader		
			0:	00-8:00	Ejiro Umaka Brookhaven National Laboratory	U	
Apr 11th - Apr 18th			B:1	00-15:00	Virginia Bailey University of Illinois, Urbana-Champaign		
			(16:	00:00:00	Oliver Suranyi Baruch College, CUNY	U	
	Week	Period Co	ord.	Shift	Shift Leader	1	
			0	00-8:00	Charles Hughes lowa State University	Univer	
Apr 18th - Apr 25th			B	00-16:00	Sean Stoll Brookhaven National Laboratory		
			16:	00-00:00	Cameron Dean Massachusetts Institute of Technology		
-	Week	Period Co	ord.	Shi't	Shift Leader		
			0.	00-8:00	David Stewart Wayne State University	U	
Apr 25m - May 2nd			8:1	00-16:00	Zhaozhong Shi Los Alamos National Laboratory		
			16:	00:00:00	Genki Nukazuka RIKEN BNL Research Center	Mass	

I'm the first shifter in RIKEN/RBRC/Japanese group! It will be started from tomorrow.

The test of closure of the magnet door will be done this week.

We are about to launch sPHENIX!!!

Some More...

Detector Opr.

Joseph Clement versity of Colorado, Boulder

Daniel Richford Baruch College, CUNY

Daniel Lis iversity of Colorado, Boulder

Detector Opr.

Anthony Hodges sity of Illinois, Urbana-Champaign

Derek Anderson Iowa State University

Hanpu Jiang Columbia University

Detector Opr.

JaeBeom Park versity of Colorado, Boulde

Emma McLaughlin Columbia University

Hao-Ren Jheng chusetts Institute of Technology





A huge concrete wall was built to close the IR.

