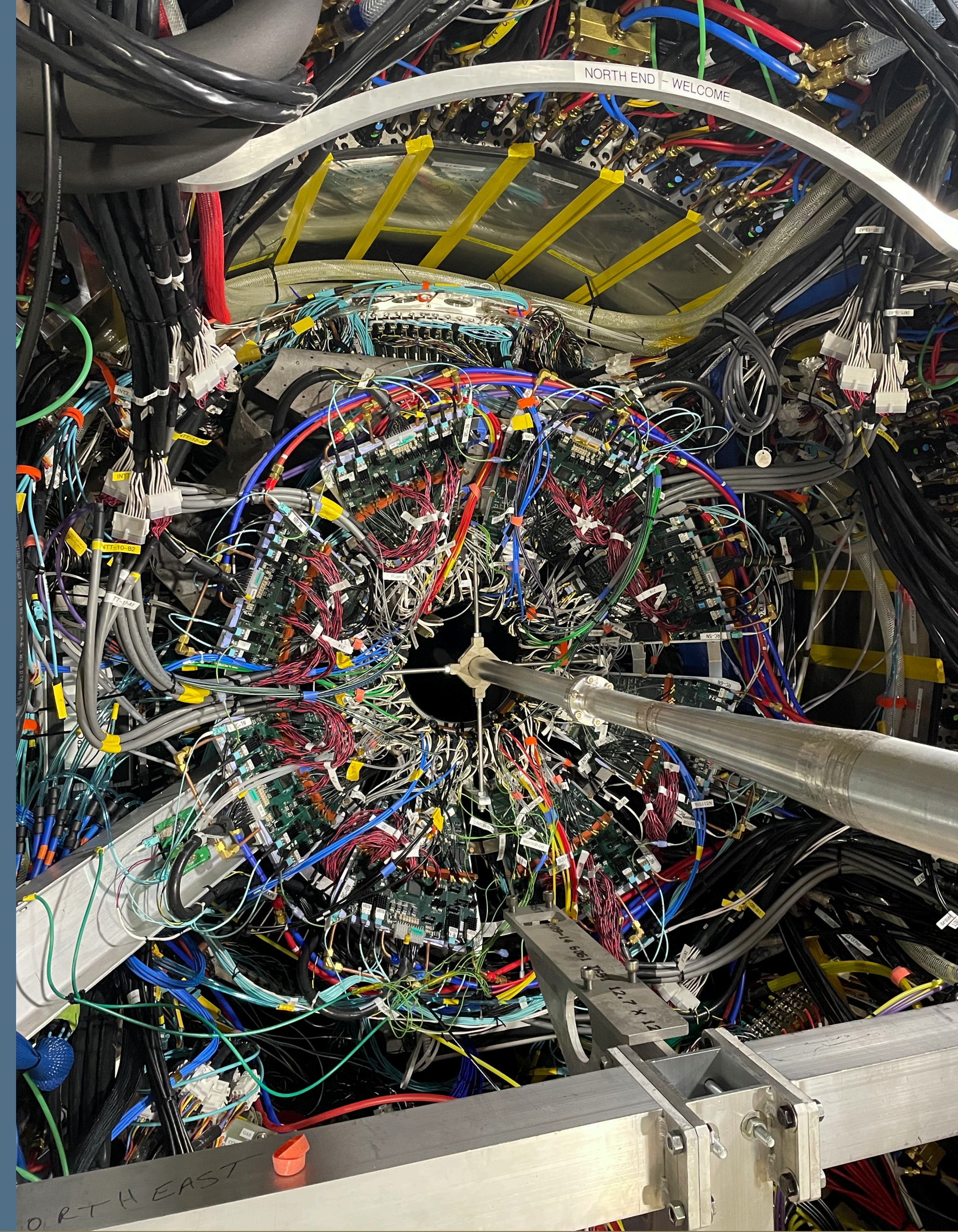


# The Intermediate Silicon Tracker of sPHENIX

Cheng-Wei Shih, for the sPHENIX Collaboration  
National Central University, Taiwan

Flash talk at Quark Matter, Houston, September 9<sup>th</sup>, 2023



國立中央大學  
National Central University



RBRC  
RIKEN BNL Research Center

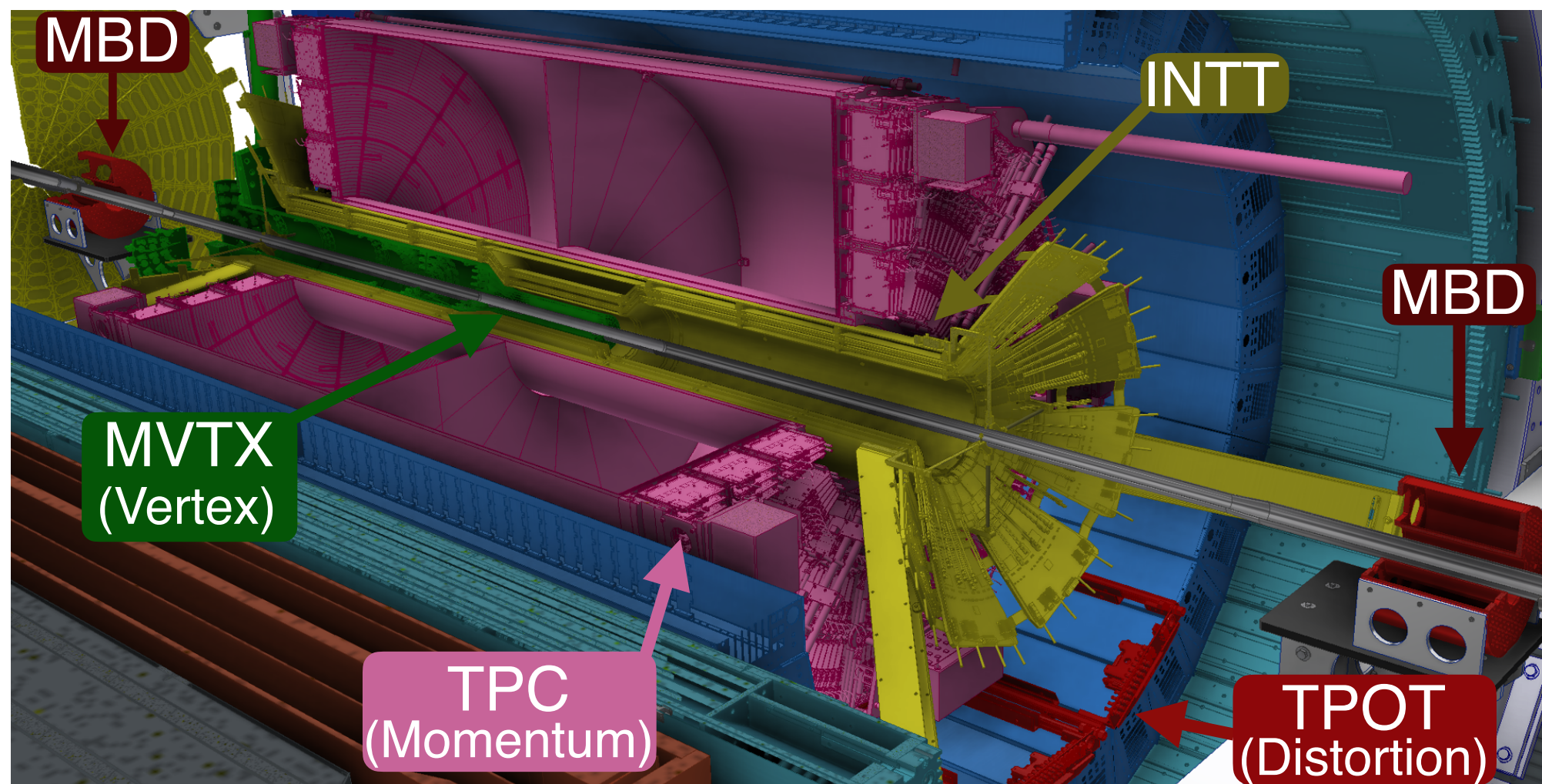


Brookhaven  
National Laboratory



# INTT : Intermediate Silicon Tracker

- sPHENIX @ RHIC : Full barrel calorimeters, 1.4 T solenoid and excellent tracking system

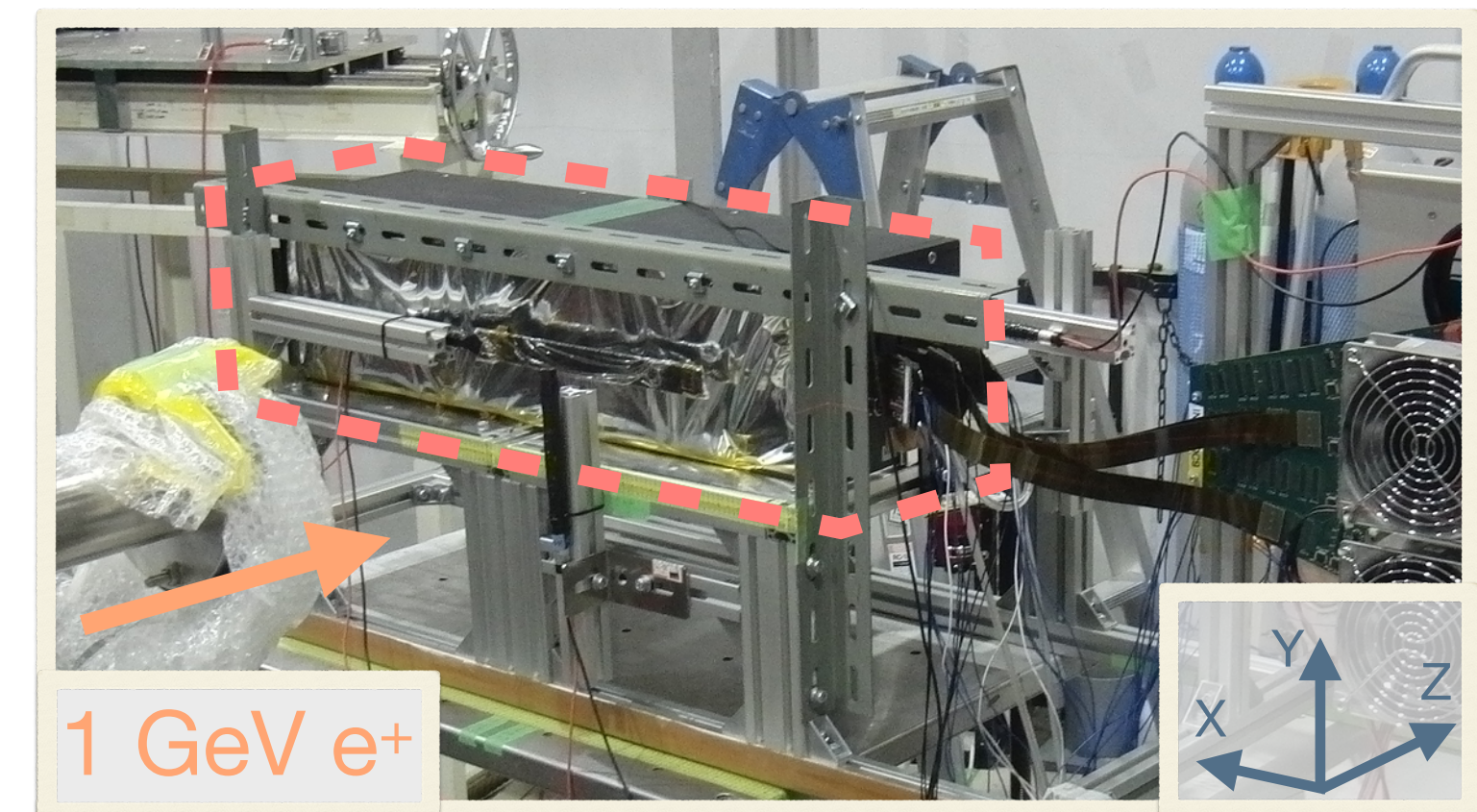
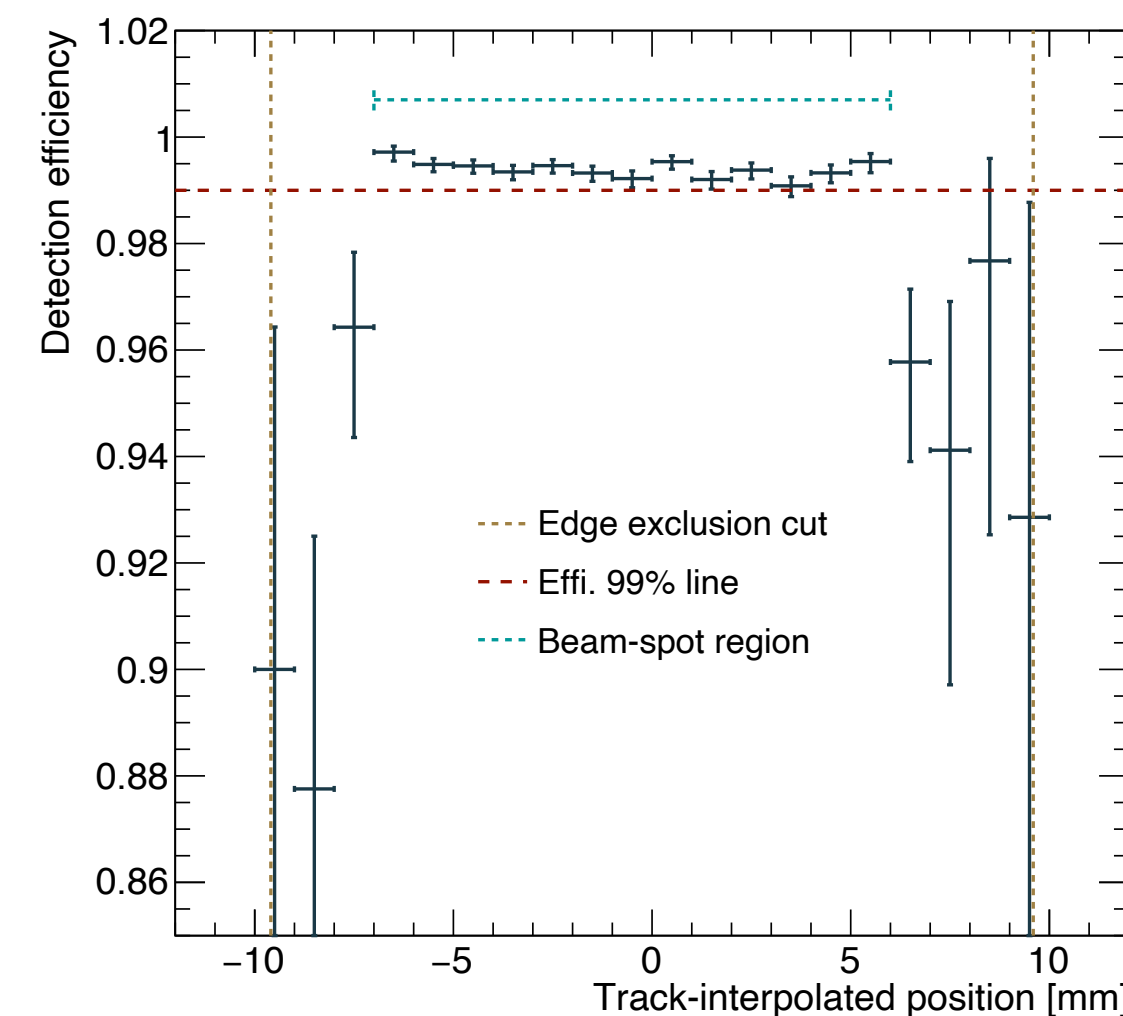


## INTT

- Between the MVTX and TPC → Bridge the tracks
- Strip width 78  $\mu\text{m}$  → Excellent resolution in  $\phi$  angle
- Timing resolution 106 ns, best in tracking system  
→ Associate individual tracks and events

## Beam Test 2021 @ ELPH, Japan

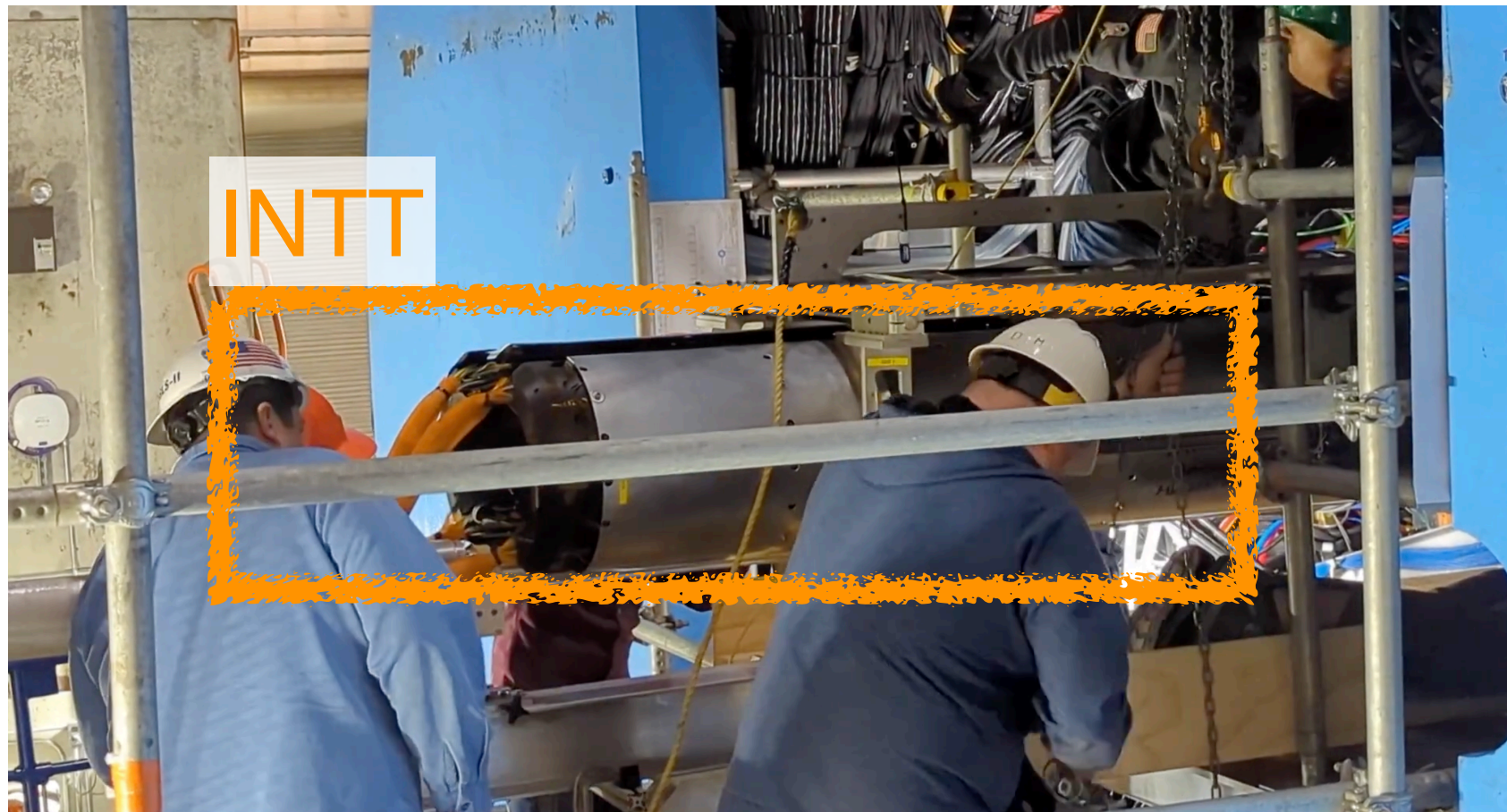
- Detection efficiency  $\frac{N(L_0 \cap L_1 \cap L_2)}{N(L_0 \cap L_2)} \times 100\%$  :  
→  $99.33 \pm 0.04(\text{stat.}) \pm 0.06(\text{sys.})\%$   
→ Uniformly excellent along the sensor
- Excellent enough for sPHENIX experiment



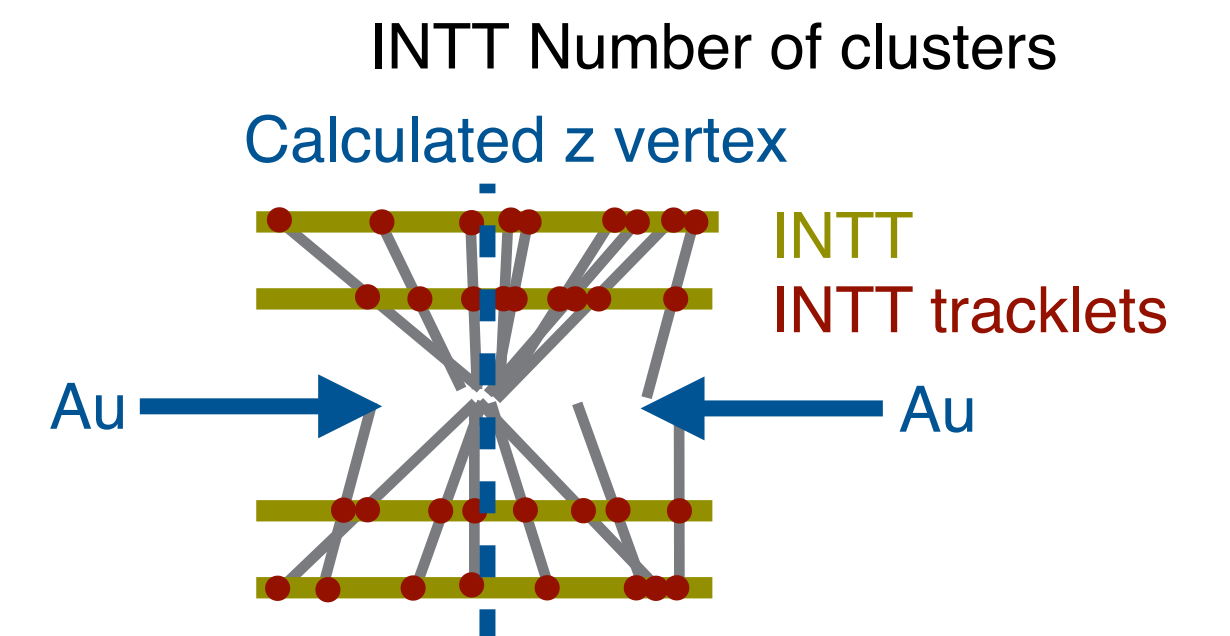
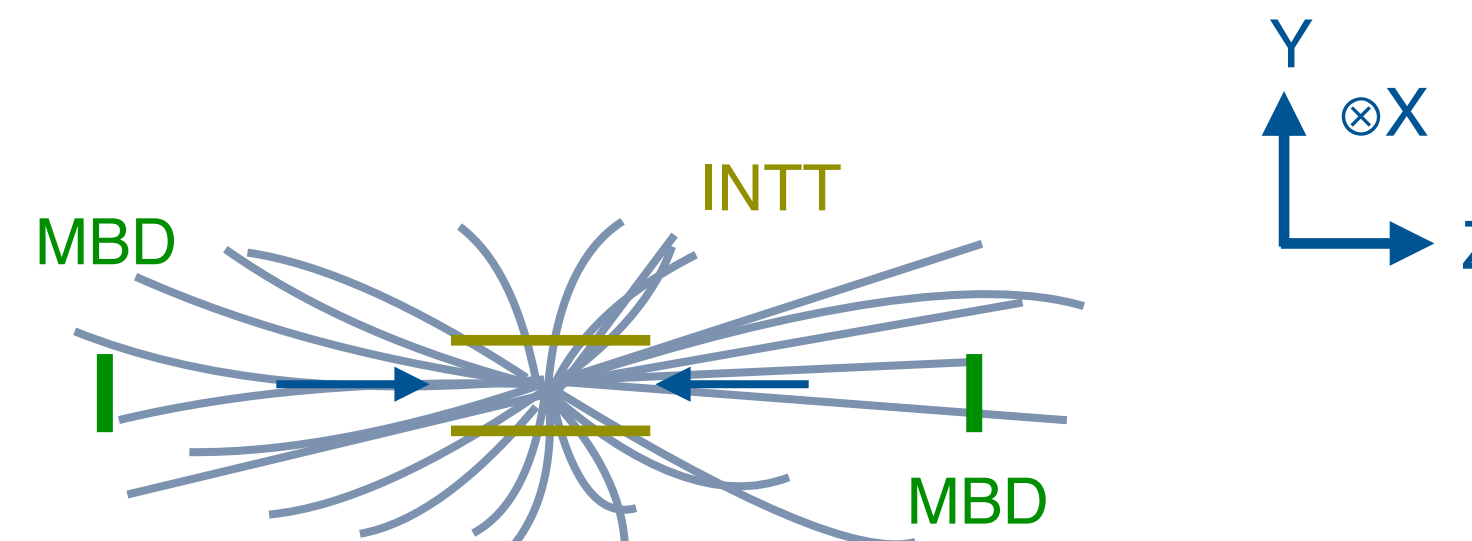
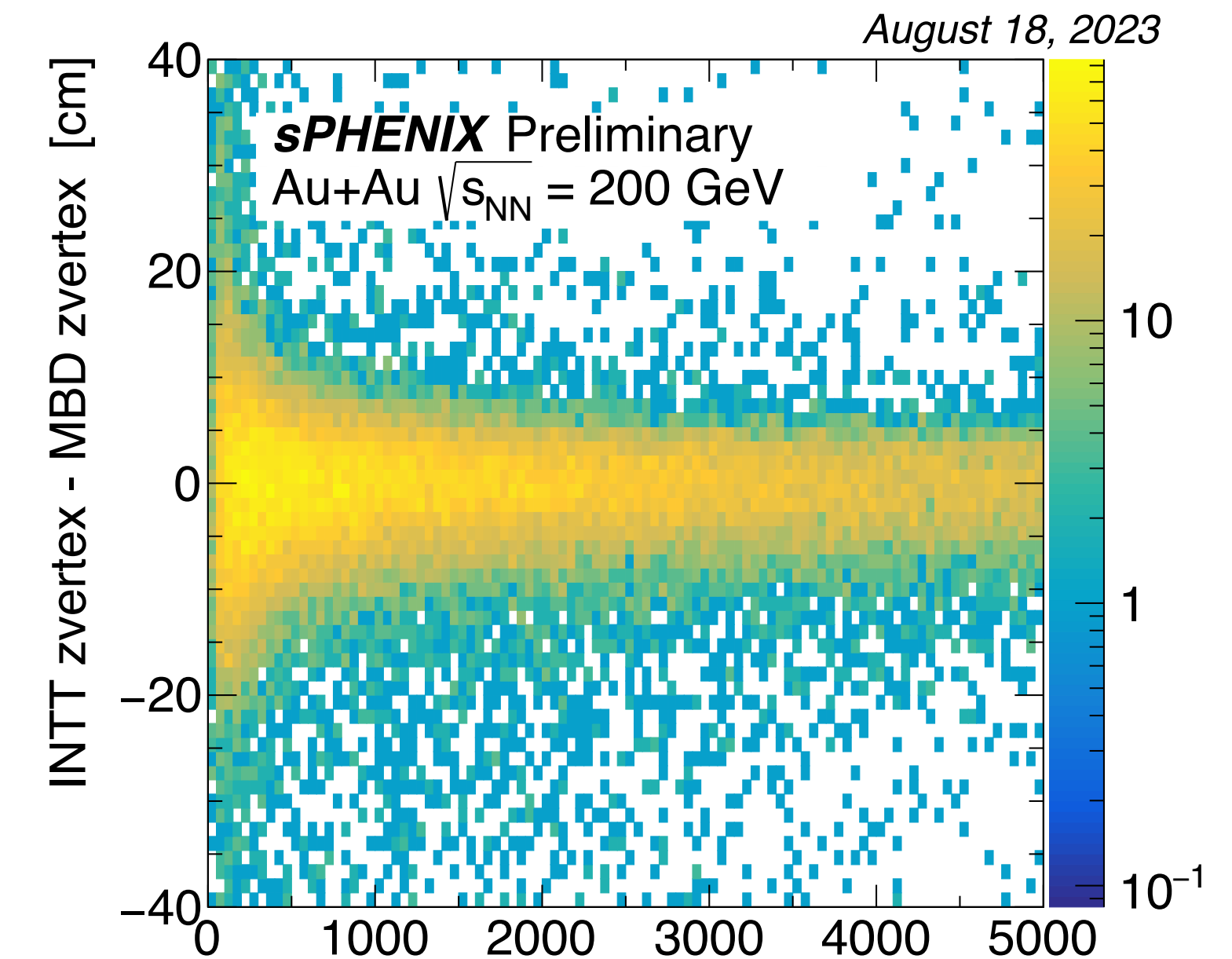
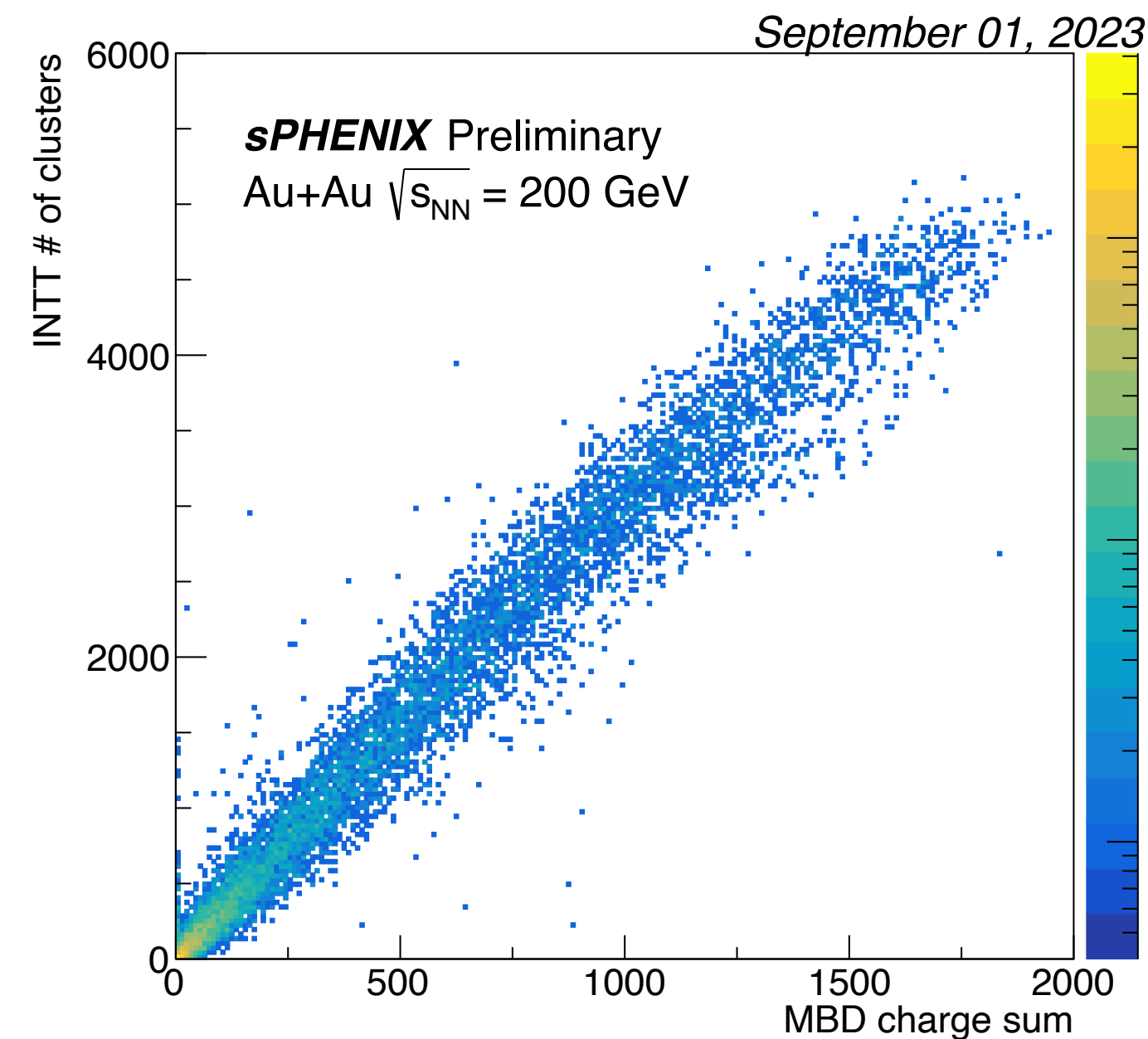


## With Au+Au collisions

### INTT insertion



- INTT barrel insertion : Feb 28, 2023
- Live-channel efficiency : 99%
- Power controlling GUIs fully developed

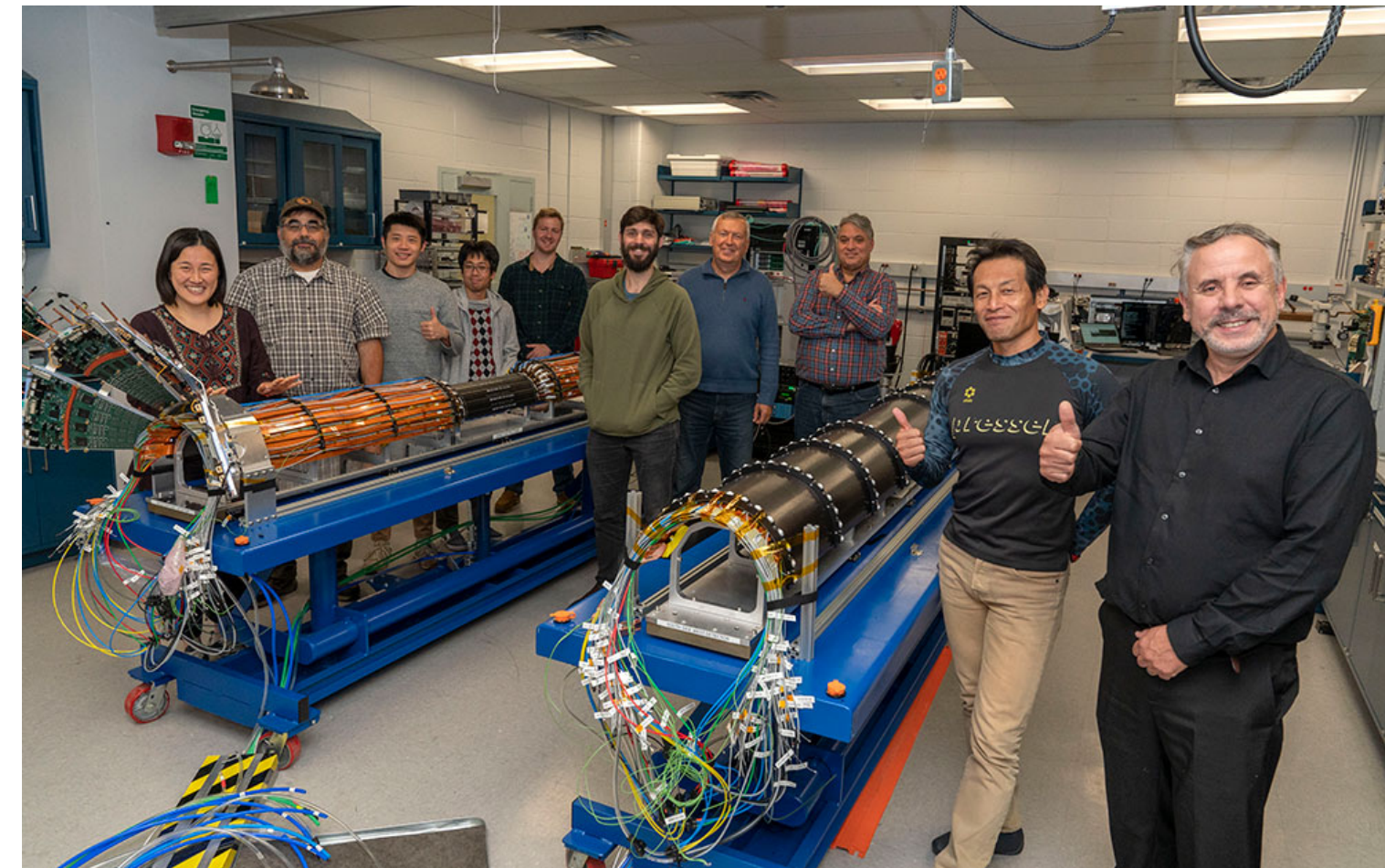
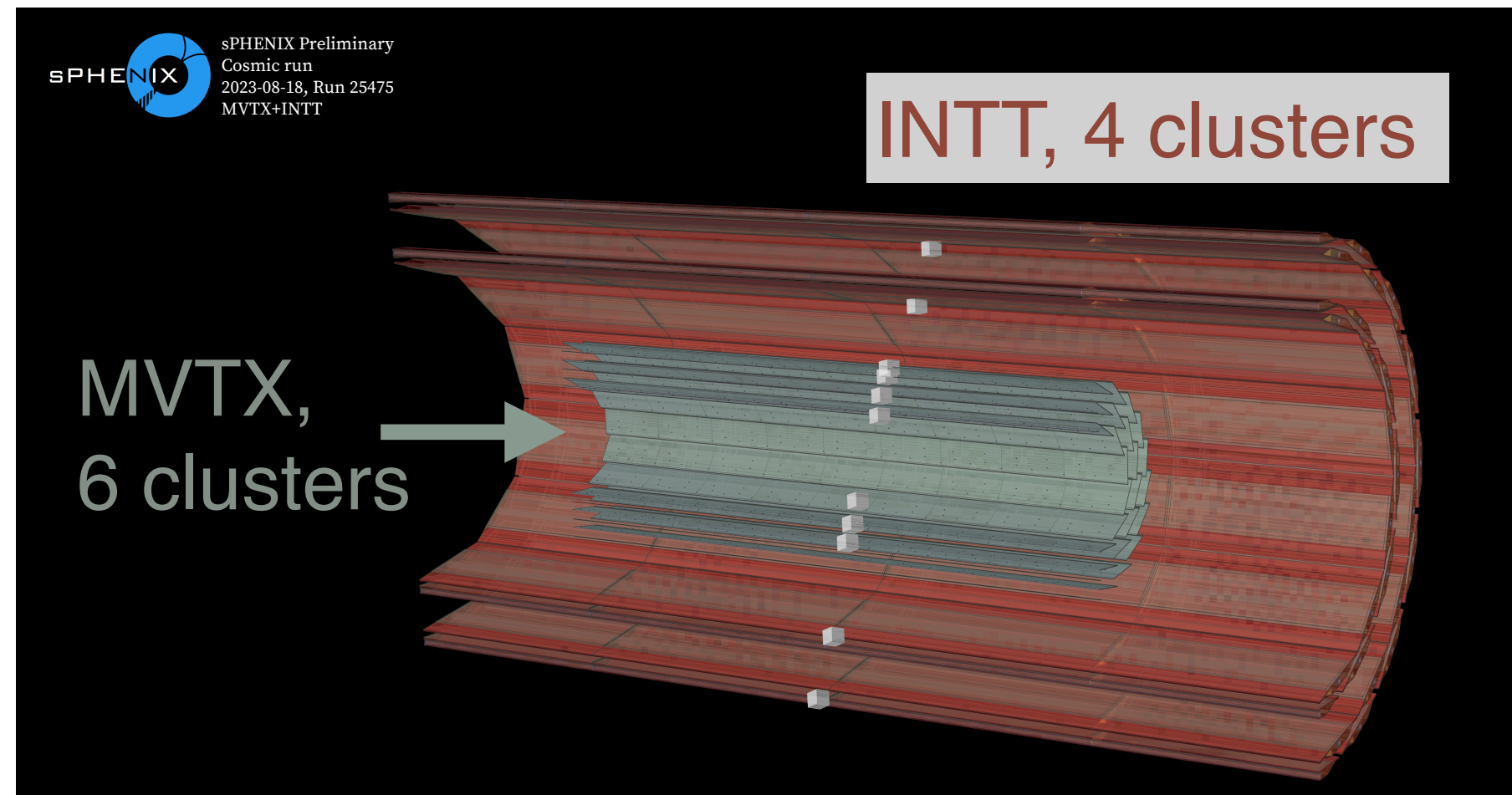


INTT is able to see the collisions with other system and validate MBD Z vertex measurements  
INTT is in good shape!

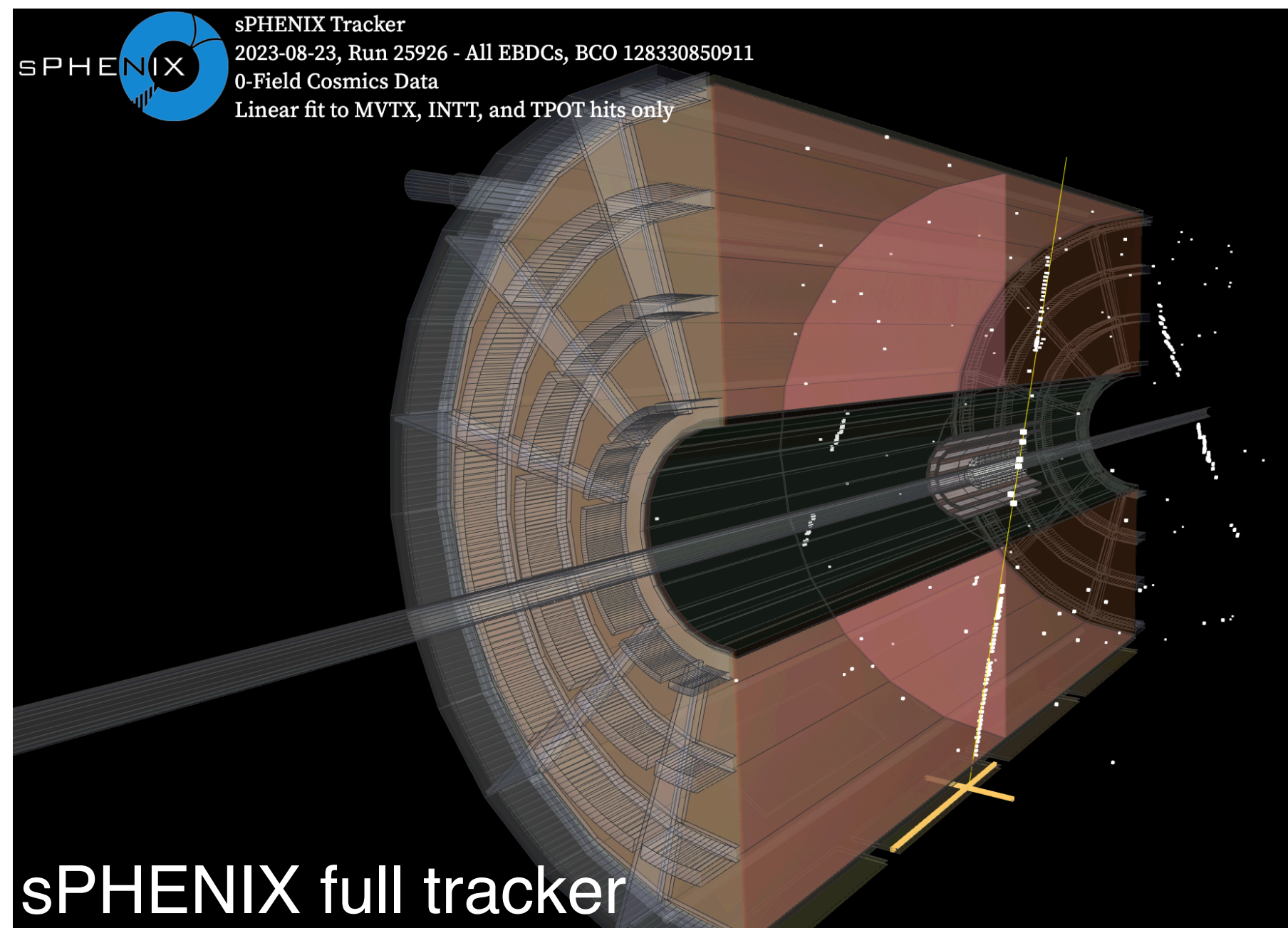
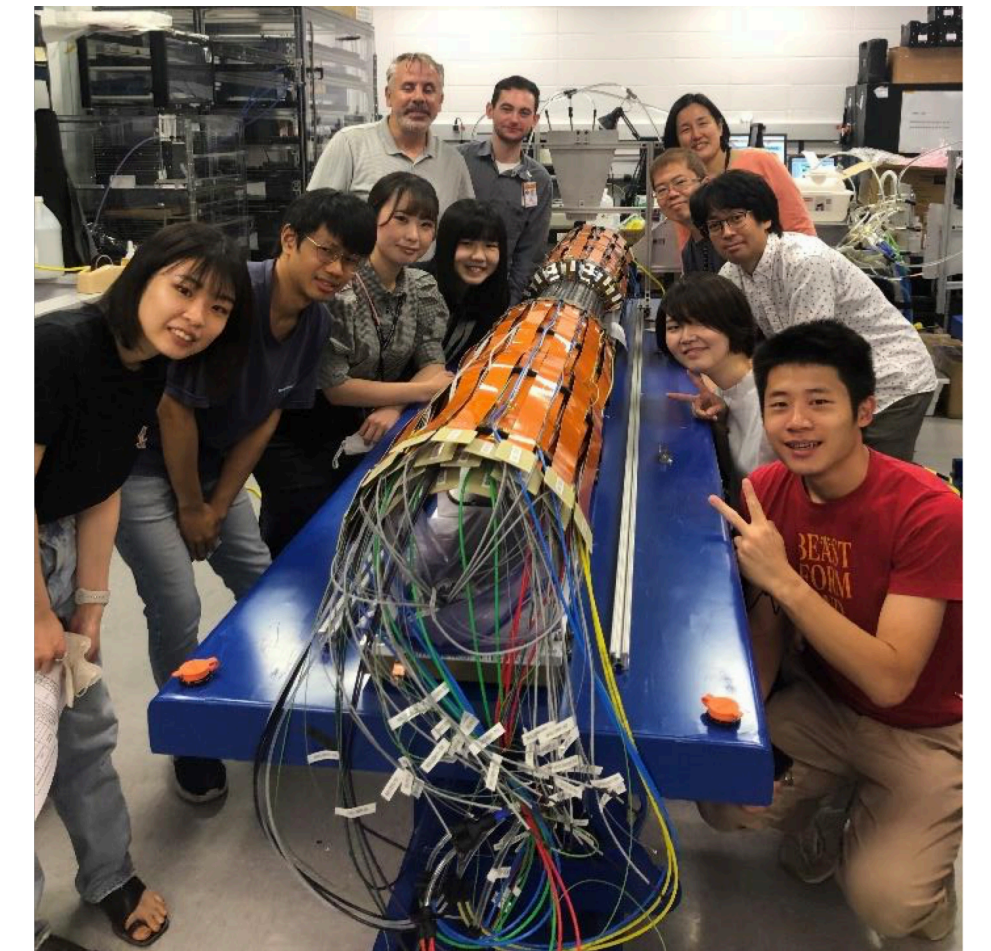


# INTT commissioning

## With Cosmic rays



\* Not all INTT members included



- Tremendous work done by sPHENIX INTT group!
- INTT was confirmed to be in good shape!
- The INTT commissioning is nearing completion and moving towards the readiness for physics data taking!