

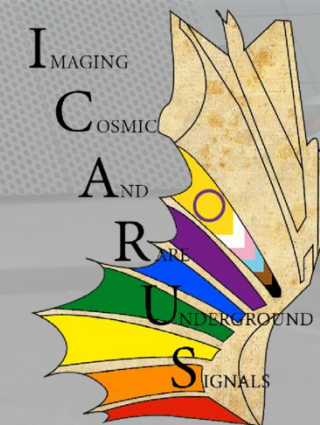
SBN-FD

ICARUS Update

Anna Heggestuen, Guadalupe Moreno

Proton/PMG Meeting

February 6, 2025



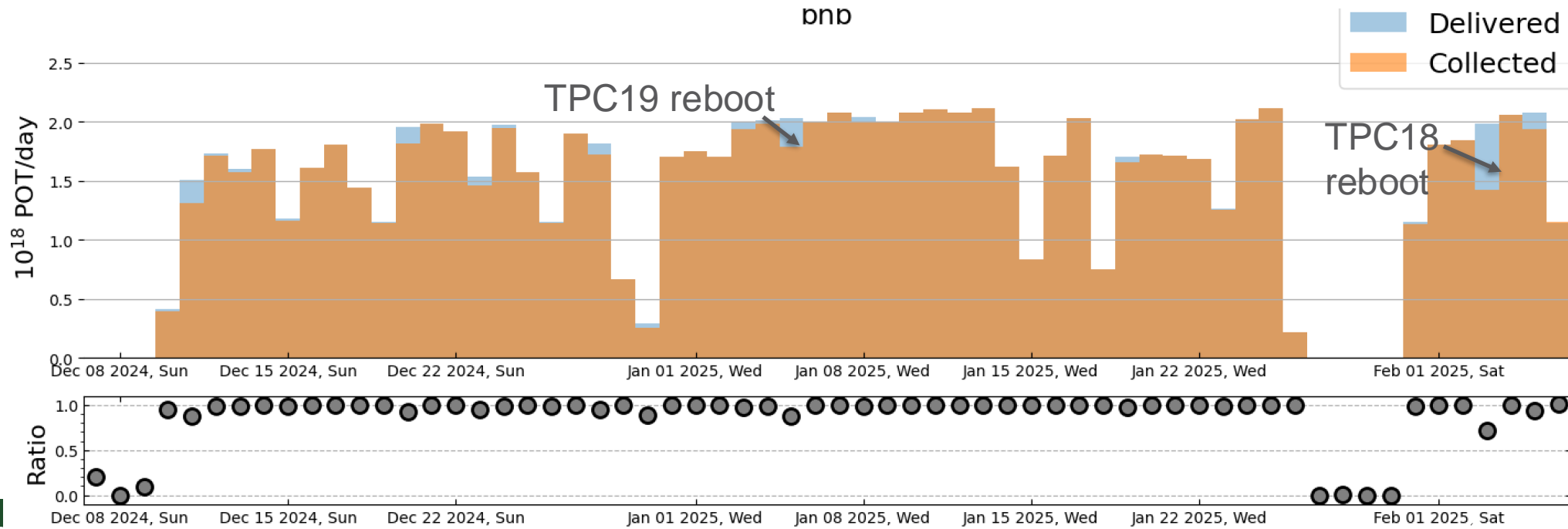
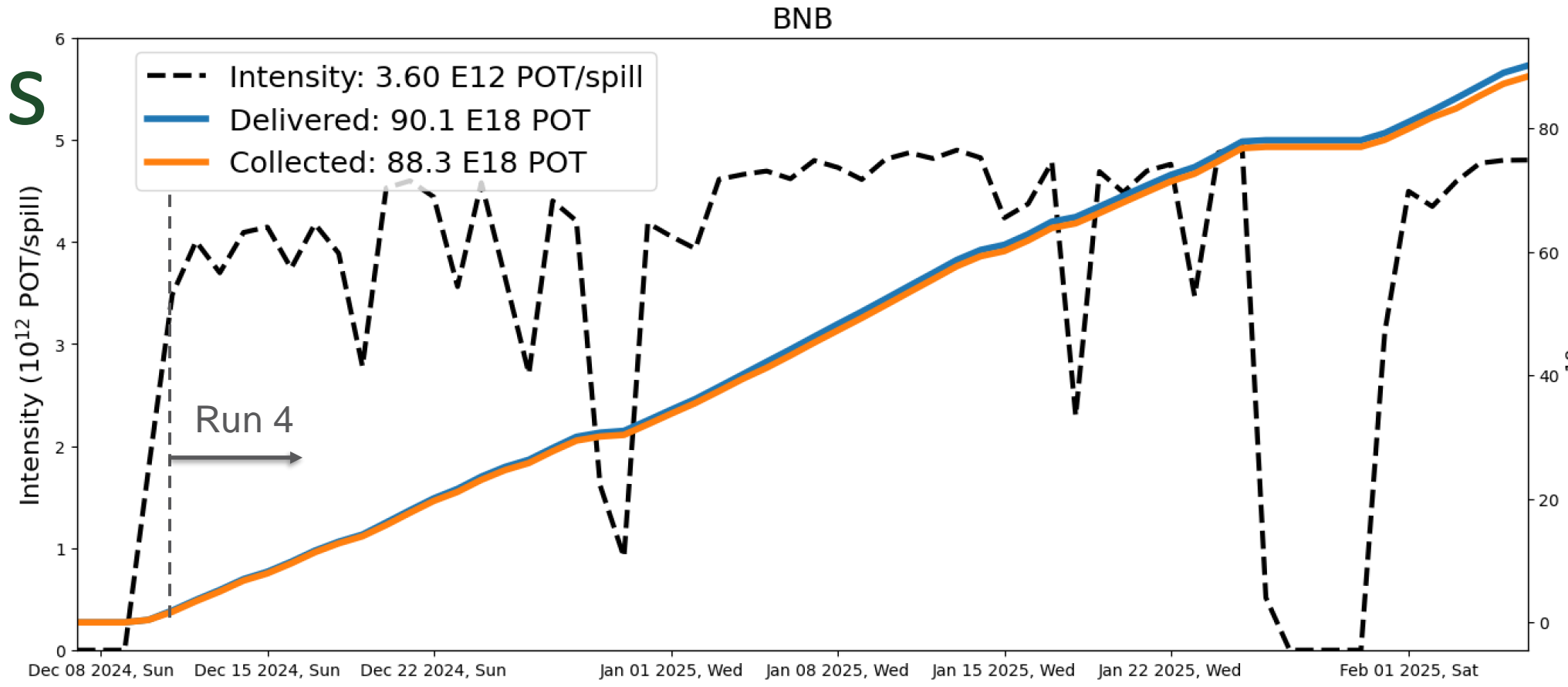
Colorado State University



VIRGINIA TECH.

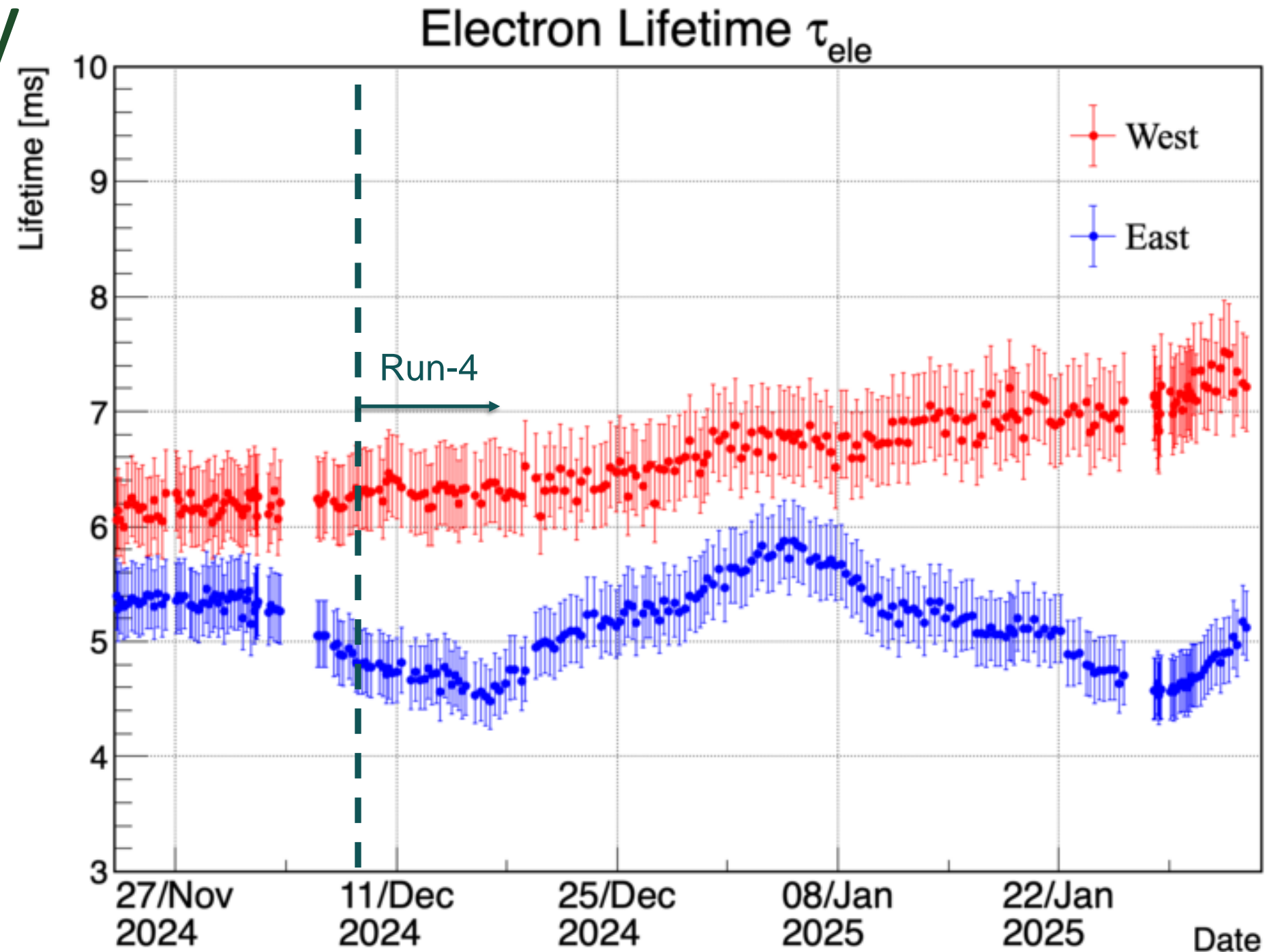
ICARUS Status

- ICARUS running stably since beam returned (Run 4)
 - 98% BNB collection efficiency
- DAQ running smooth
 - DAQ efficiency: 80%
 - Average run time ~24 hrs, maximum ~236 hrs (~10 days)



Detector purity

- Measure Liquid Argon purity using the electron lifetime
- Some variation in East cryostat purity
 - Could be due to loss of efficiency in East Cryo pump, Cryo experts are aware and investigating
 - Still well above threshold needed and now trending upwards



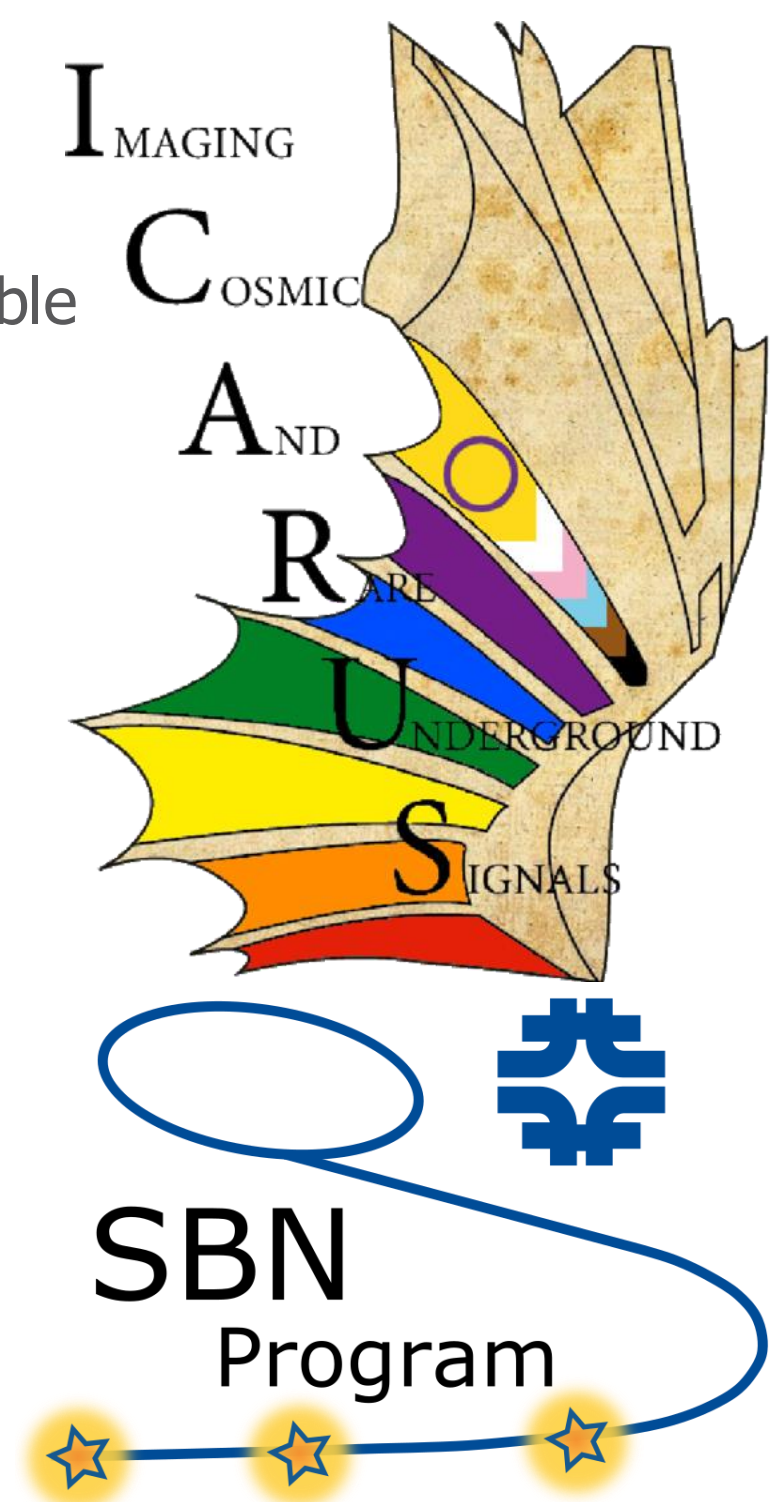
TPC server reboots

- ICARUS TPC servers sporadically reboot
 - Cause of these reboots is not clear, but seems to happen if data from a single board on that server is missing
- A good fraction of TPC servers rebooted during Jan 26 Master Substation power glitch
 - Talking to electrical experts, seems consistent with a brownout event
 - Fully lost connection with one TPC server following this event, switched to a backup server
- Run crashed Monday Feb 3 (accompanied by a TPC server reboot)
 - Resolved by swapping a power supply for a TPC board on that server
- Have a CAEN A3818 driver patch fix available that should prevent TPC server reboots
 - ✓ Tested last week and verified the patch prevents a TPC server reboot from a single missing board
 - ☐ Plan to install on all TPC servers at next beam downtime (already installed on two servers)

Summary

- ICARUS is operating smoothly with all detector components in a stable configuration, collecting BNB data with high efficiency
 - 8.83×10^{19} POT collected for BNB in Run-4 as of Feb 6
- Most servers upgraded to AL9 (apart from event builders and white rabbit still on SL7)
- Beam downtime used for tests, calibration runs or collecting cosmic data
- No changes are expected until summer
- The collaboration thanks AD for delivering high quality beam!

Thank you!!



backup

Activities during last weeks beam downtime

- ✓ Moved bottom CRT readout to an AL9 server
 - All ICARUS servers are upgraded to AL9, apart from event builders and white rabbit still on SL7
- ✓ Network uplink move in FCC
- ✓ Tested new patched TPC CAEN A3818 board driver
- ✓ MongoDB architecture upgrade

Runs week by week

