

# Recap –

Sabrina Sacerdoti, PDS coordination

APC - 5/07/2024

# ProtoDUNE installation - cathode

- Status reported by Flavio [last wednesday](#):
  - Cathode installation completed
  - Warm test with LED performed before potting
  - Potting was on-going (**now finished**)
  - Goal to do a second round of LED testing after all manipulation is done → **done**
  - **Missing putting mesh back. Upper mesh is very hard. Add cables from electronic boxes to mesh.**
- Round of applause for the team at CERN!
- Now we need to update the documentation :)
- Top of cathode very dirty → being cleaned as we go.
  - Possibility to cover the entire cathode until finishing the closure?

# Final cathode configurations

- More comprehensive info [here](#)

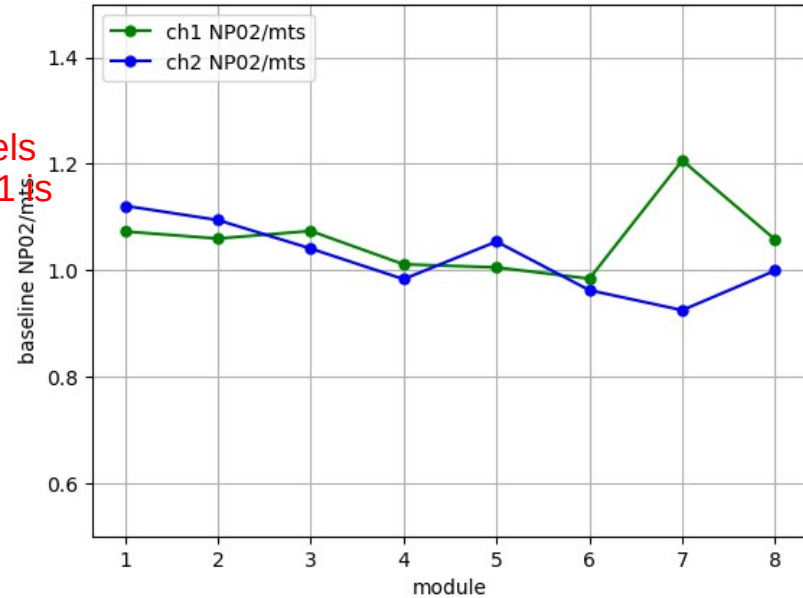
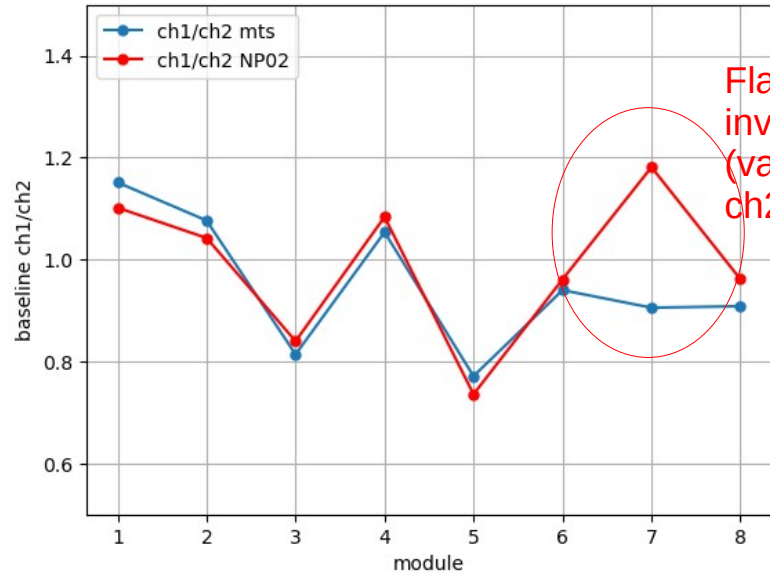
Module	WLS	Filters	SiPM	SPE (mV)	SNR <sub>ch1-ch2</sub>	comments
C1	No dimples, thin	ZAOT	HPK	1 – 0.8	7 - 5	Just mechanical adjustments
C2	No dimples, thin	ZAOT	HPK	0.8 – 0.9	5 - 6	Just mechanical adjustments
C3	No dimples, new 5.5mm	glass	HPK	1.1 -1	8 - 7	<b>Used C4 from coldbox/M1</b>
C4	No dimples, new 5.5mm	glass	HPK	1 – 0.8	8 - 6	Flex B1 has first SiPM partially lifted

# Final cathode configurations

	WLS	Filters	SiPM	SPE (mV)	SNR	comments
C5	No dimples, new 5.5mm	ZAOT	HPK	0.6 - 1	5 - 7.5	
C6	No dimples, new 5.5mm	ZAOT	HPK	1.5 - 1	8 - 8	Oscillations seen, gone in second test. Suspect cable tension?
C7	No dimples, new 5.5mm	glass	HPK	0.8 – 0.5	6 - 4	<b>replaced with C2 from CB</b>
C8	No dimples, new 5.5mm	ZAOT	HPK	1.2 – 0.9	8 - 5	Flex B3 has first SiPM partially lifted

# Module testing

- All modules pre-tested in warm at the test stand: turning on, measuring of baseline light level in warm (with PoF), checking 'life signs' from SiPMs
- Then tested in cold inside the cryostat: with PoF, full test (data taking and SNR checked)
- Once installed, warm testing in three steps: 'alive', pre-potting baseline and LED, post potting baseline+LED signal



# Membrane modules + substrates

- Four modules still outside the cryostat
  - M7 and M8: TCO side, need to be installed after closure
  - M5 and M6: non TCO side, had PE filters that needed to be replaced
- M7 and M8: with dimples, VD-style electronics
  - M8 has FBK SiPMs → electronics modified by Dante following coldbox results
  - Both modules tested in cold
- M5: with dimples, FBK, VD-style electronics
  - Modified by Dante
- M6: with dimples, HPK, SoF but with copper power
  - Will receive updated electronics (the unused “backup boards” from cathode adapted for membrane DB15)
- End of July (24/07) team: Jaime, Henrique and Renan... unless others available?
  - Test two remaining membrane modules
  - Install glass substrates if arrived (on their way to Campinas?)
  - Move four modules into cryostat to a safe position to be installed post TCO closure
- Installation after TCO closure → end of August/September (to be confirmed) --- Jay?
- Covers of top membrane modules?

# So what about the Module 1 setup....

- Next run in OCTOBER!!!
  - Main goal: data taking with Daphne V3!
- Module re-building:
  - C1 is metal-in-trench FBK → need to replace SiPMs.
  - C2 and C4 are in Module 0 now → need to refurbish the extracted modules
    - New WLS (in hand)
    - Other mechanical corrections?
  - C3 WLS has ptp glued to it and might have been scratched
- Filters:
  - C1 is almost all ZAOT (except one filter??)
  - C2,C3,C3 had PE: proposal was to clean the ptp off and use this on the back planes
  - Carla provides one set of ZAOT filters → need two sets of glass substrates
- Test stand: no metal tube for fibers → need new one
- Coldbox:
  - LED calibration was taken to NP02
  - No PoF (note: #4 burnt... ft fiber damaged?)

# Discussion about filter/substrate testing

- Cold testing of new ptp-coated substrates before NP02 is closed
- Where?
  - EHN1 test stand using frame → allows to test many filters
  - Milano? Campinas?
- Test as many as possible? Test a few spares?
- Glass substrates batch 1 = tested in Campinas with LN (2 or 3 samples)
- Batch 2?