NeuLAND status report

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Overview

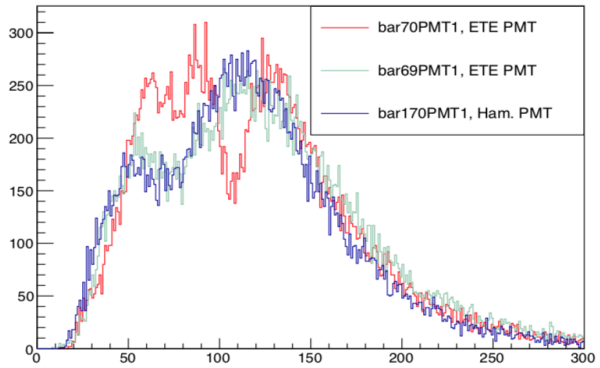
- experiments done by now
- PMTs
- building status
  - mechanics, electronics
  - scintillator bars
- NeuLAND status in the Cave C
  - HVDS, DAQ

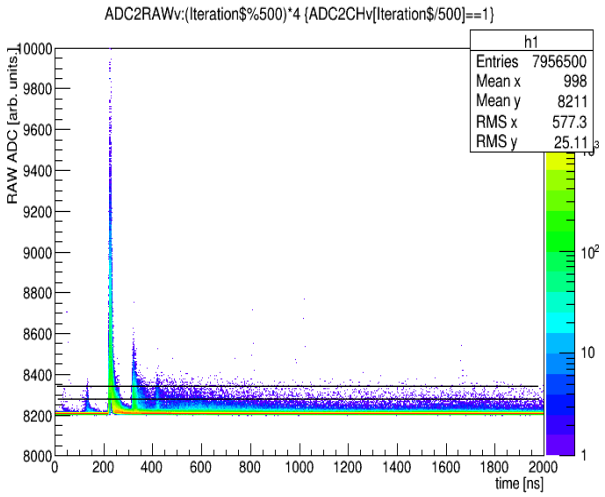
Experiments so far

- 8 double planes
  - ^{120}Sn s473 (2019)
  - commissioning s444 (2019, 2020)
  - Ca s467 (2020) - Konstanze
- 12 double planes (2021)
  - fission s455 – Antia, Desa
  - $^{124\text{-}132}$Sn s515 – Ivana, Eleonora
- 13 double planes (2022)
  - multineutron s509 – Nikhil, Antoine
  - SRC s522 - Christine

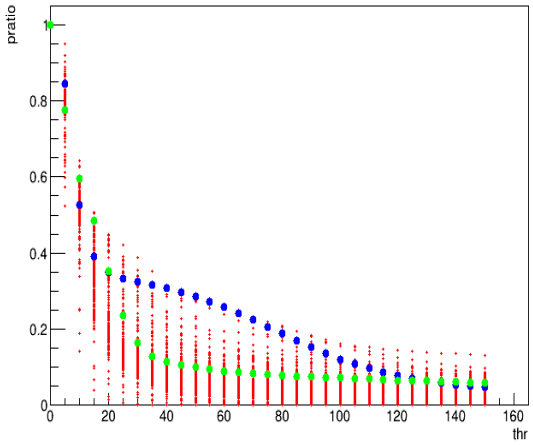
PMT issues

- distortions in ToT spectra, afterpulses
- average HV higher
- different walk correction
- to measure traces with VME Struck ADC
- quantify afterpulses
- no consistent differences between good and bad PMTs
- some more checks needed
- the effect not so severe





N_{after}/N_{peak} above threshold



Building Status

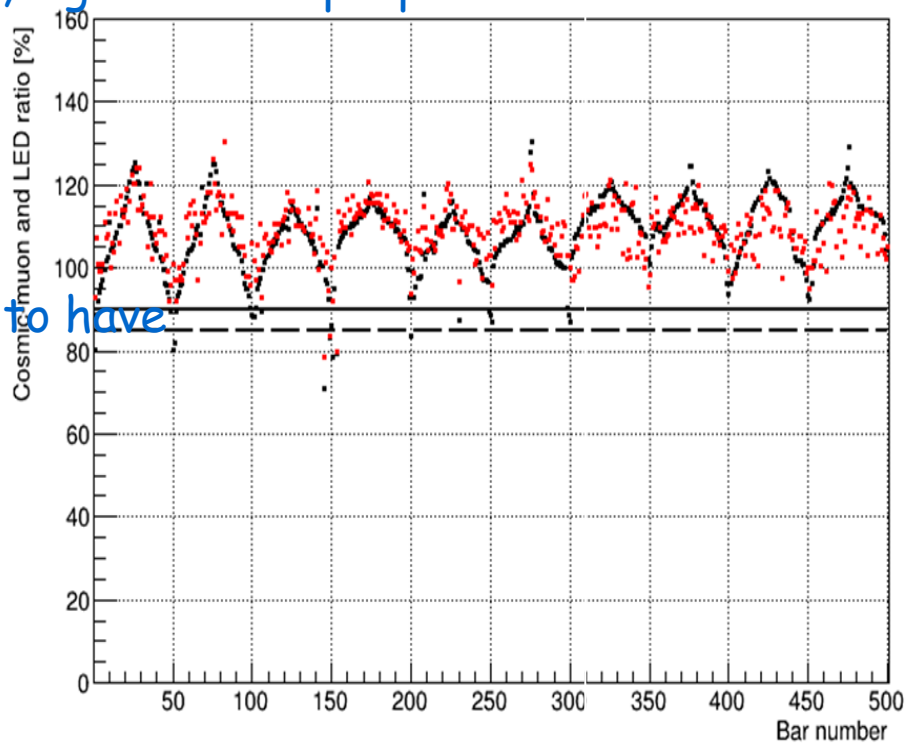
NeuLAND building:

- electronics for 5 dp's -> key elemenents tested (Konstanze), not yet mounted in towers

- frames for 3 dp's -> mounting started, signal cables prepared at Cologne (Deniz & Sergei)

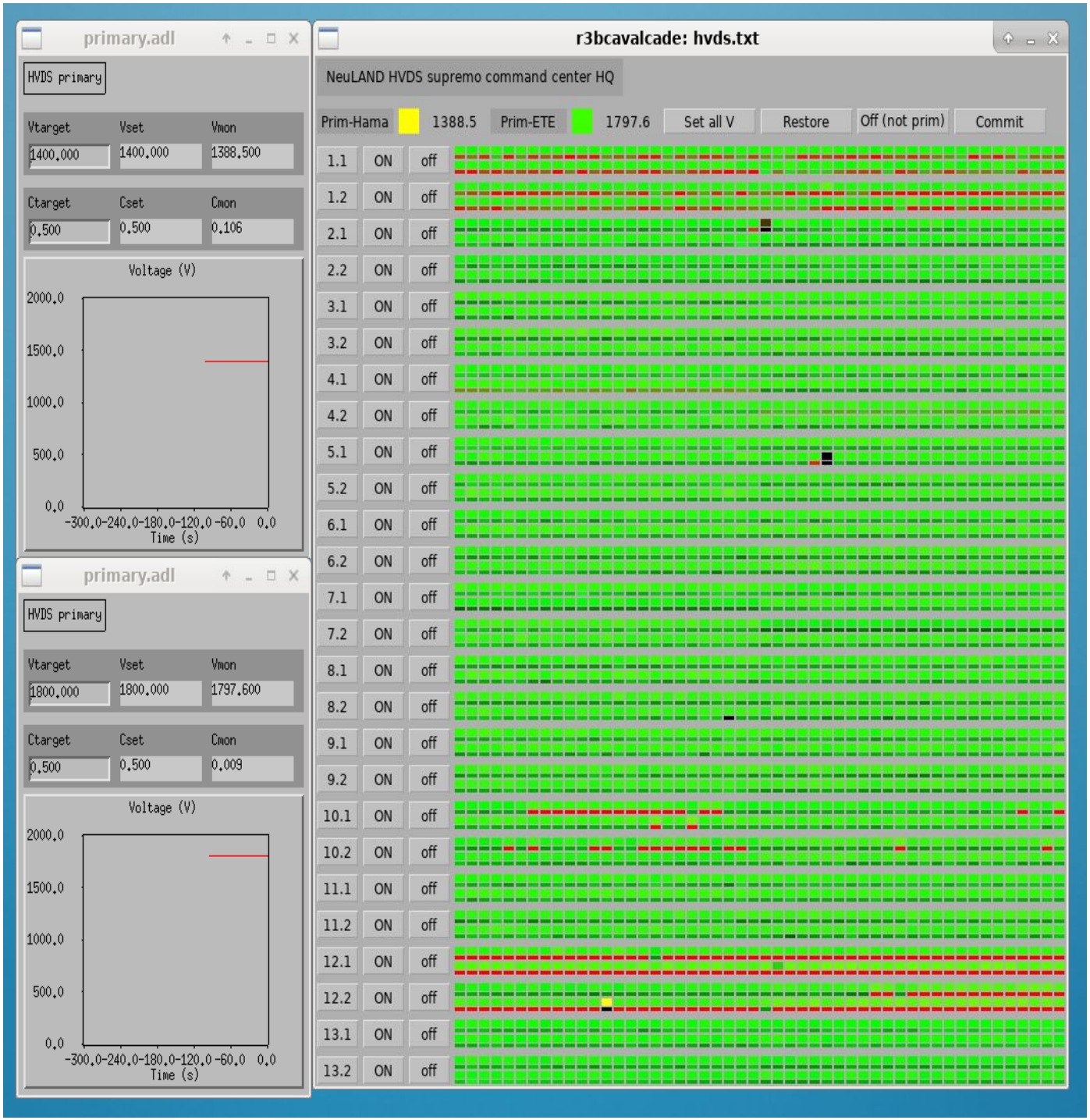
- call for tender in preparation, 350k
  kick-off meeting today morning
  → go for a framework contract again to have flexibility.

  SAT established:
  measurement to reference bar



NeuLAND Status Cave C

- running NeuLAND in standalone mode – Sept.23 – Igor, KB
  - repair of single channels
  - noisy dp11 issue
  - etc.
  - → result: all channels worked
- HVDS
  - earlier problems with high failure rates in HVDS modules (5 V and single channel problems)
  - repair possible (N. Scadock, Leandro)
  - mitigation for pre-series under development at EE (K. Koch), timeline next summer
  - HVDS now running with slow ramping on primary and secondary voltages – Hans, Leandro
  - serving with 2 primary supplies since Oct.23 – Hans, Bastii, KB
  - → example next slide


primary.adl
HVDS primary
Vtarget
Vset
Vmon
1400.000
1400.000
1388.500
Ctarget
Cset
Cmon
0.500
0.500
0.106
Voltage (V)
2000.0
1500.0
1000.0
500.0
0.0
-300.0 -240.0 -180.0 -120.0 -60.0 0.0
Time (s)
primary.adl
HVDS primary
Vtarget
Vset
Vmon
1800.000
1800.000
1797.600
Ctarget
Cset
Cmon
0.500
0.500
0.009
Voltage (V)
2000.0
1500.0
1000.0
500.0
0.0
-300.0 -240.0 -180.0 -120.0 -60.0 0.0
Time (s)
r3bcavalcade: hvds.txt
NeuLAND HVDS supremo command center HQ
Prim-Hama
1388.5
Prim-ETE
1797.6
Set all V
Restore
Off (not prim)
Commit
1.1 ON off
1.2 ON off
2.1 ON off
2.2 ON off
3.1 ON off
3.2 ON off
4.1 ON off
4.2 ON off
5.1 ON off
5.2 ON off
6.1 ON off
6.2 ON off
7.1 ON off
7.2 ON off
8.1 ON off
8.2 ON off
9.1 ON off
9.2 ON off
10.1 ON off
10.2 ON off
11.1 ON off
11.2 ON off
12.1 ON off
12.2 ON off
13.1 ON off
13.2 ON off

NeuLAND Status Cave C

- Main DAQ – last week – Bastii, Hans, KB
- cabling direct from Main DAQ to NeuLAND
- issue with TAMEX having two entries per

  trigger (leading, trailing edge),

  never before observed, but direct trigger

  connection from main DAQ to NeuLAND

  → needs further work (next week)
- increase rate with NeuLAND included
- issue with x86l-101 rate?
- still missing:
  - White Rabbit signal
  - T0 signal (needs to go to a TAMEX channel at each SFP/PC)