HMS Hodoscope Refurbishment

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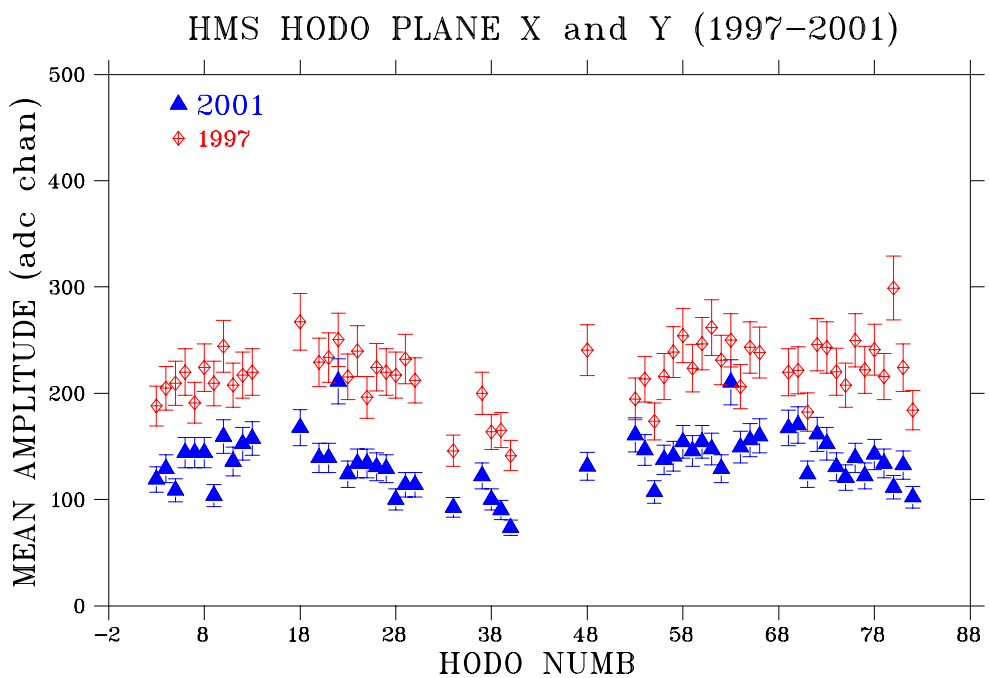
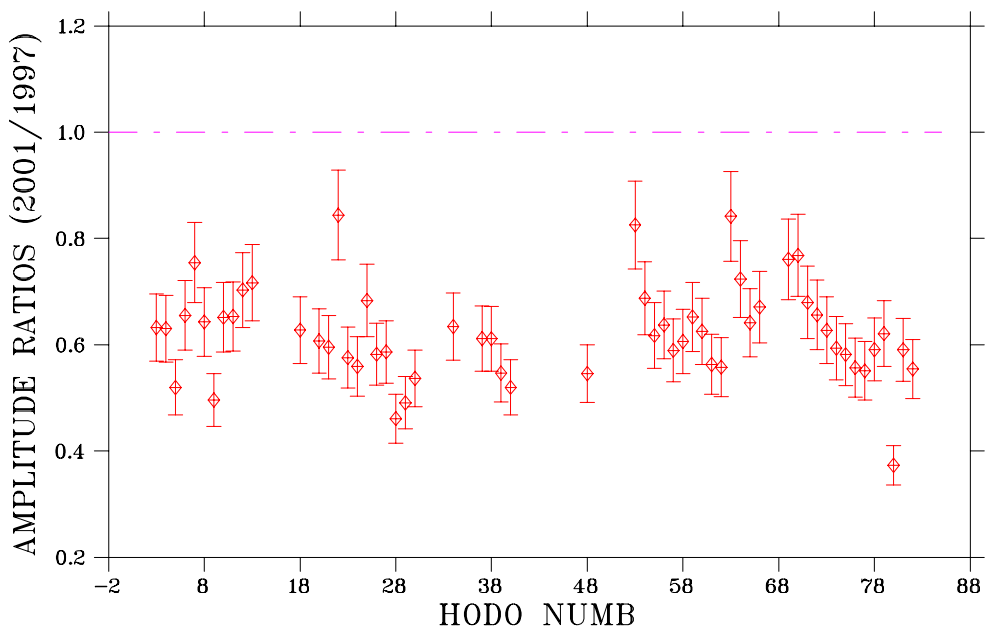
A.Mkrtchyan, . . .

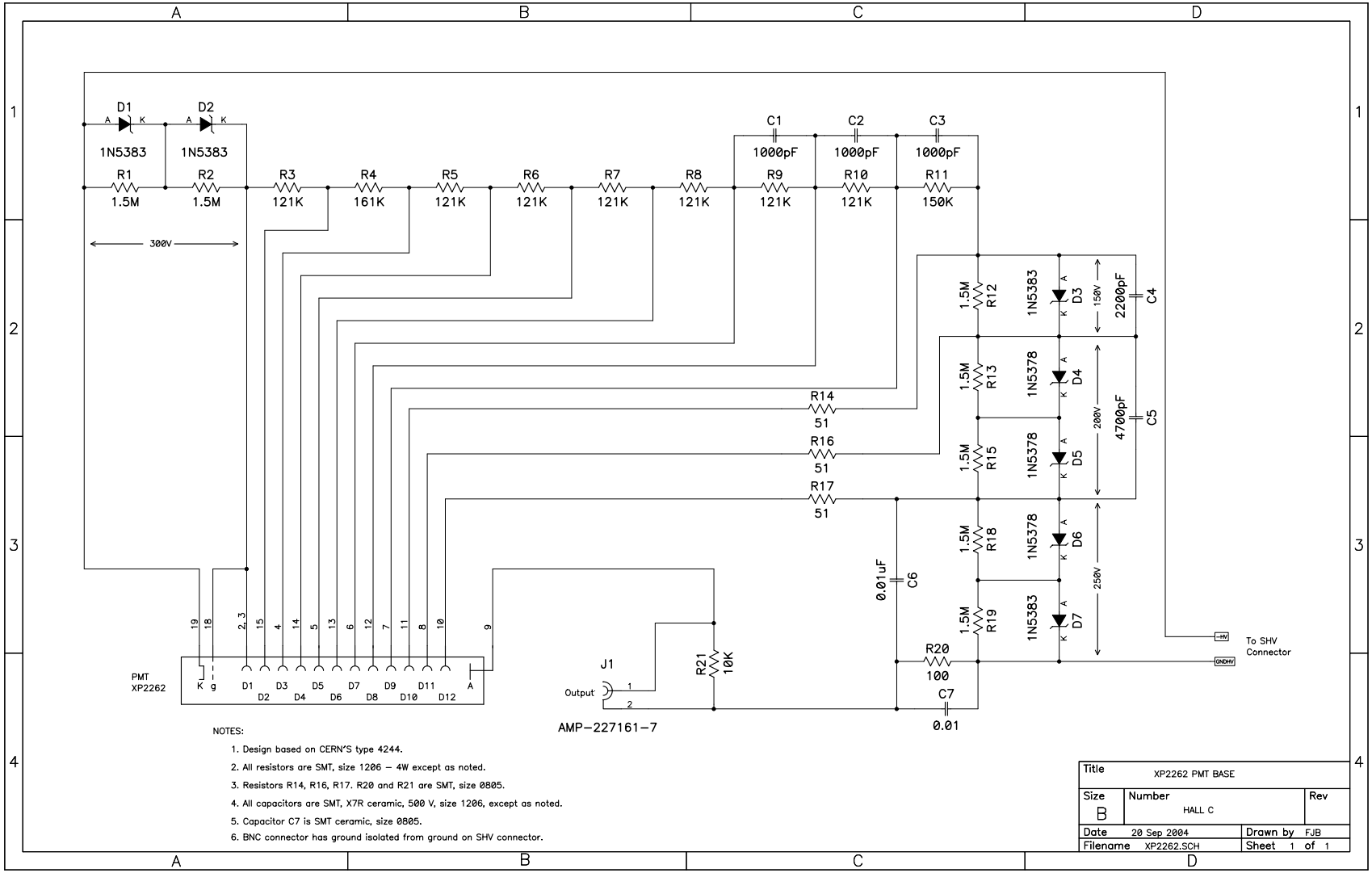
Hall C Users Meeting, January 25–26 of 2007


HMS HODO PLANE X and Y (1997–2001)
2001
1997
MEAN AMPLITUDE (adc chan)
HODO NUMB
0
100
200
300
400
500
−2
8
18
28
38
48
58
68
78
88


AMPLITUDE RATIOS (2001/1997)
HODO NUMB
0.2
0.4
0.6
0.8
1.0
1.2
−2
8
18
28
38
48
58
68
78
88

Characteristics of Photonis XP2262 PMT
(fast, *12-stage*, 2" tube)

Parameter	Value
Photocathode (Bialcali):	
Spectral range, nm	290-650
Maximum sensitivity at	420
Luminous sensitivity, $\mu A/lm$	70
With voltage divider A:	
Gain slope	9
Gain	3×10^7
Voltage, typical, V	1800
Anode dark current, nA	10
Background noise, cps	1000
Single electron spectrum:	
Peak to valley ratio	3
Anode sensitivity deviation, %:	
long term (16 h)	1
after change of count rate	1
vs T,$0-40\,^{\circ}C$ @ 400nm, $\%/K$	-0.2
Gain halved for mgn.fld., mT	
perpendicular to axis "n"	0.2
parallel to axis "n"	0.1
With voltage divider B:	
Anode current linear up to, mA	250
Anode pulse:	
Rise time, ns	2
Duration at half height, ns	3
Transit Time, ns	30
Limiting values:	
Supply Voltage limit, V	2500
Continuous anode curent, mA	0.2

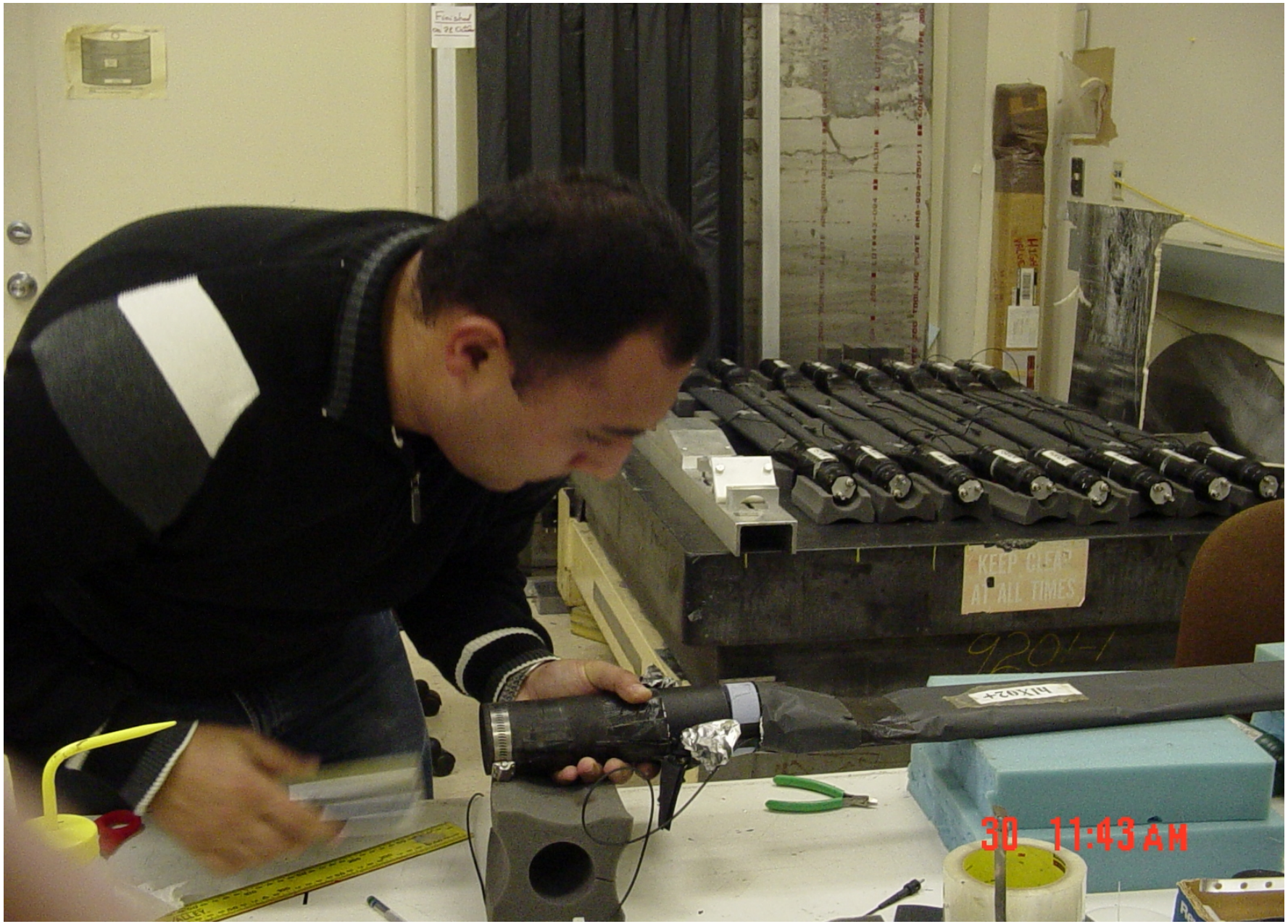


NOTES:

1. Design based on CERN'S type 4244.
2. All resistors are SMT, size 1206 – 4W except as noted.
3. Resistors R14, R16, R17. R20 and R21 are SMT, size 0805.
4. All capacitors are SMT, X7R ceramic, 500 V, size 1206, except as noted.
5. Capacitor C7 is SMT ceramic, size 0805.
6. BNC connector has ground isolated from ground on SHV connector.

Title	XP2262 PMT BASE	
Size B	Number HALL C	Rev
Date 20 Sep 2004		Drawn by FJB
Filename XP2262.SCH		Sheet 1 of 1

PHILIPS
XP2202/B
SN : 18349
Made in France
XP2262
SN: 35301
ACCEPTED
BY
DATE


KEEP CLEAR
AT ALL TIMES
30 11:43 AM

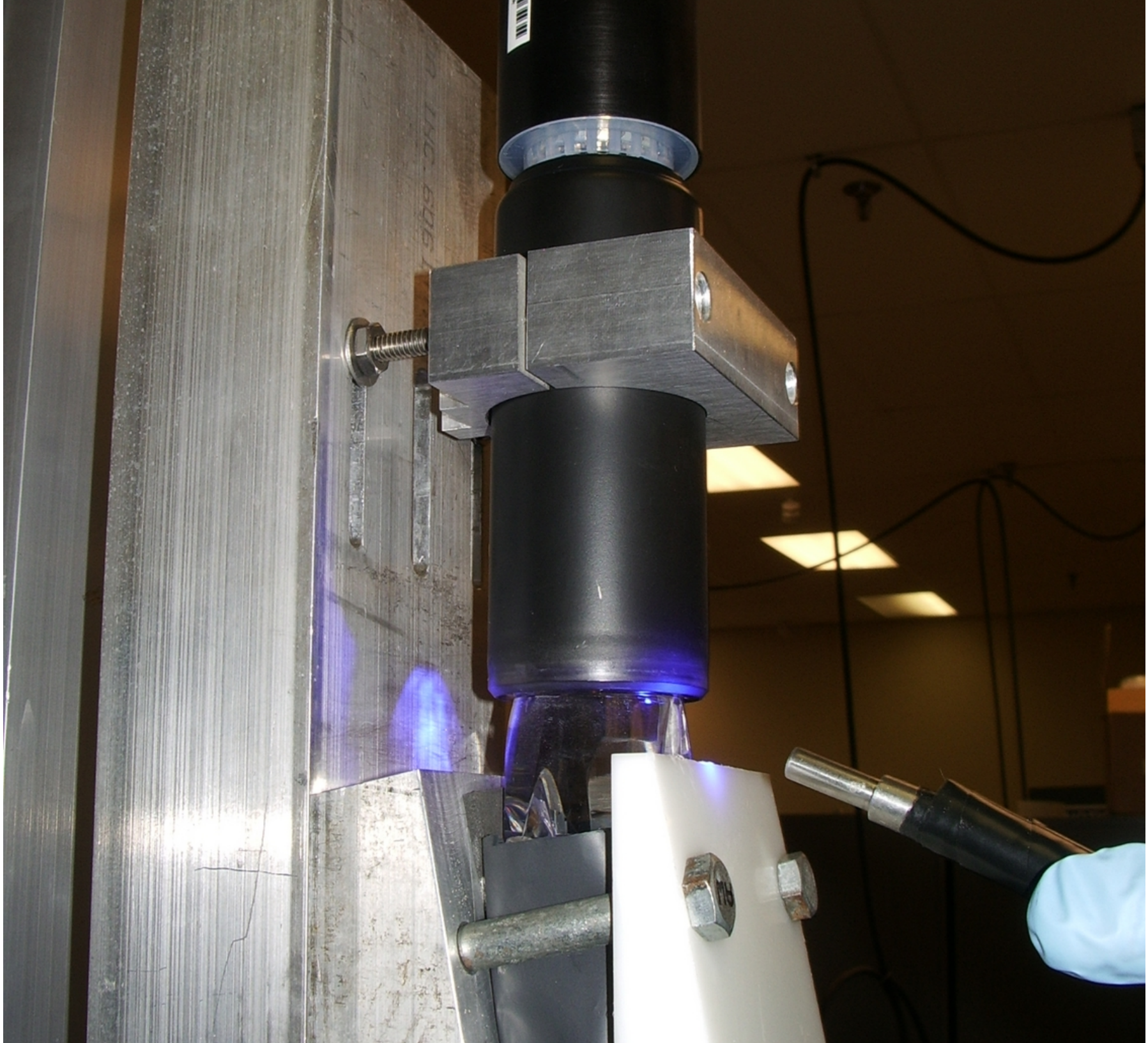
30 12:02PM

30 12:04 PM

FIRE
FIRE EXTINGUISHER
30 12:06PM

30 12:08PM

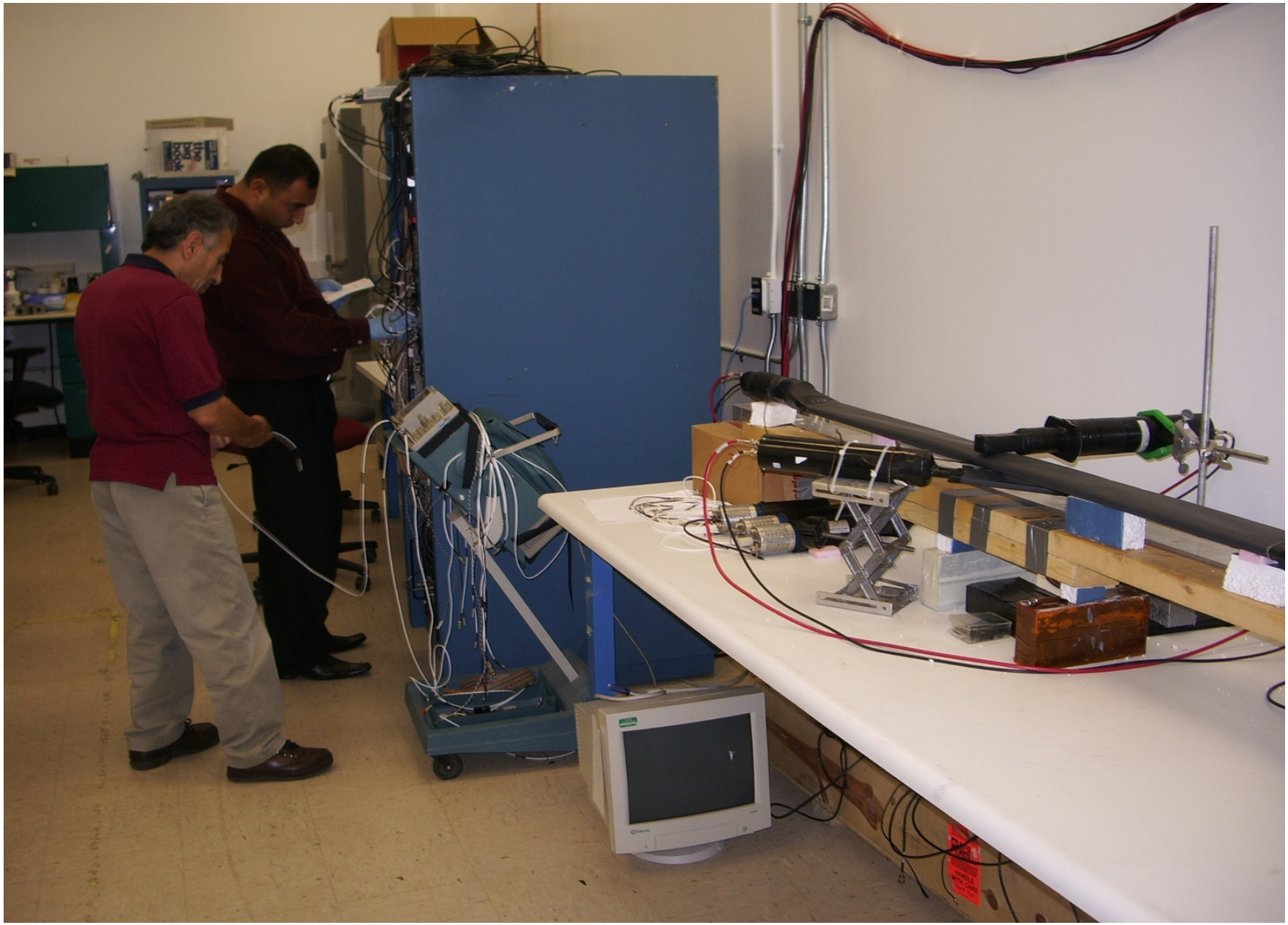
FLAMMABLE GAS
CAUTION

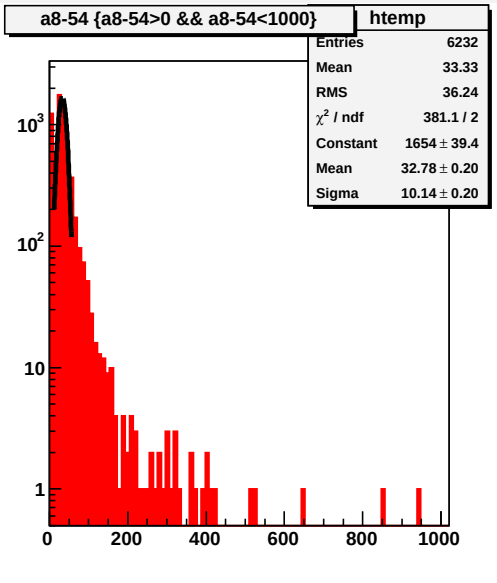


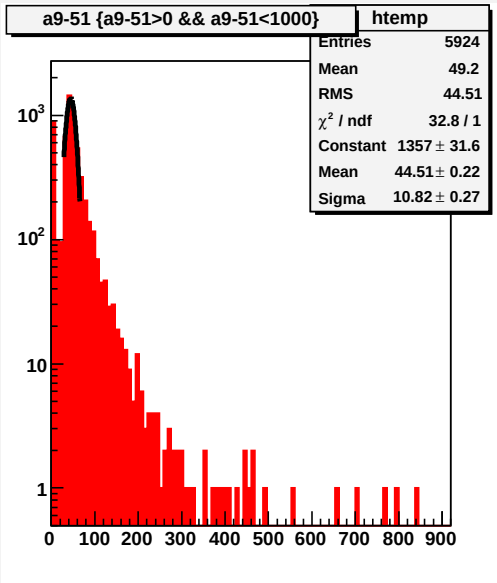
KEEP
CLEAR AT
ALL TIMES

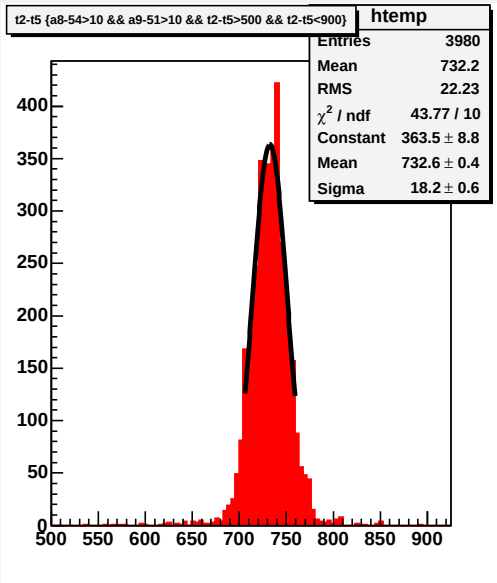
KEEP
CLEAR AT
ALL TIMES

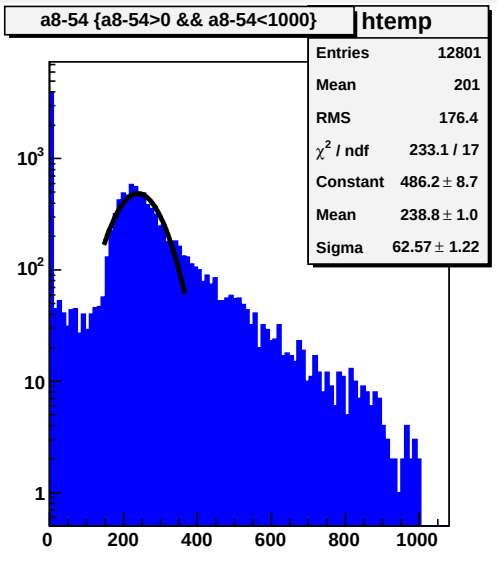
Finished
on 28 Oct
KEEP CLEAR
AT ALL TIMES
30 11:39 AM

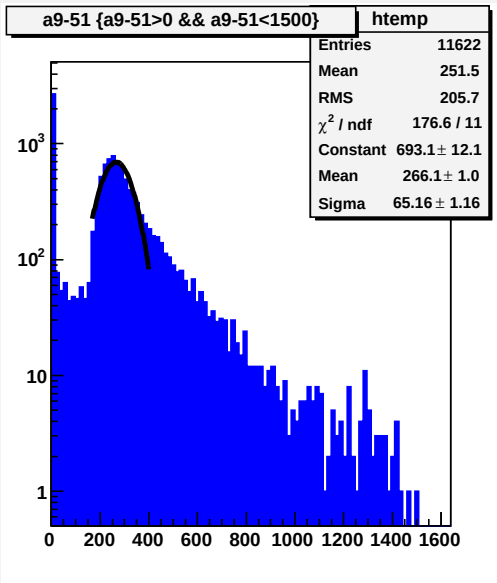


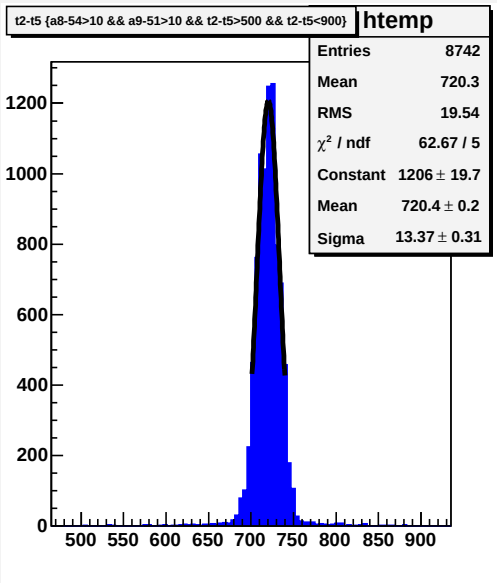

a8-54 {a8-54>0 && a8-54<1000}
htemp
Entries 6232
Mean 33.33
RMS 36.24
χ² / ndf 381.1 / 2
Constant 1654 ± 39.4
Mean 32.78 ± 0.20
Sigma 10.14 ± 0.20


a9-51 {a9-51>0 && a9-51<1000}
htemp
Entries 5924
Mean 49.2
RMS 44.51
χ² / ndf 32.8 / 1
Constant 1357 ± 31.6
Mean 44.51 ± 0.22
Sigma 10.82 ± 0.27

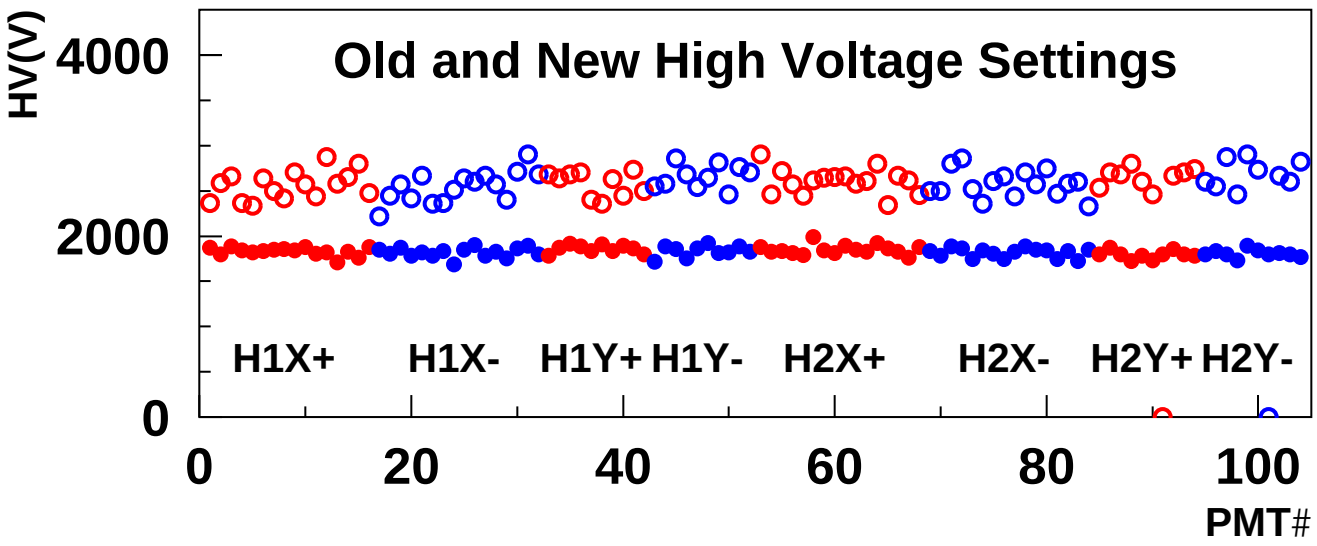

t2-t5 {a8-54>10 && a9-51>10 && t2-t5>500 && t2-t5<900}
htemp
Entries 3980
Mean 732.2
RMS 22.23
χ² / ndf 43.77 / 10
Constant 363.5 ± 8.8
Mean 732.6 ± 0.4
Sigma 18.2 ± 0.6


a8-54 {a8-54>0 && a8-54<1000}
htemp
Entries 12801
Mean 201
RMS 176.4
χ² / ndf 233.1 / 17
Constant 486.2 ± 8.7
Mean 238.8 ± 1.0
Sigma 62.57 ± 1.22

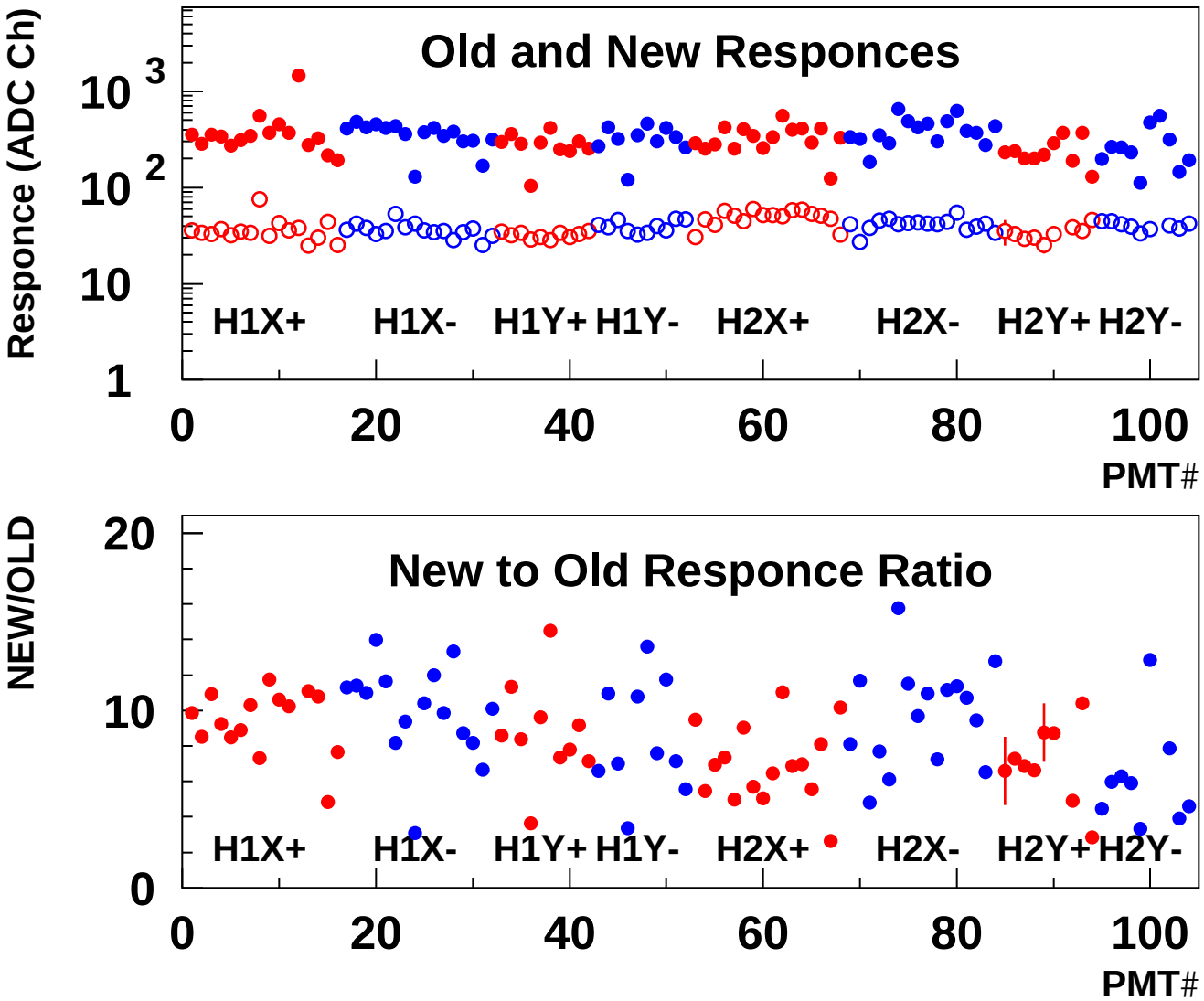

a9-51 {a9-51>0 && a9-51<1500}
htemp
Entries 11622
Mean 251.5
RMS 205.7
χ² / ndf 176.6 / 11
Constant 693.1 ± 12.1
Mean 266.1 ± 1.0
Sigma 65.16 ± 1.16


t2-t5 {a8-54>10 && a9-51>10 && t2-t5>500 && t2-t5<900}
htemp
Entries 8742
Mean 720.3
RMS 19.54
χ² / ndf 62.67 / 5
Constant 1206 ± 19.7
Mean 720.4 ± 0.2
Sigma 13.37 ± 0.31

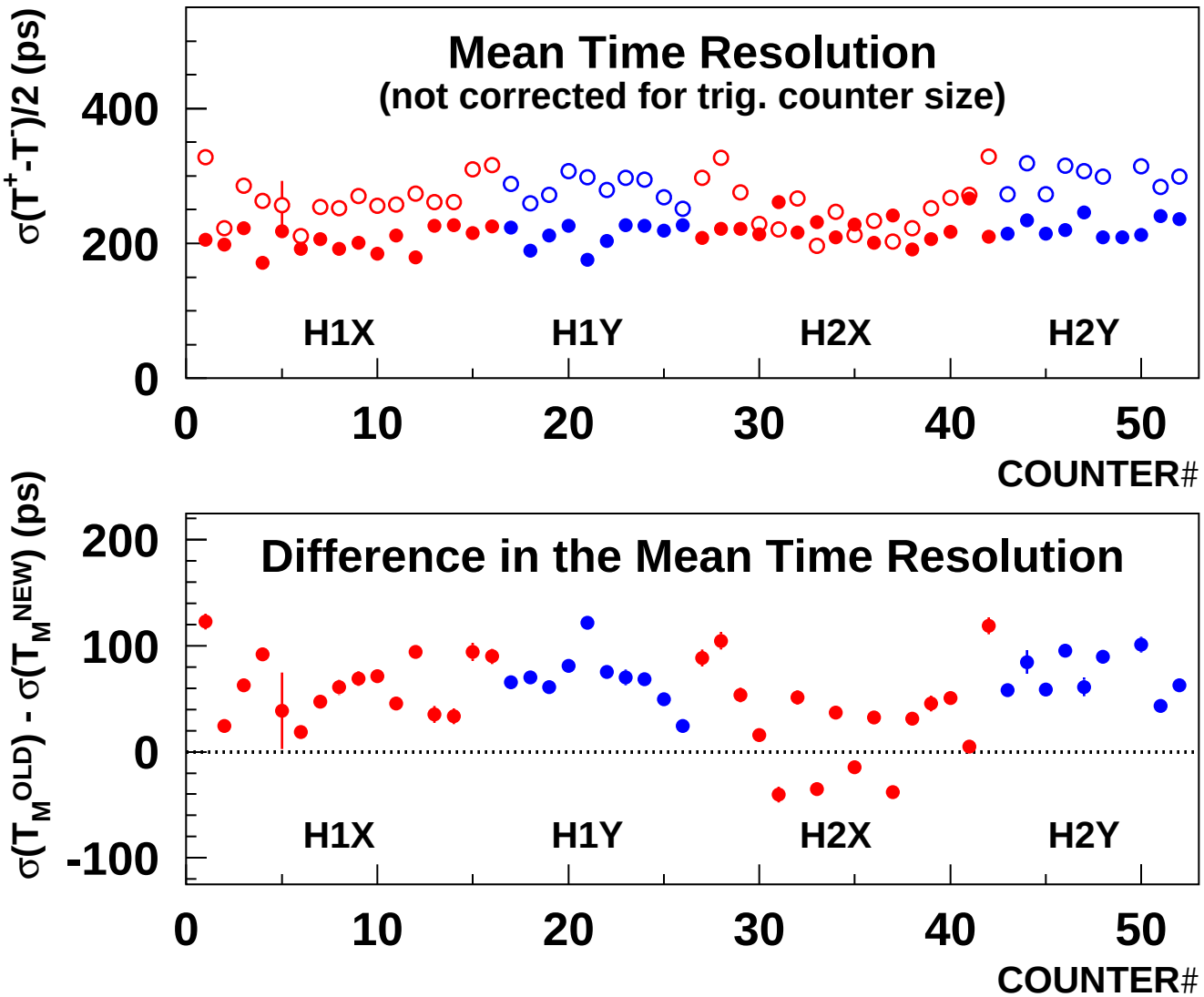
HMS Hodoscope PMT Change



HMS Hodoscope PMT Change



HMS Hodoscope PMT Change



Progress in HMS detectors restoration:

- 01/02/07 – moved HMS hodoscope in Hall C;
- 01/03/07 – moved hodoscope in HMS hut, installed in the detector package;
- 01/05/07 – checked signals from the hodoscope at the patch panel in the electronic room;
- 01/08/07 – started restoration of HMS/SOS cabling;
- next week – start HMS hodoscope gain matching.