

ANNECY 3 October 2001

PRELIMINARY RESULTS
FROM MICROCELL TEST SYSTEM

GENOA'S GROUP

PRESENTED BY FLAVIO FONTANELLI

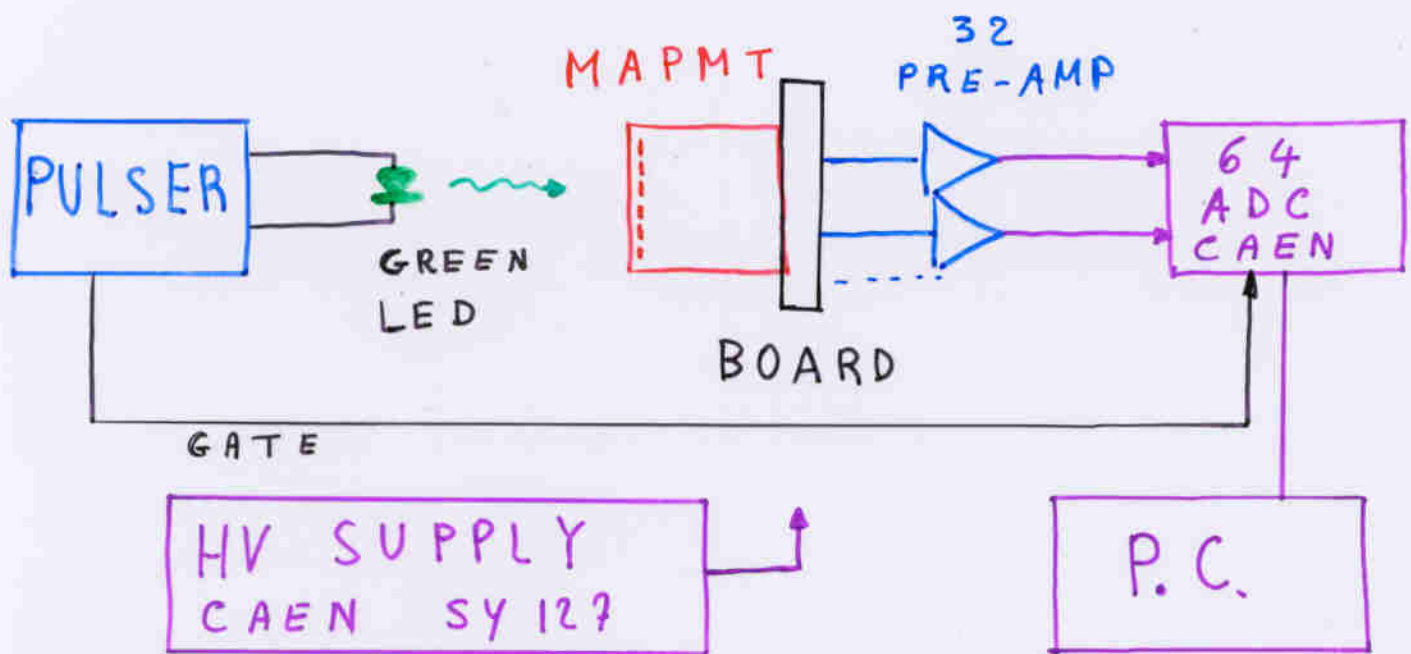
SYSTEM DESCRIPTION

MAPMT RESPONSE

GAIN UNIFORMITY

CROSSTALK

FUTURE PLANS



LIGHT SOURCE

GREEN LED PULSED
BY LECROY
 $\Delta T = 400 \text{ ns}$

PREAMPLIFIER

HOMEMADE DISCRETE
PREAMPLIFIER
WIDE BAND $\approx 200 \text{ MHz}$

ADC

VME BOARD
64 CH. 12 BITS

CROSS TALK

MAPMT with MASK

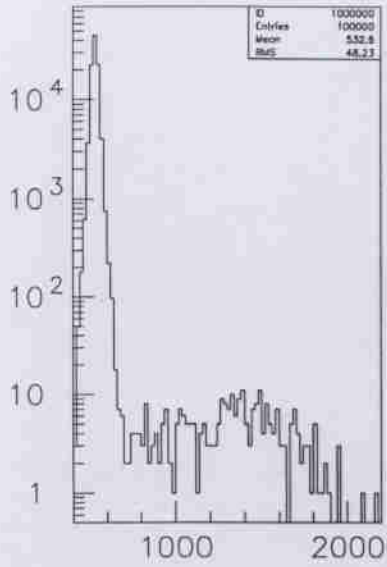
ONLY 1 PIXEL LEFT

EXPOSED TO LIGHT

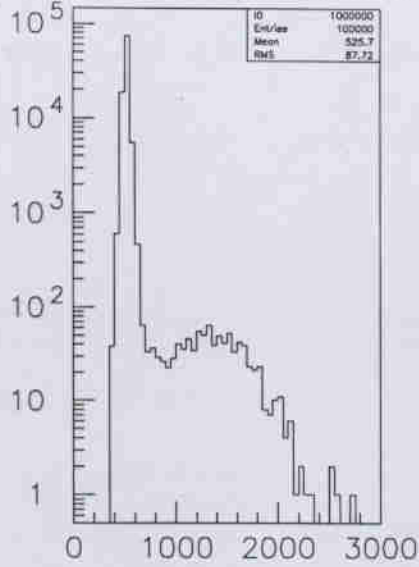
RESULT:

3.1 %

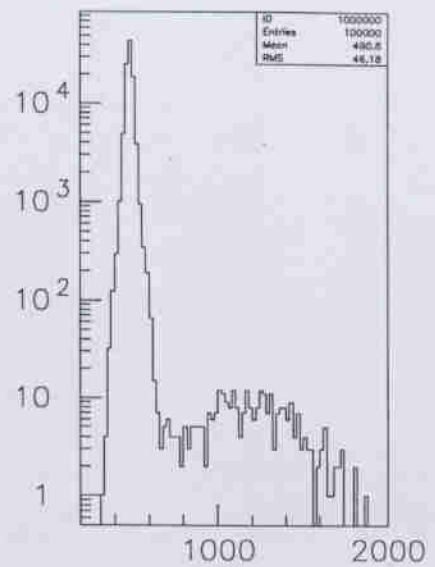
Response of 9 pixels @ 950 V



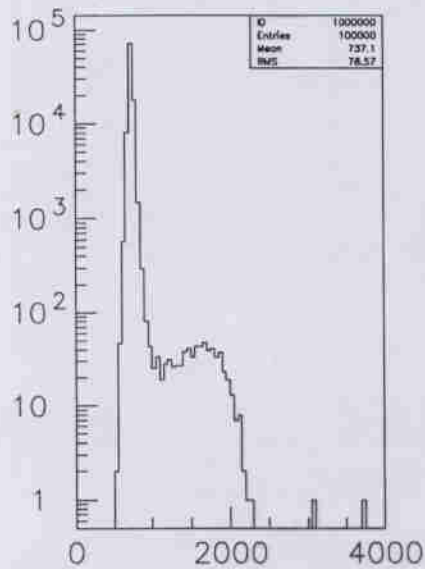
y1



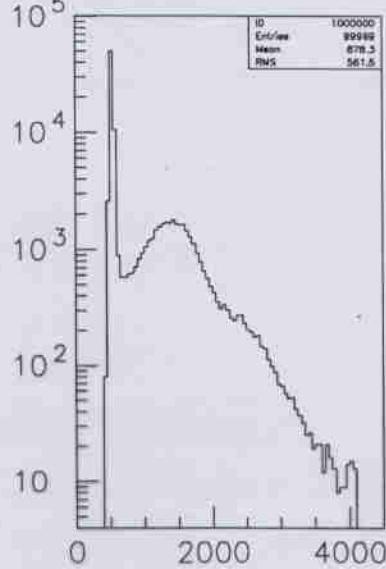
y2



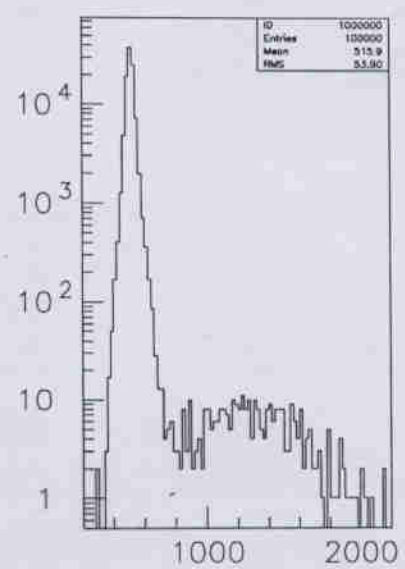
y3



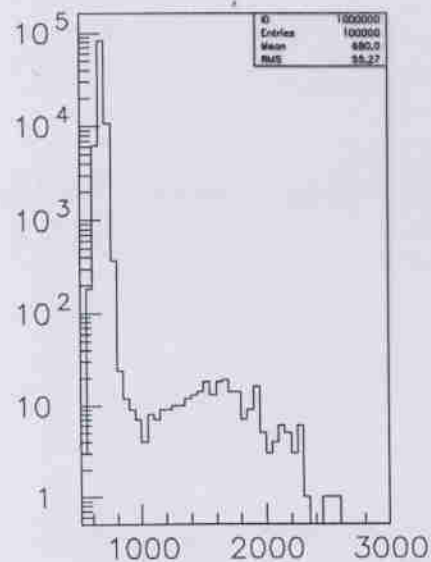
y4



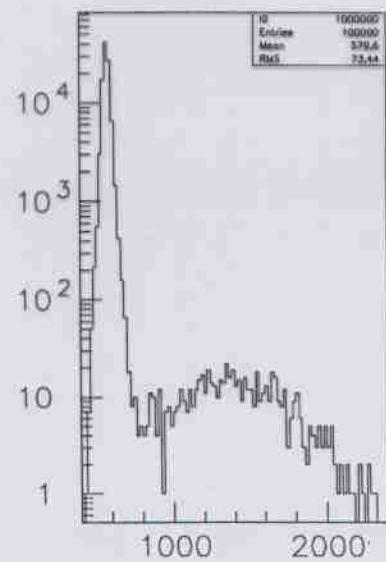
y5



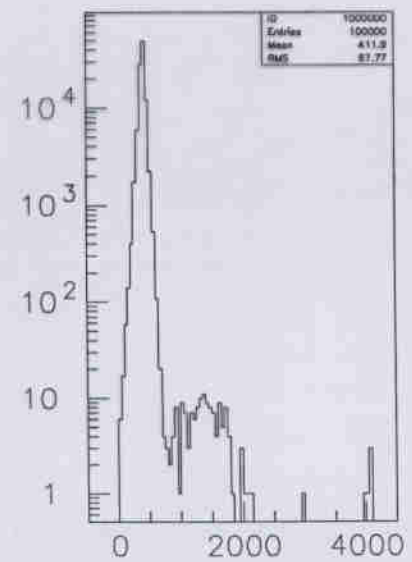
y6



y7

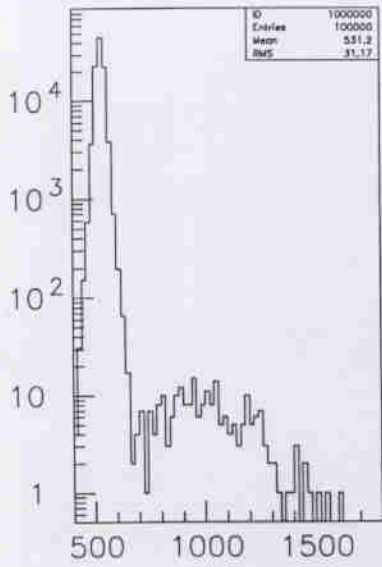


y8

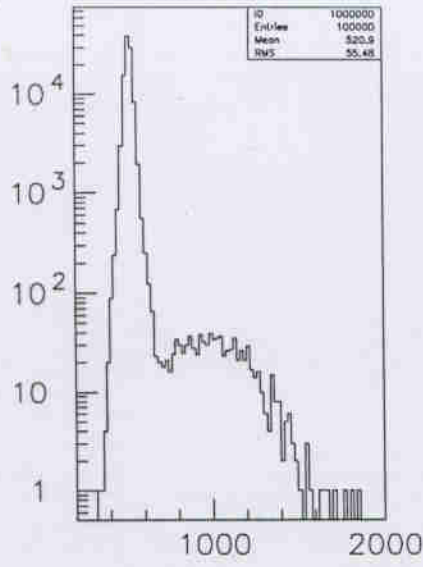


ADC Counts
y9

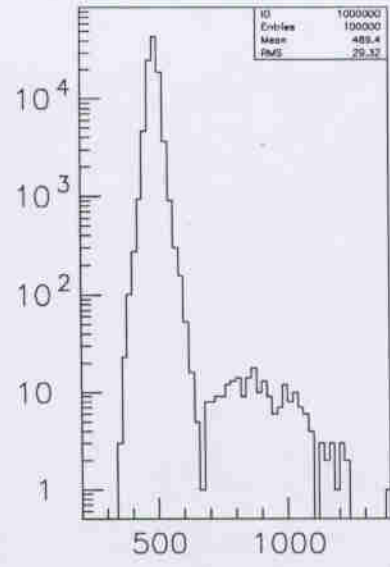
900 Volt



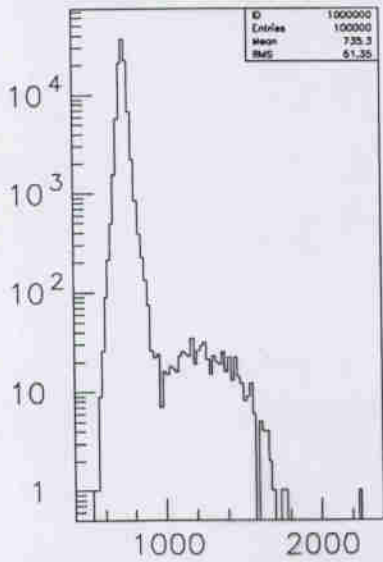
y1



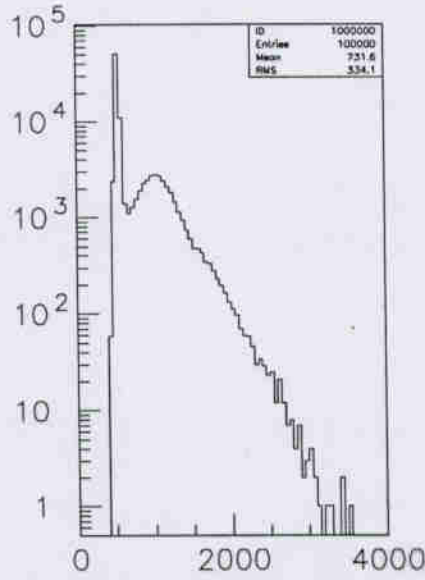
y2



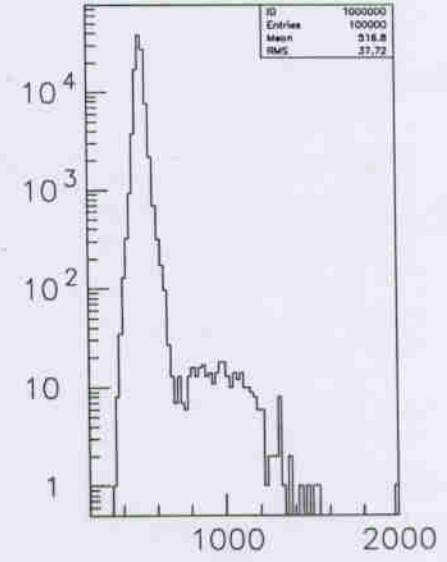
y3



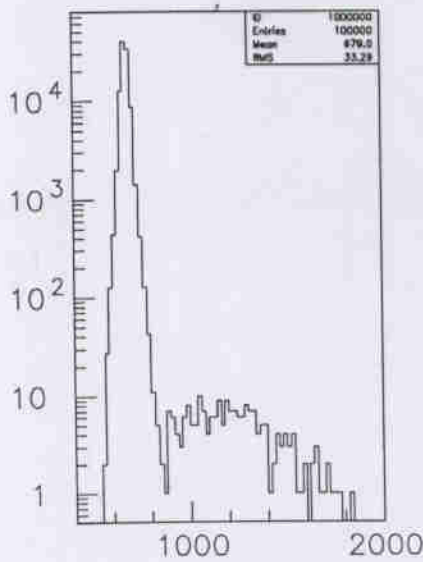
y4



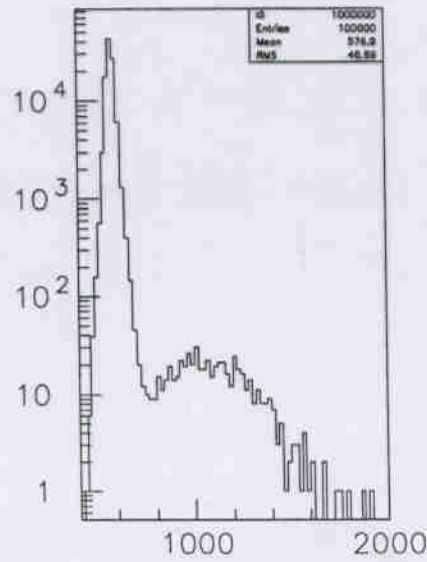
y5



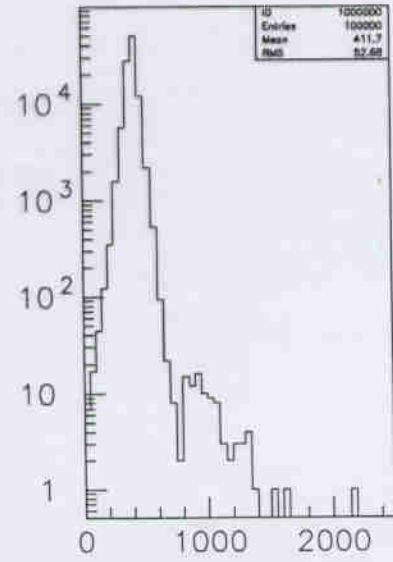
y6



y7

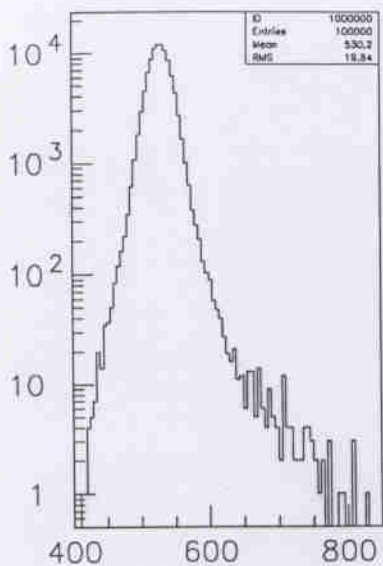


y8

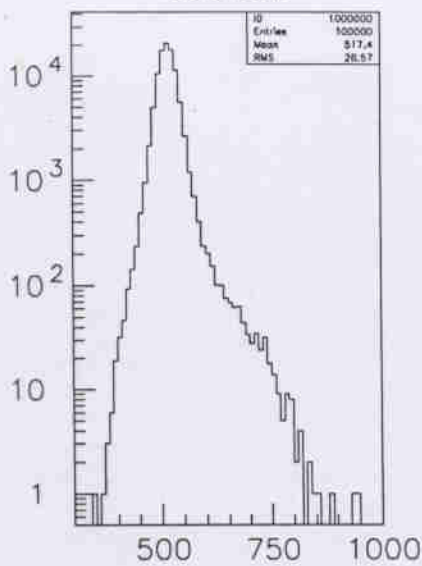


y9

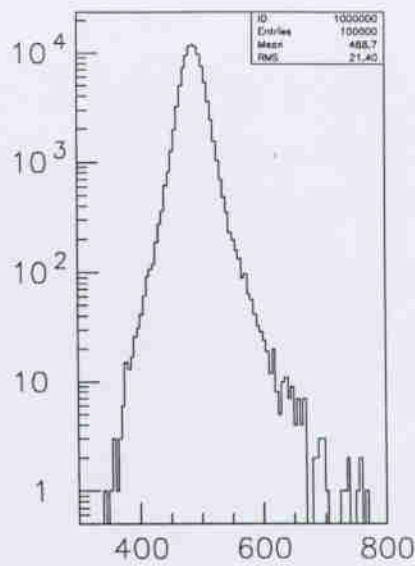
800 Volt



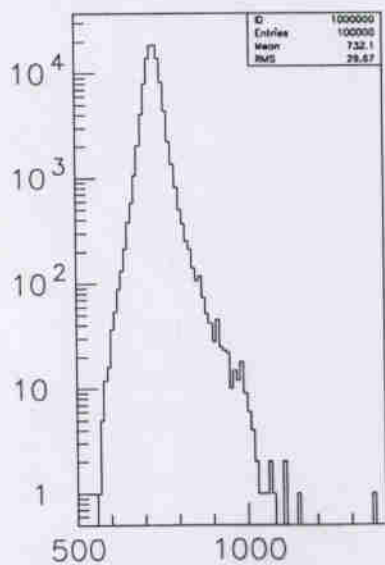
y1



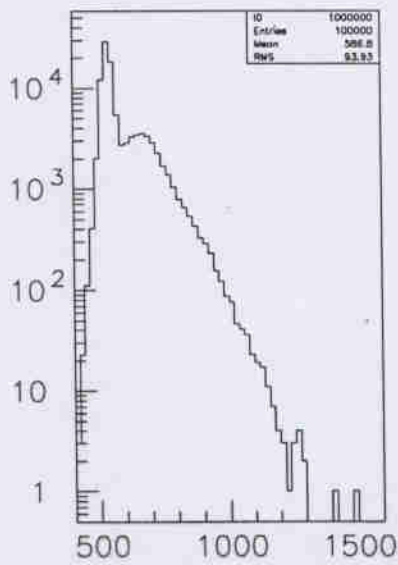
y2



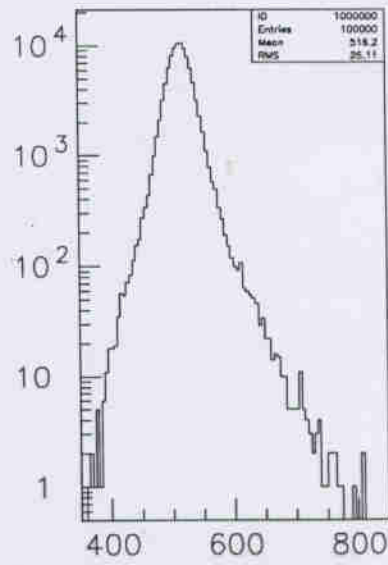
y3



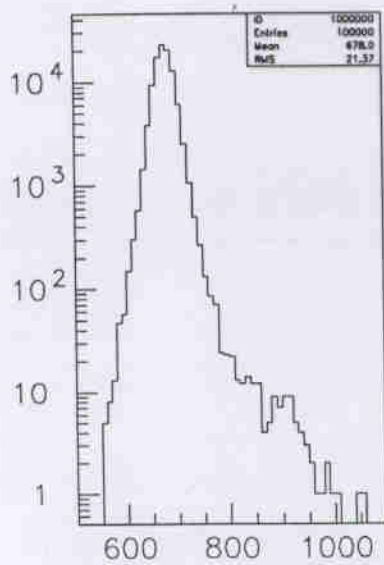
y4



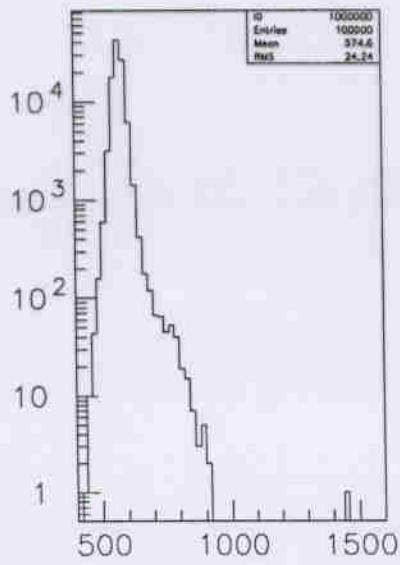
y5



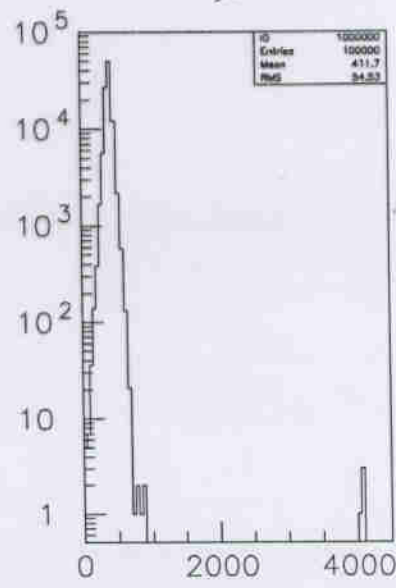
y6



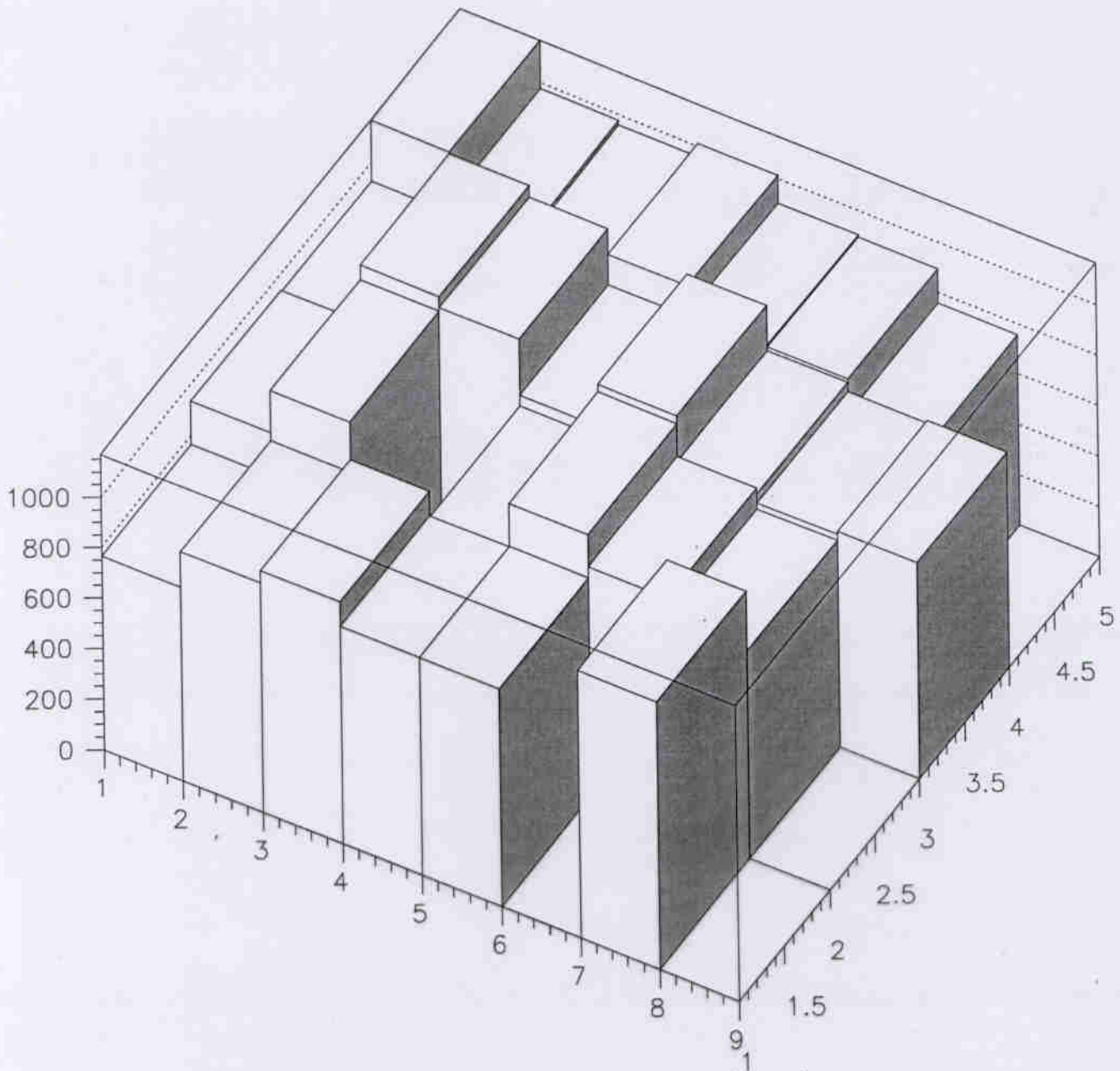
y7



y8



y9



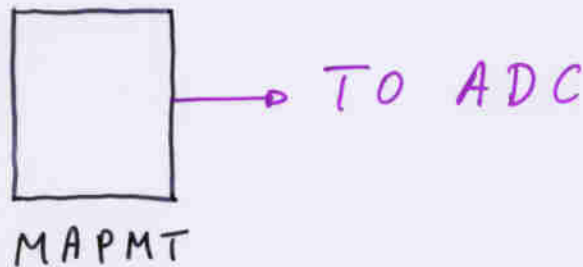
Single Photon Response Uniformity

STUDY OF GAIN UNIFORMITY

PLEASE NOTE

MAPMT GAIN UNIFORMITY,
PHOTOCATHODE EFFICIENCY AND
UNIFORMITY NOT INCLUDED

GREEN LED
D
LOW LIGHT
LEVEL



(SINGLE PHOTON
REGIME)

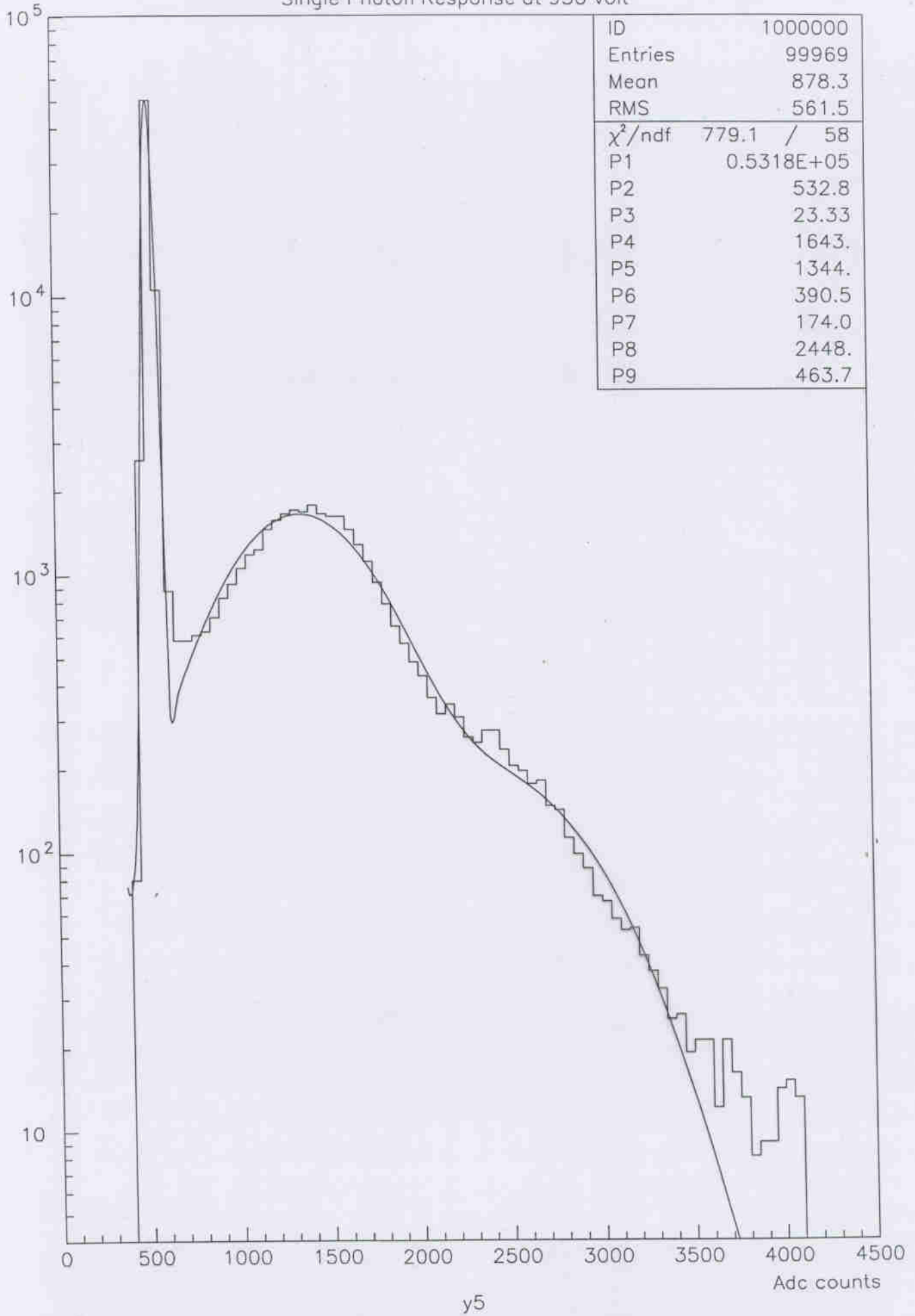
AVERAGE PULSE AMPLITUDE

1.24	1.04	1.02	1.08	0.96	0.94	0.80	
0.99	1.23	1.18	0.95	1.13	0.93	0.89	0.91
0.99	1.17		0.90	1.09	0.96	0.87	
0.81	0.96	1.01	0.91	0.91		1.12	

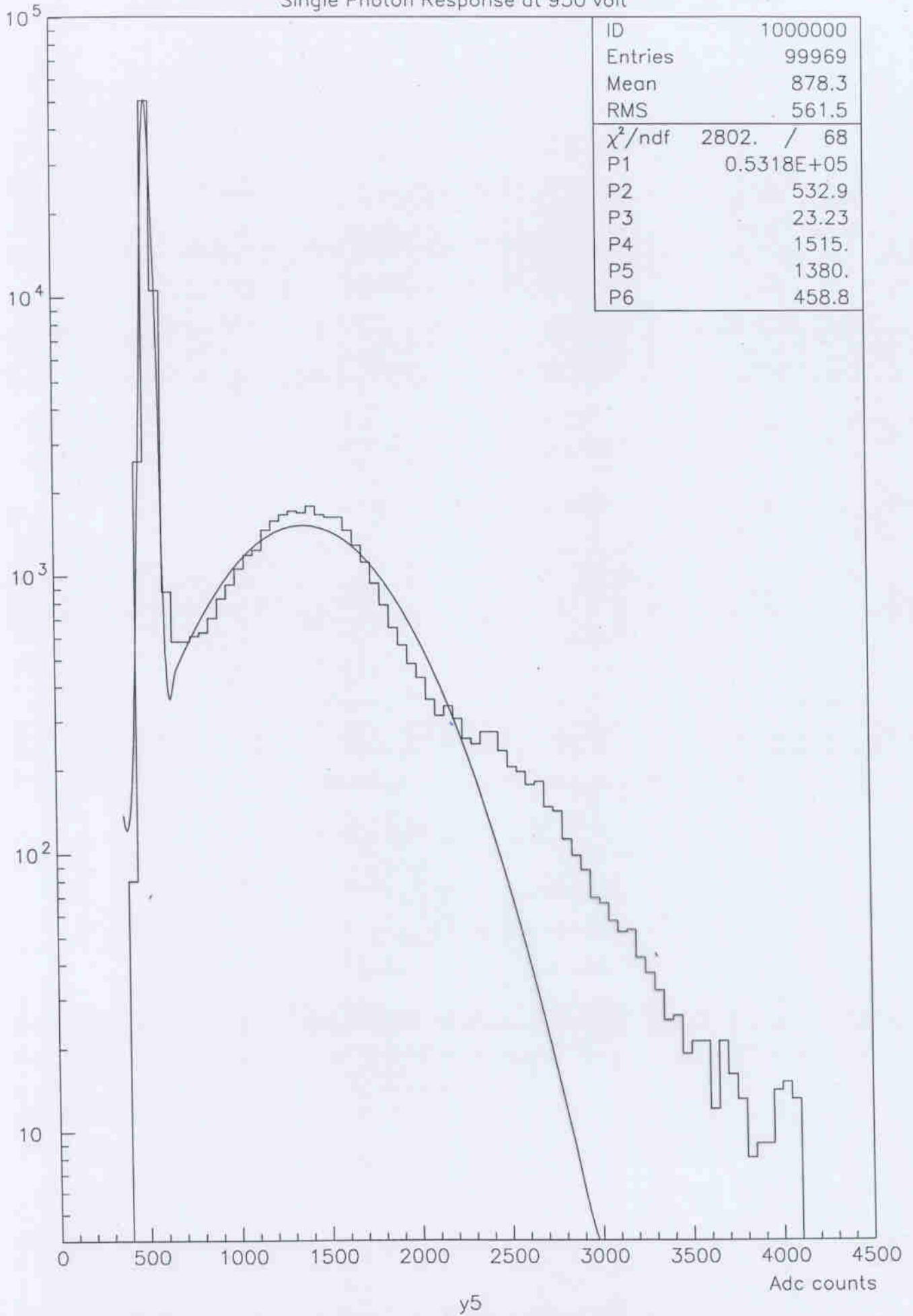
$$\sigma = 12\%$$

Single Photon Response at 950 volt

ID	1000000
Entries	99969
Mean	878.3
RMS	561.5
χ^2/ndf	779.1 / 58
P1	0.5318E+05
P2	532.8
P3	23.33
P4	1643.
P5	1344.
P6	390.5
P7	174.0
P8	2448.
P9	463.7



Single Photon Response at 950 volt



FUTURE PLANS

- 1) BUILD THE FULL SYSTEM
(4 TUBES, 256 CHANNELS)
- 2) INSTALL THE MOTORIZED
MICRO POSITIONERS
- 3) CHECK CATHODE SENSITIVITY
AND UNIFORMITY AT
DIFFERENT WAVELENGTHS
- 4) OPTIMIZE THE VOLTAGE
DIVIDER
- 5) - - - -