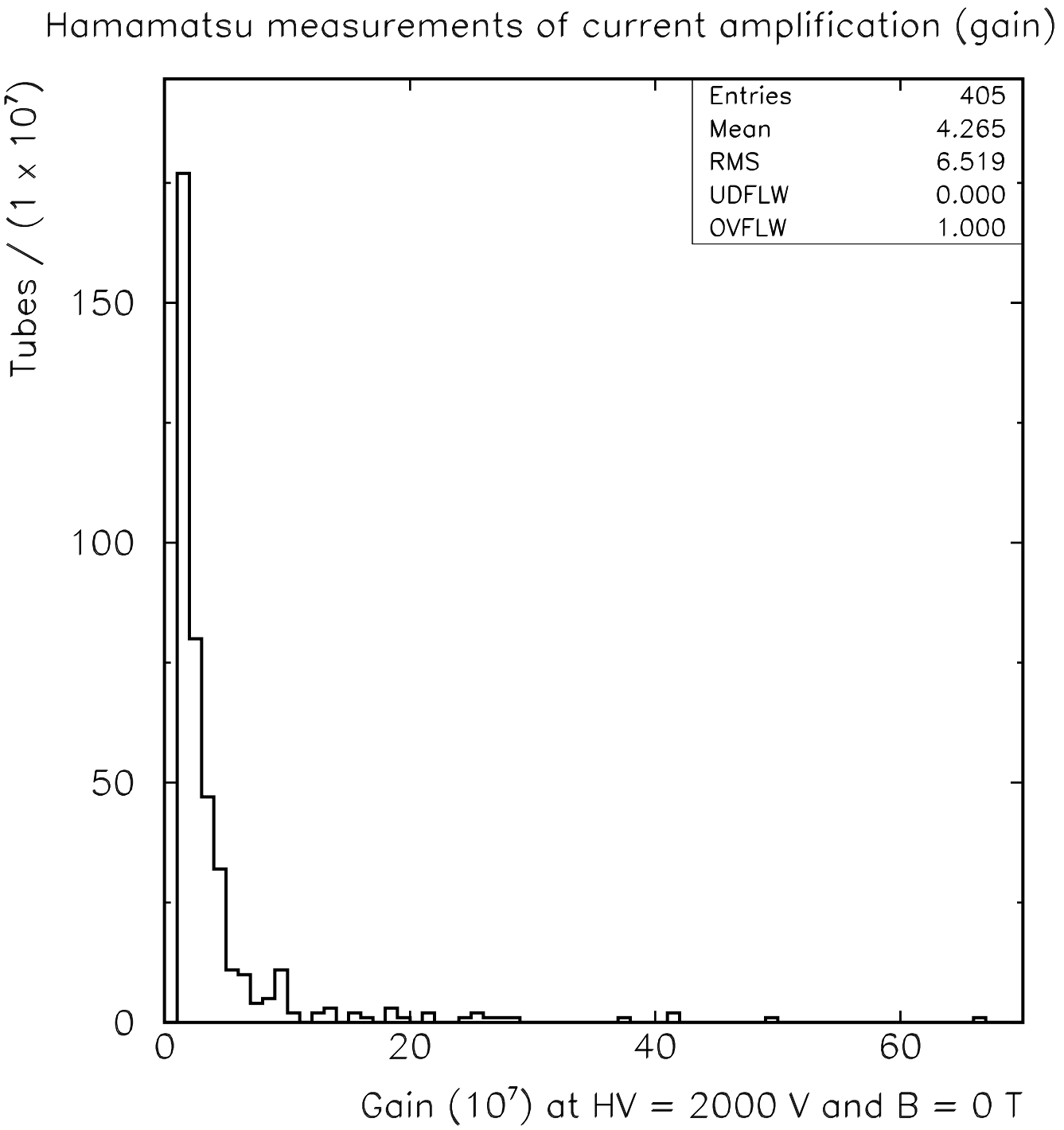
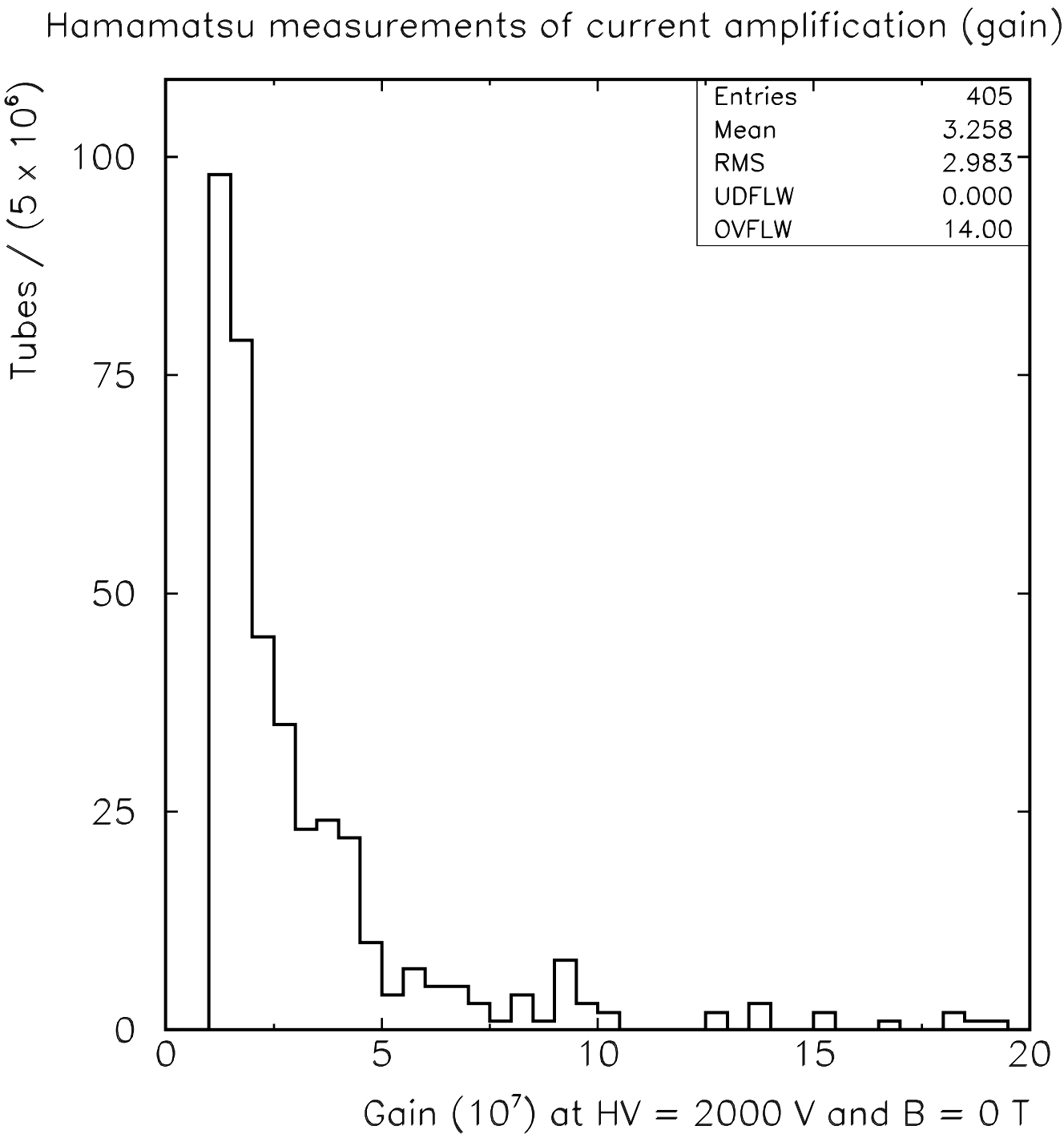
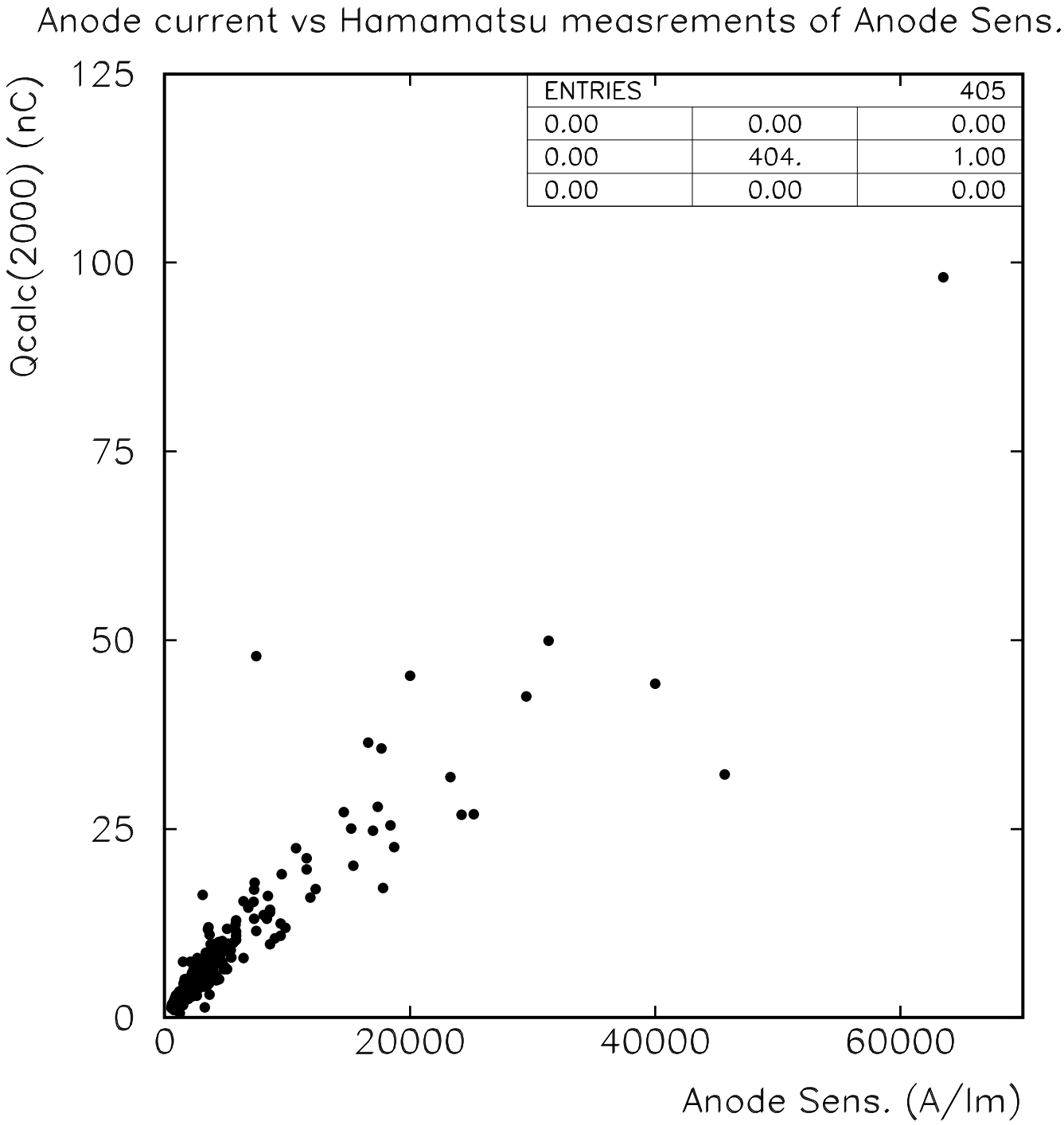
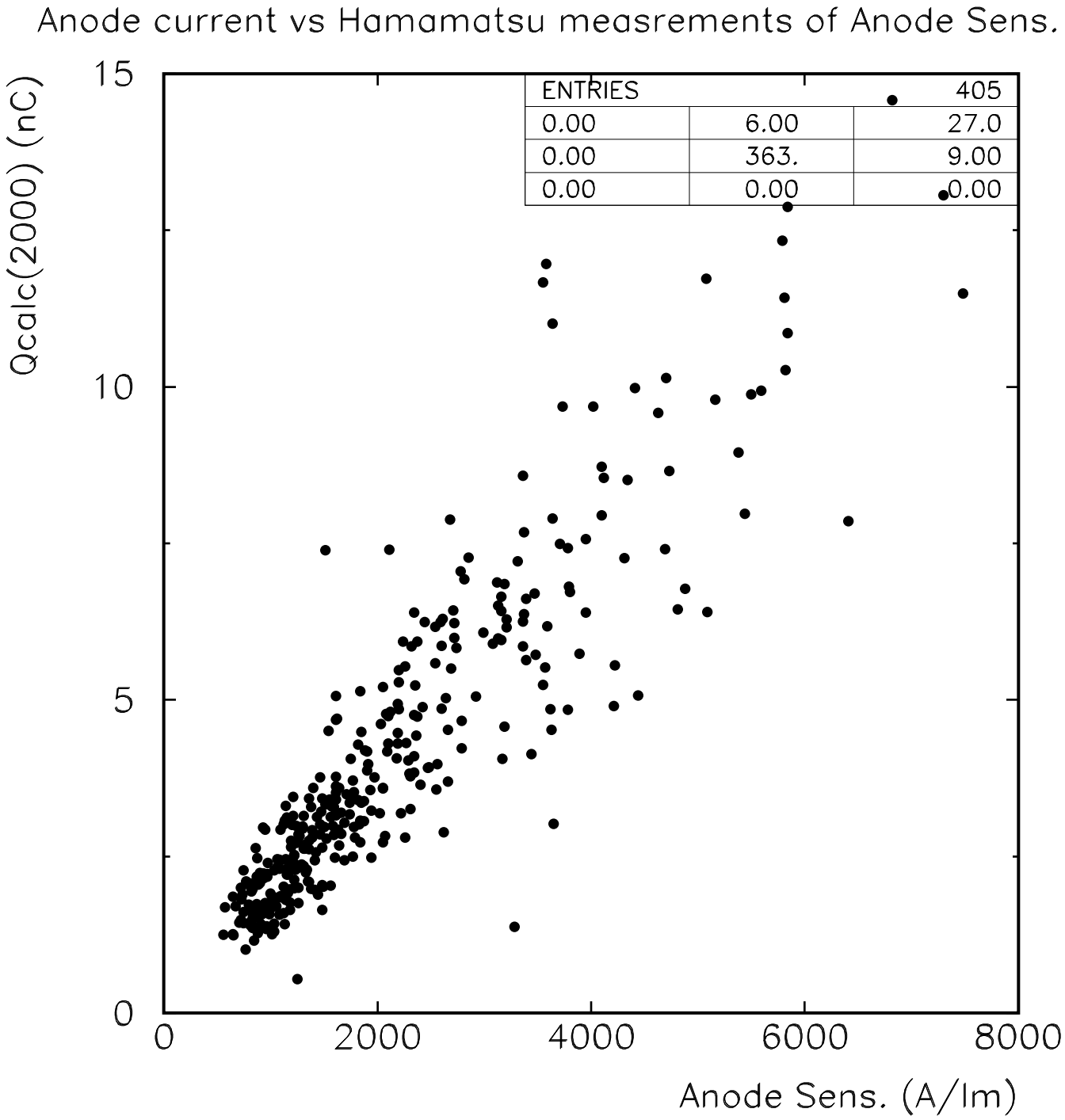
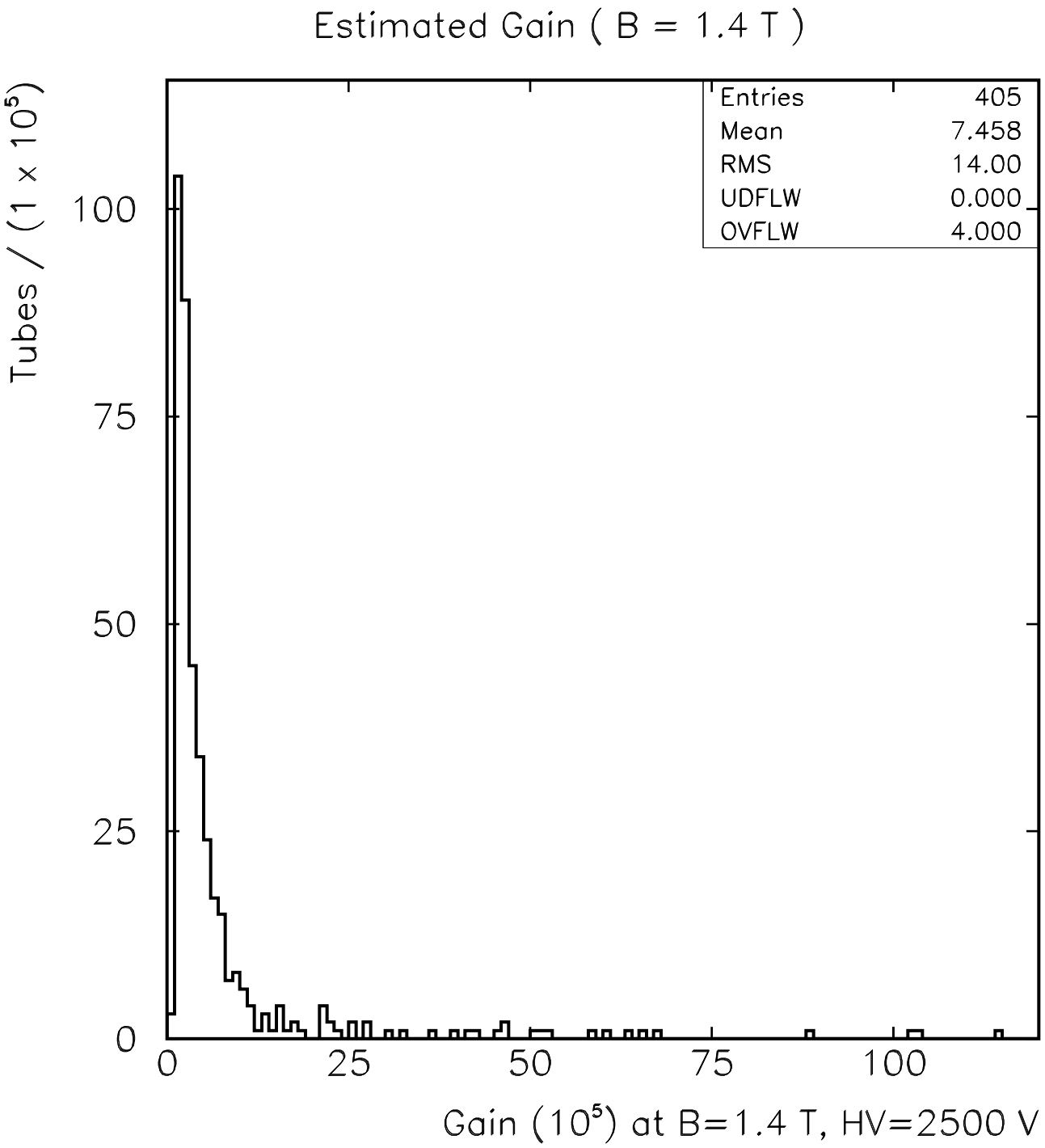
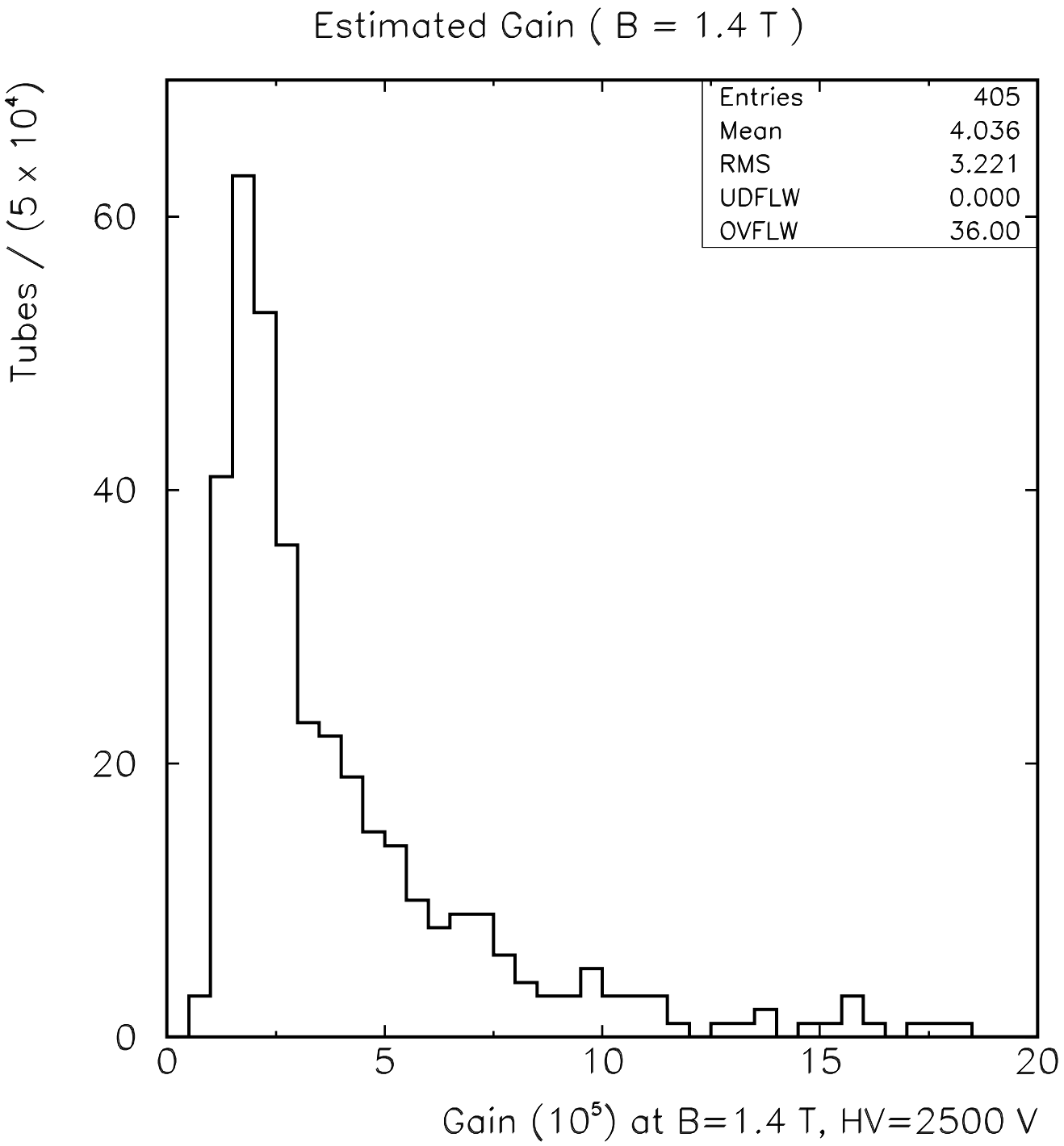

Hamamatsu measurements of current amplification (gain)
Entries 405
Mean 4.265
RMS 6.519
UDFLW 0.000
OVFLW 1.000
Tubes / (1 x 10⁷)
150
100
50
0
0
20
40
60
Gain (10⁷) at HV = 2000 V and B = 0 T

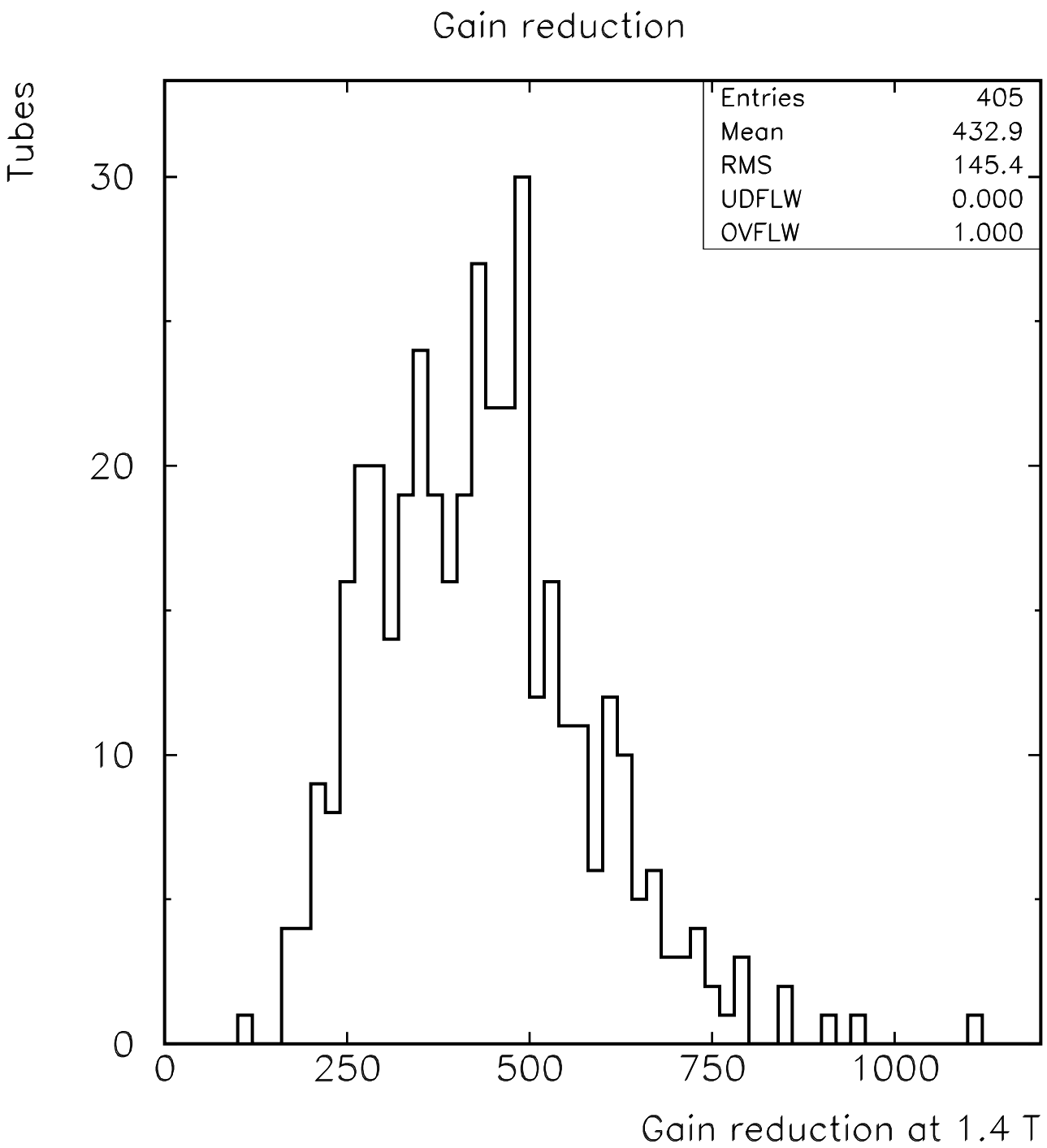

Hamamatsu measurements of current amplification (gain)
Entries 405
Mean 3.258
RMS 2.983
UDFLW 0.000
OVFLW 14.00
Tubes / (5 x 10^6)
100
75
50
25
0
0
5
10
15
20
Gain (10^7) at HV = 2000 V and B = 0 T

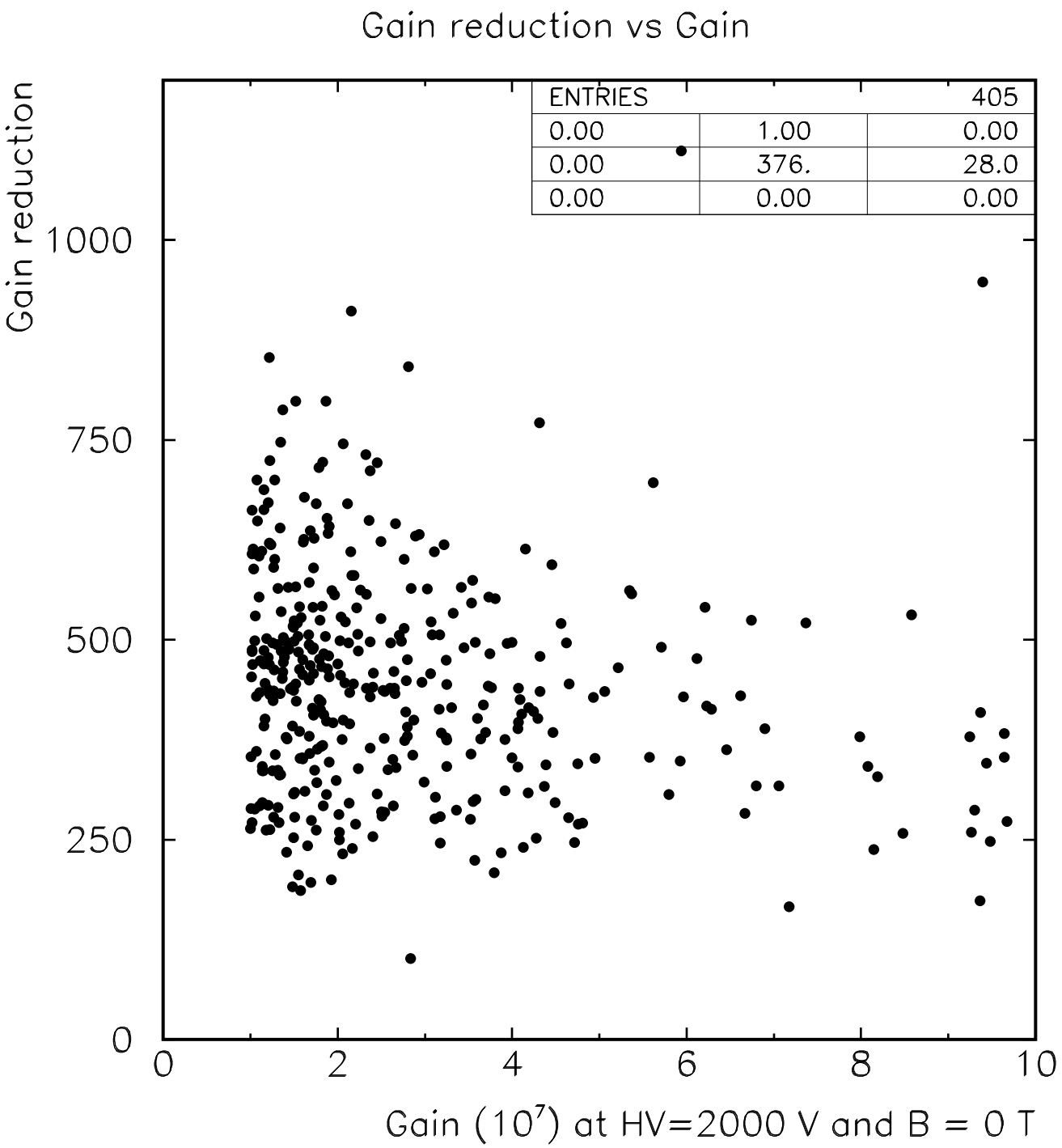

Anode current vs Hamamatsu measrements of Anode Sens.
ENTRIES 405
0.00 0.00 0.00
0.00 404. 1.00
0.00 0.00 0.00
Qcalc(2000) (nC)
125
100
75
50
25
0
0
20000
40000
60000
Anode Sens. (A/lm)

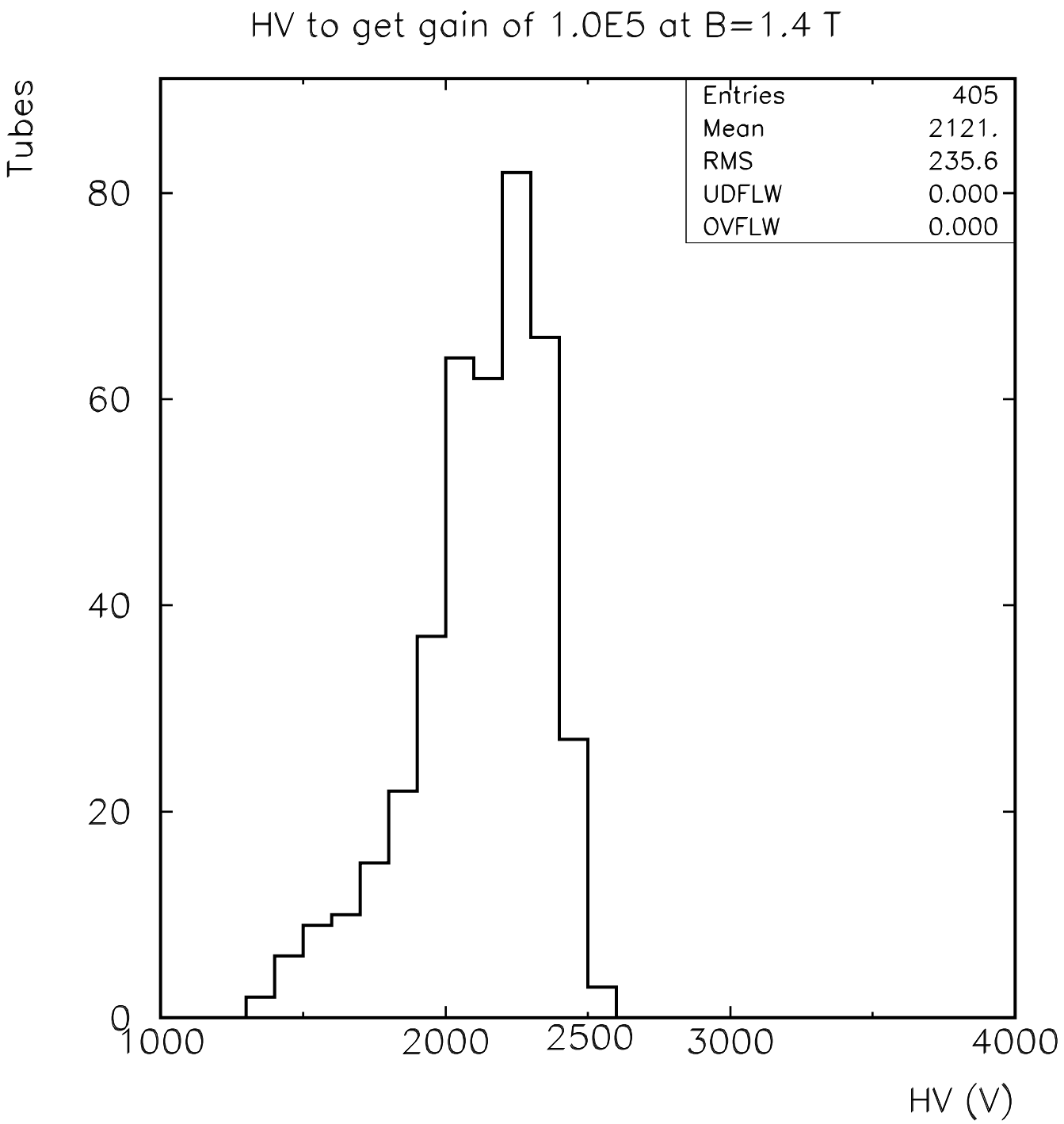

Anode current vs Hamamatsu measrements of Anode Sens.
ENTRIES 405
0.00 6.00 27.0
0.00 363. 9.00
0.00 0.00 0.00
Qcalc(2000) (nC)
15
10
5
0
0
2000
4000
6000
8000
Anode Sens. (A/lm)

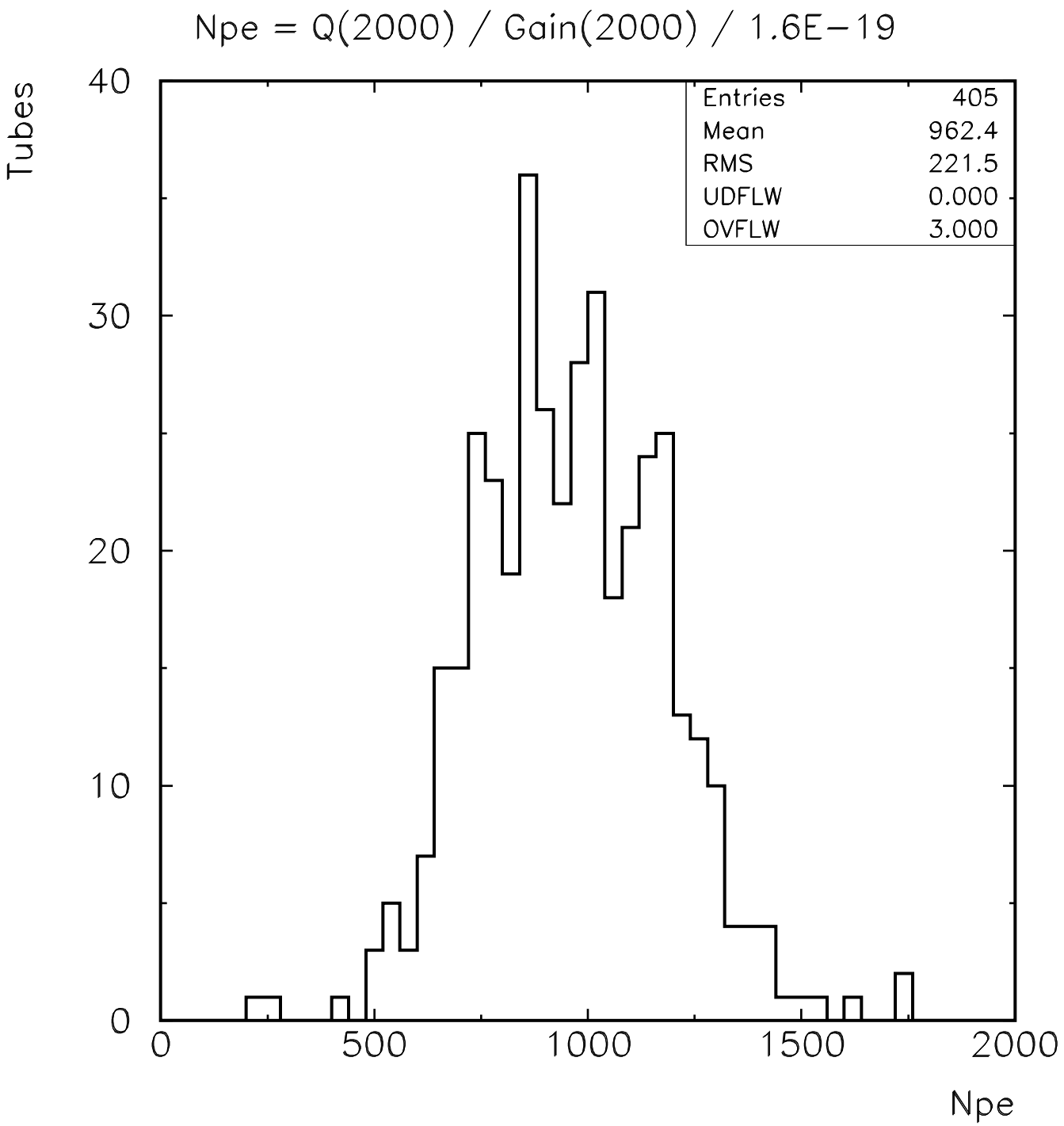

Estimated Gain (B = 1.4 T)
Entries 405
Mean 7.458
RMS 14.00
UDFLW 0.000
OVFLW 4.000
Tubes / (1 x 10^5)
0
25
50
75
100
0
25
50
75
100
Gain (10^5) at B=1.4 T, HV=2500 V

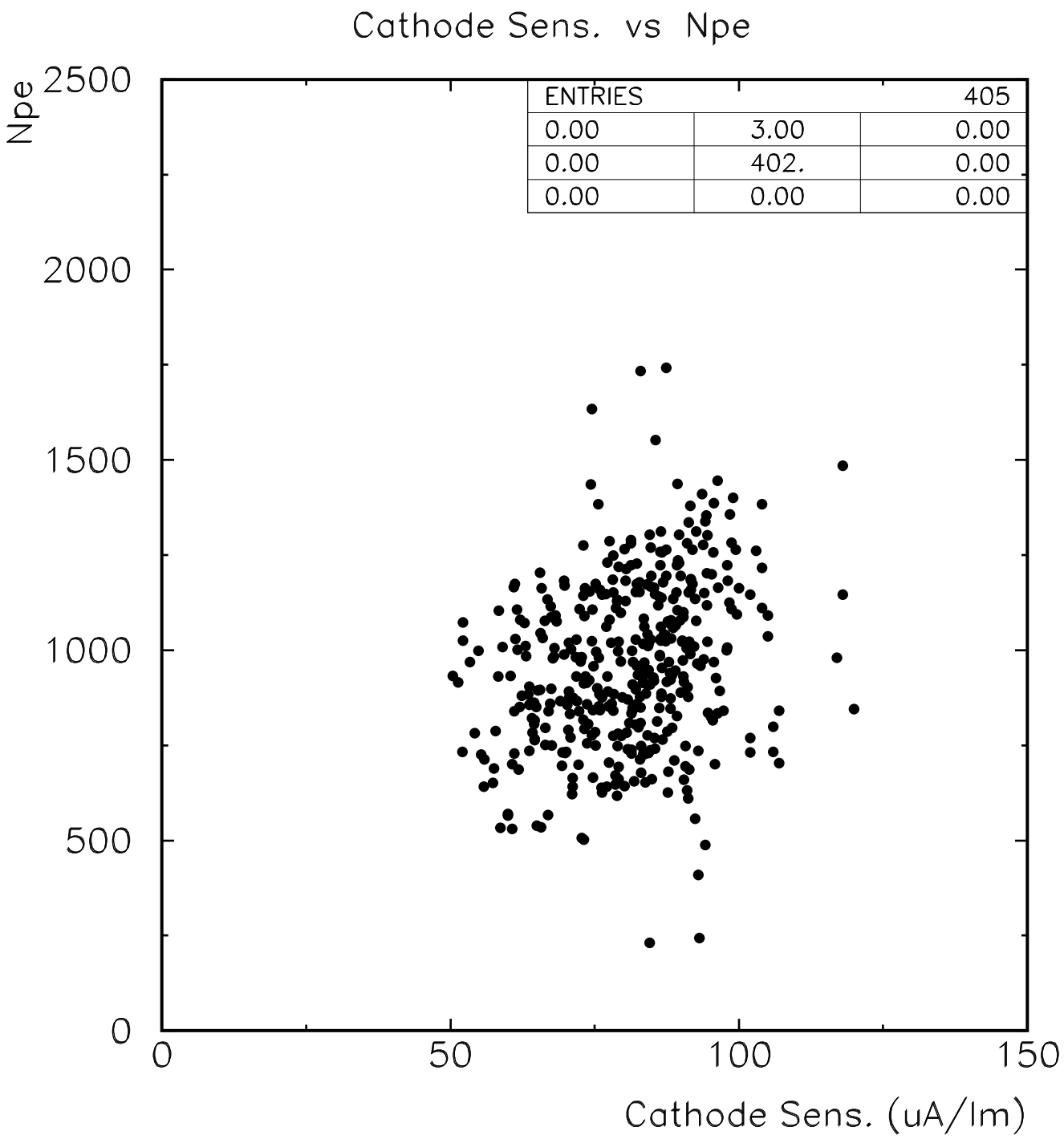

Estimated Gain (B = 1.4 T)
Entries 405
Mean 4.036
RMS 3.221
UDFLW 0.000
OVFLW 36.00
Tubes / (5 x 10⁴)
0
20
40
60
0
5
10
15
20
Gain (10⁵) at B=1.4 T, HV=2500 V

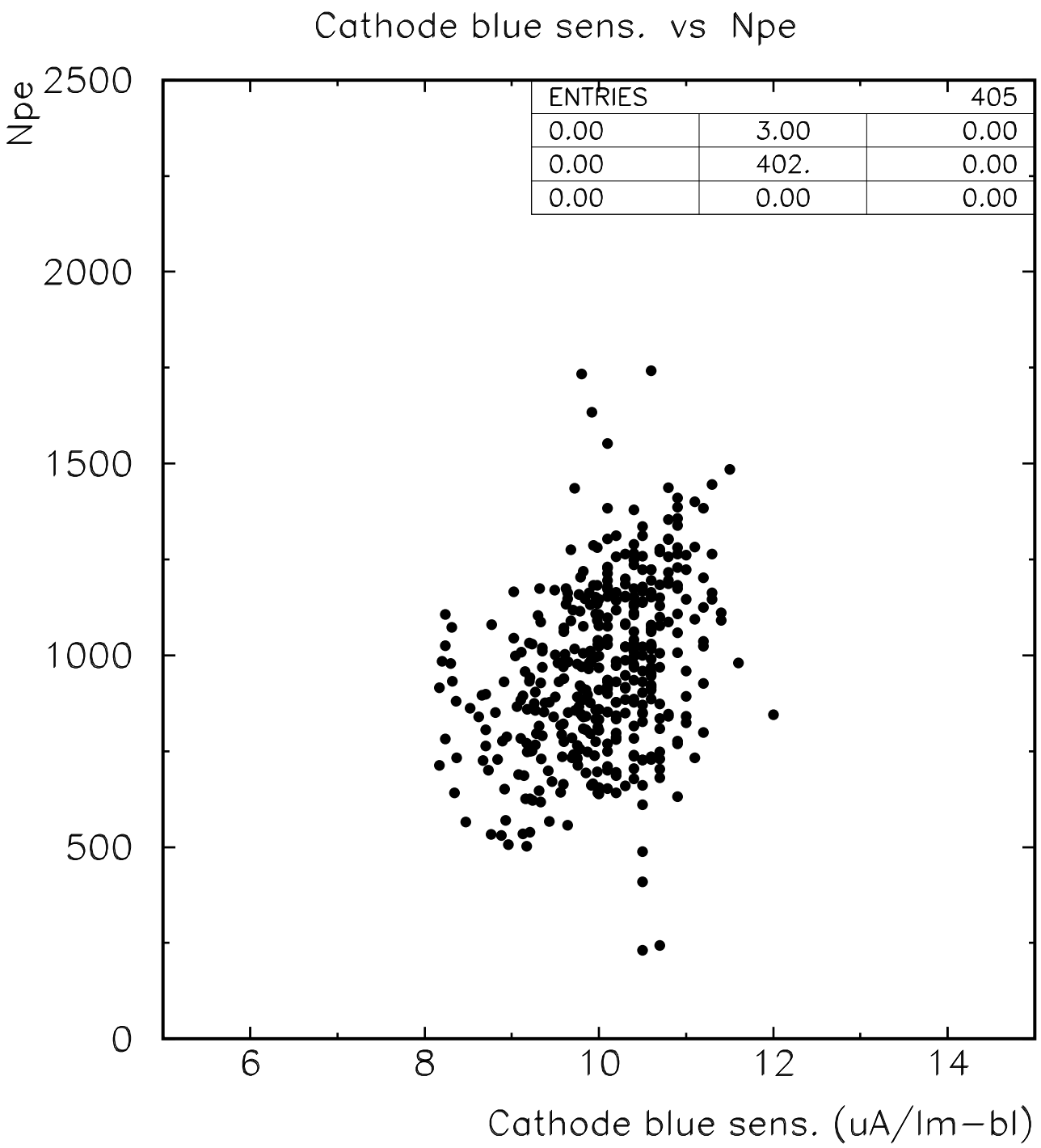

Gain reduction
Tubes
Entries 405
Mean 432.9
RMS 145.4
UDFLW 0.000
OVFLW 1.000
0
10
20
30
0
250
500
750
1000
Gain reduction at 1.4 T

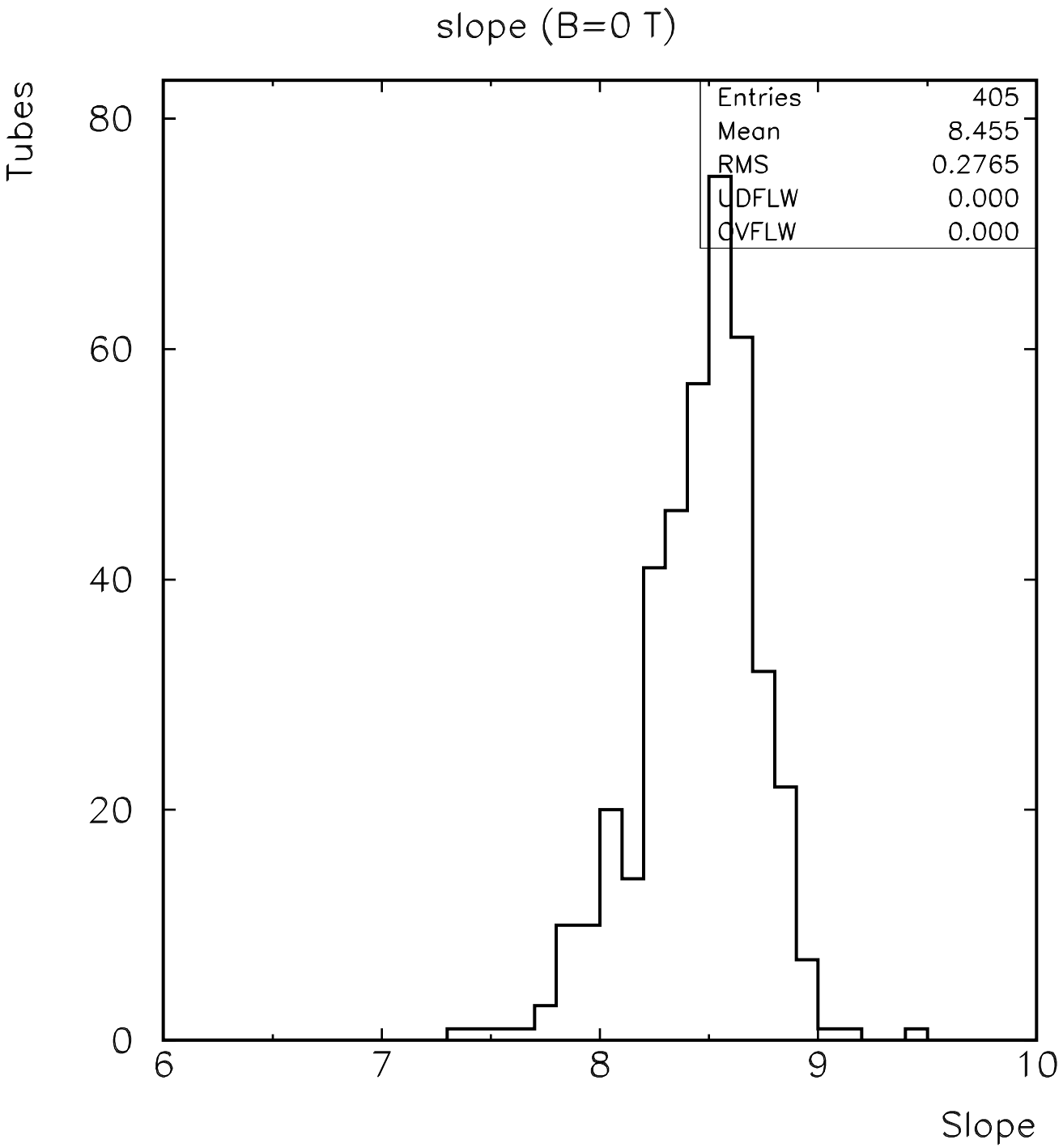

Gain reduction vs Gain
ENTRIES 405
0.00 1.00 0.00
0.00 376. 28.0
0.00 0.00 0.00
Gain reduction
1000
750
500
250
0
0
2
4
6
8
10
Gain (10^7) at HV=2000 V and B = 0 T

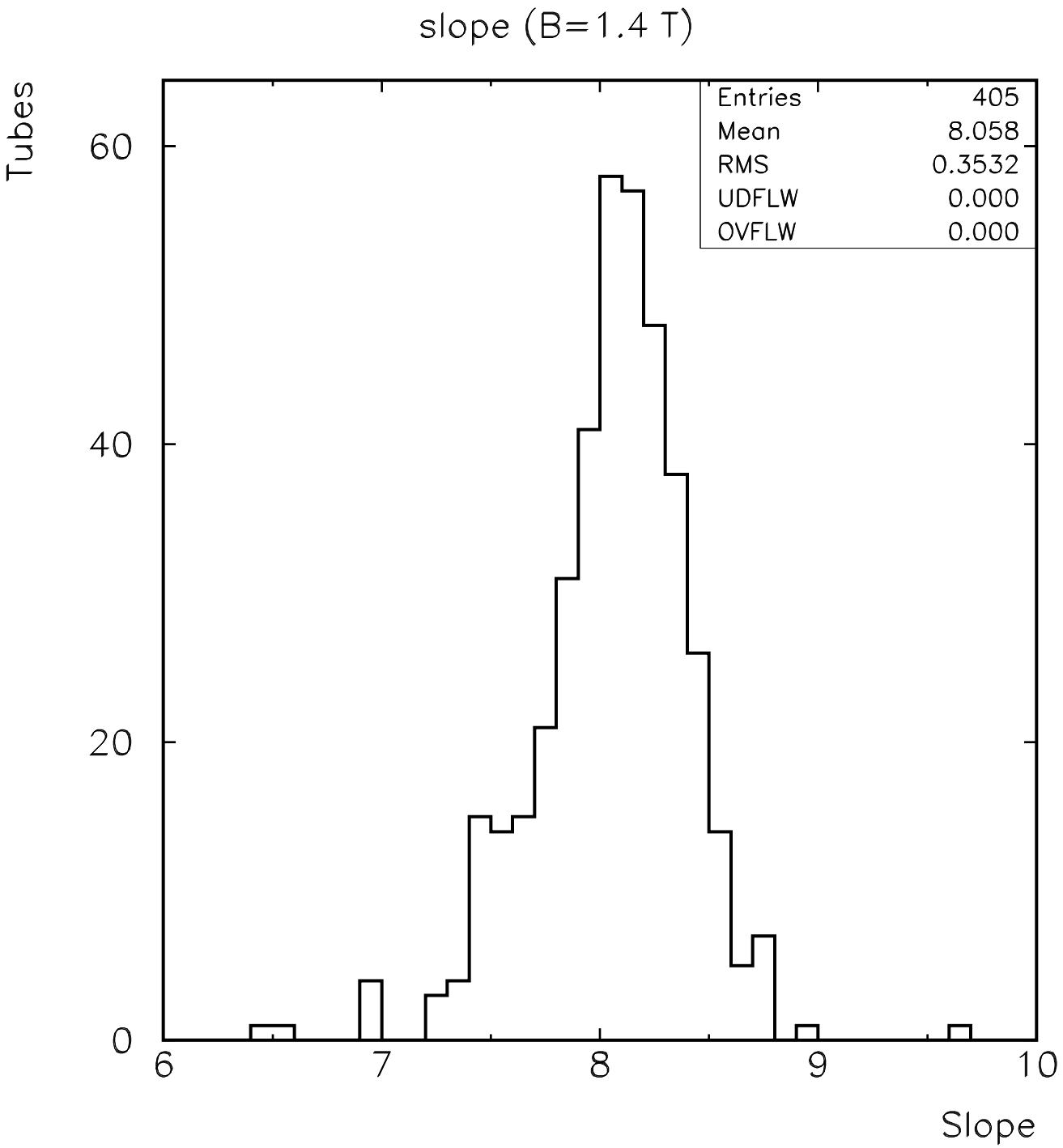

HV to get gain of 1.0E5 at B=1.4 T
Tubes
Entries 405
Mean 2121.
RMS 235.6
UDFLW 0.000
OVFLW 0.000
0
20
40
60
80
1000
2000
2500
3000
4000
HV (V)

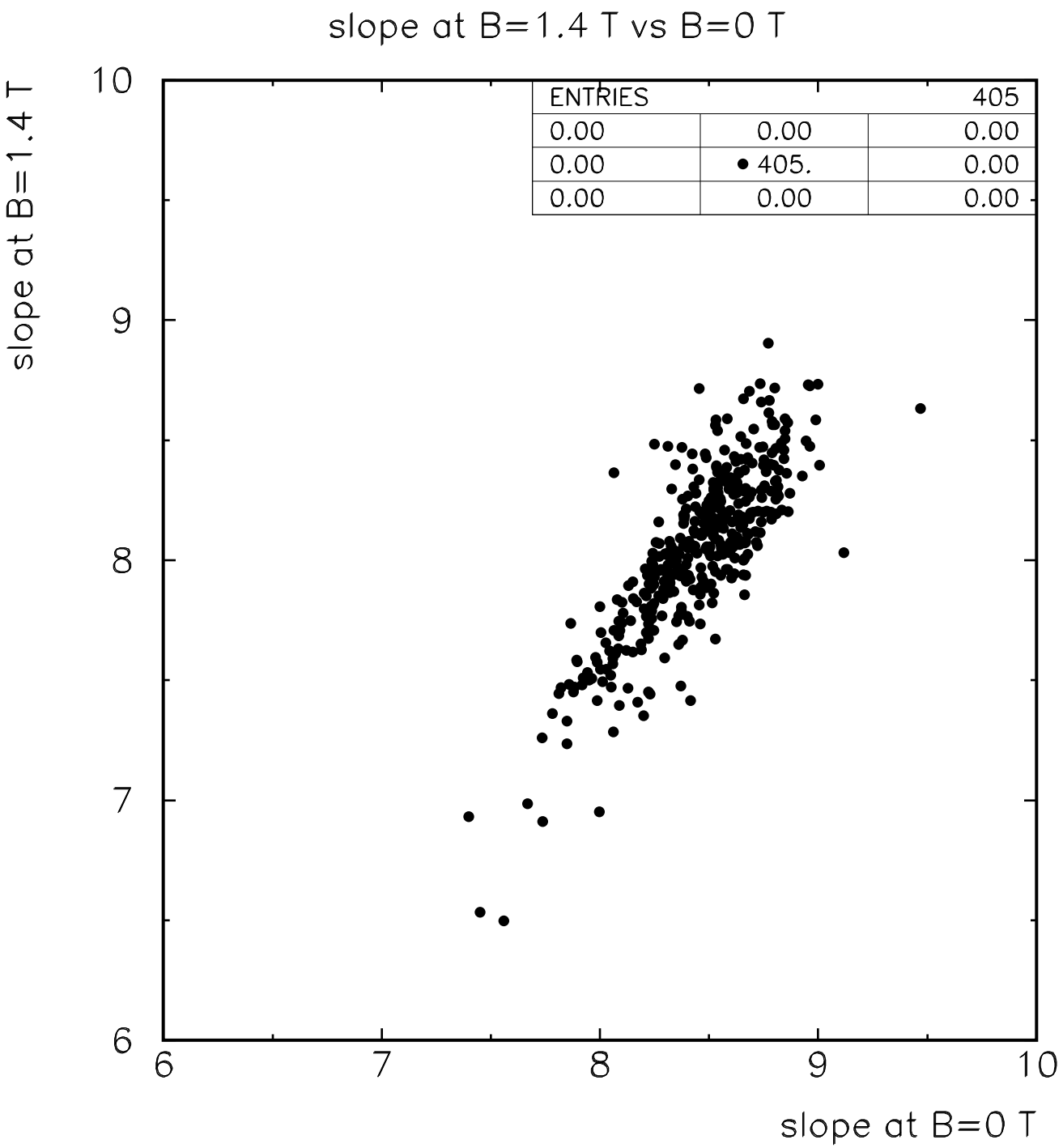

Npe = Q(2000) / Gain(2000) / 1.6E−19
Tubes
Npe
Entries 405
Mean 962.4
RMS 221.5
UDFLW 0.000
OVFLW 3.000
0
10
20
30
40
0
500
1000
1500
2000

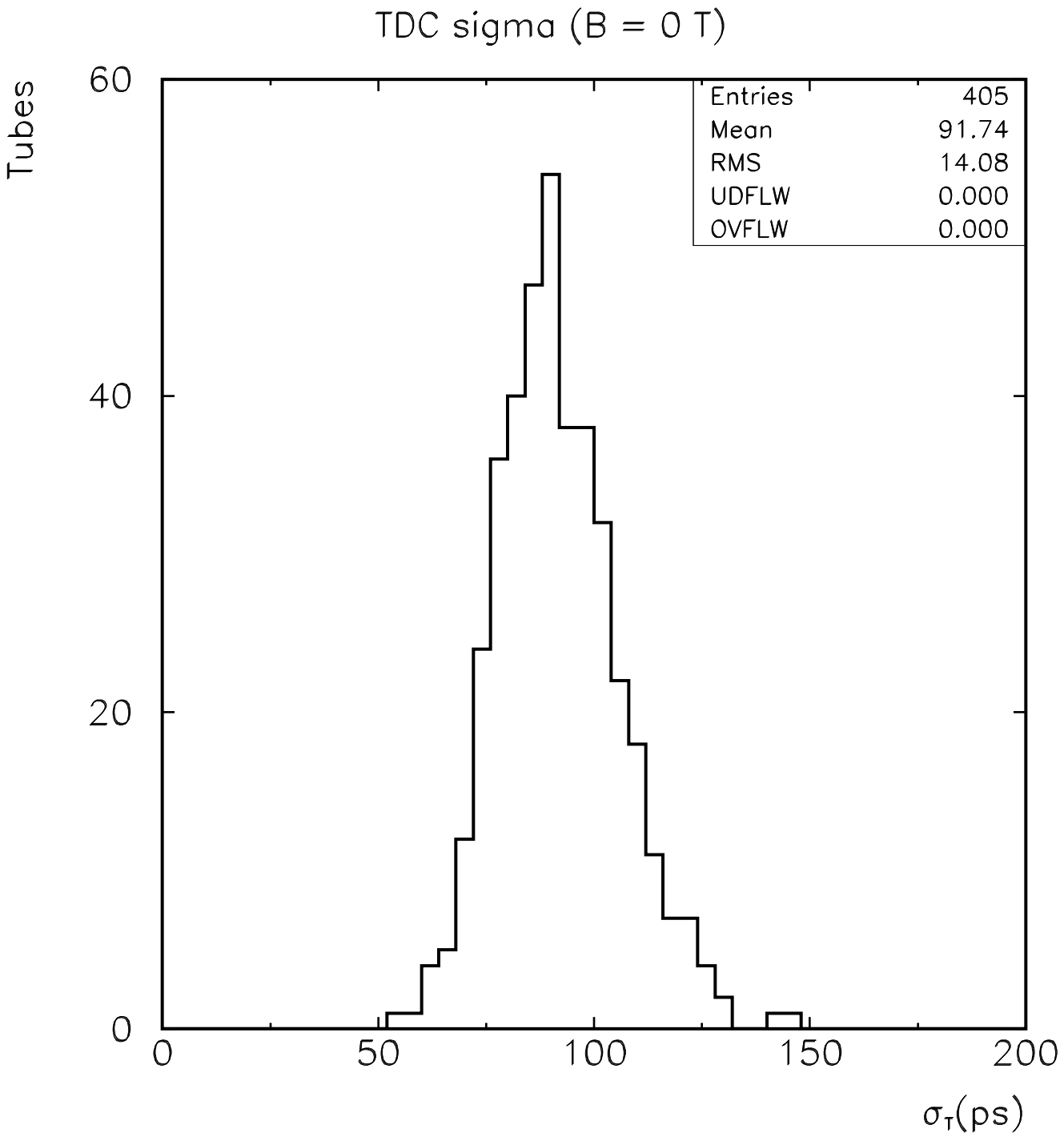

Cathode Sens. vs Npe
ENTRIES 405
0.00 3.00 0.00
0.00 402. 0.00
0.00 0.00 0.00
Npe
2500
2000
1500
1000
500
0
0
50
100
150
Cathode Sens. (uA/lm)

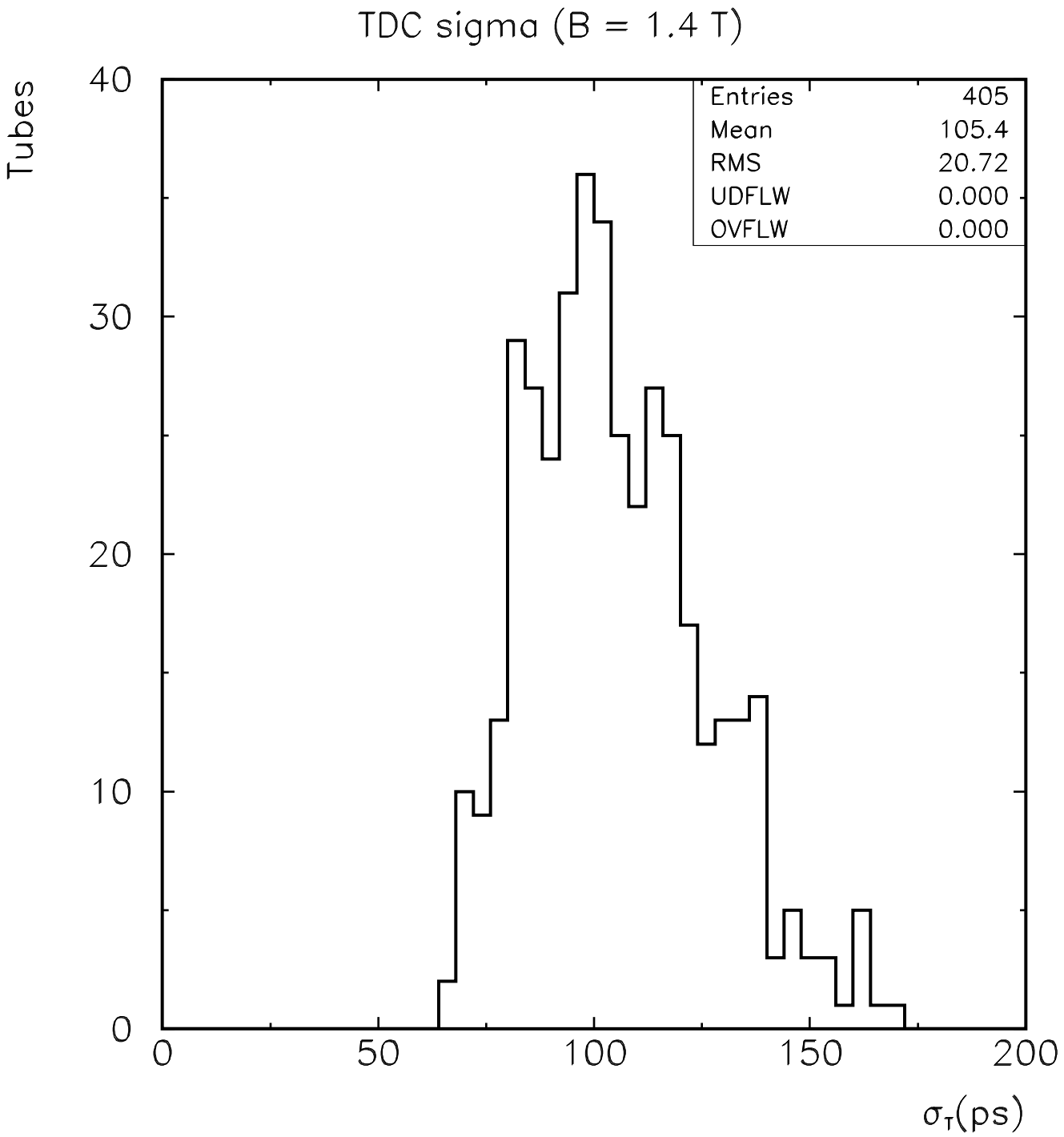

Cathode blue sens. vs Npe
Npe
2500
2000
1500
1000
500
0
6
8
10
12
14
Cathode blue sens. (uA/lm−bl)
ENTRIES 405
0.00 3.00 0.00
0.00 402. 0.00
0.00 0.00 0.00

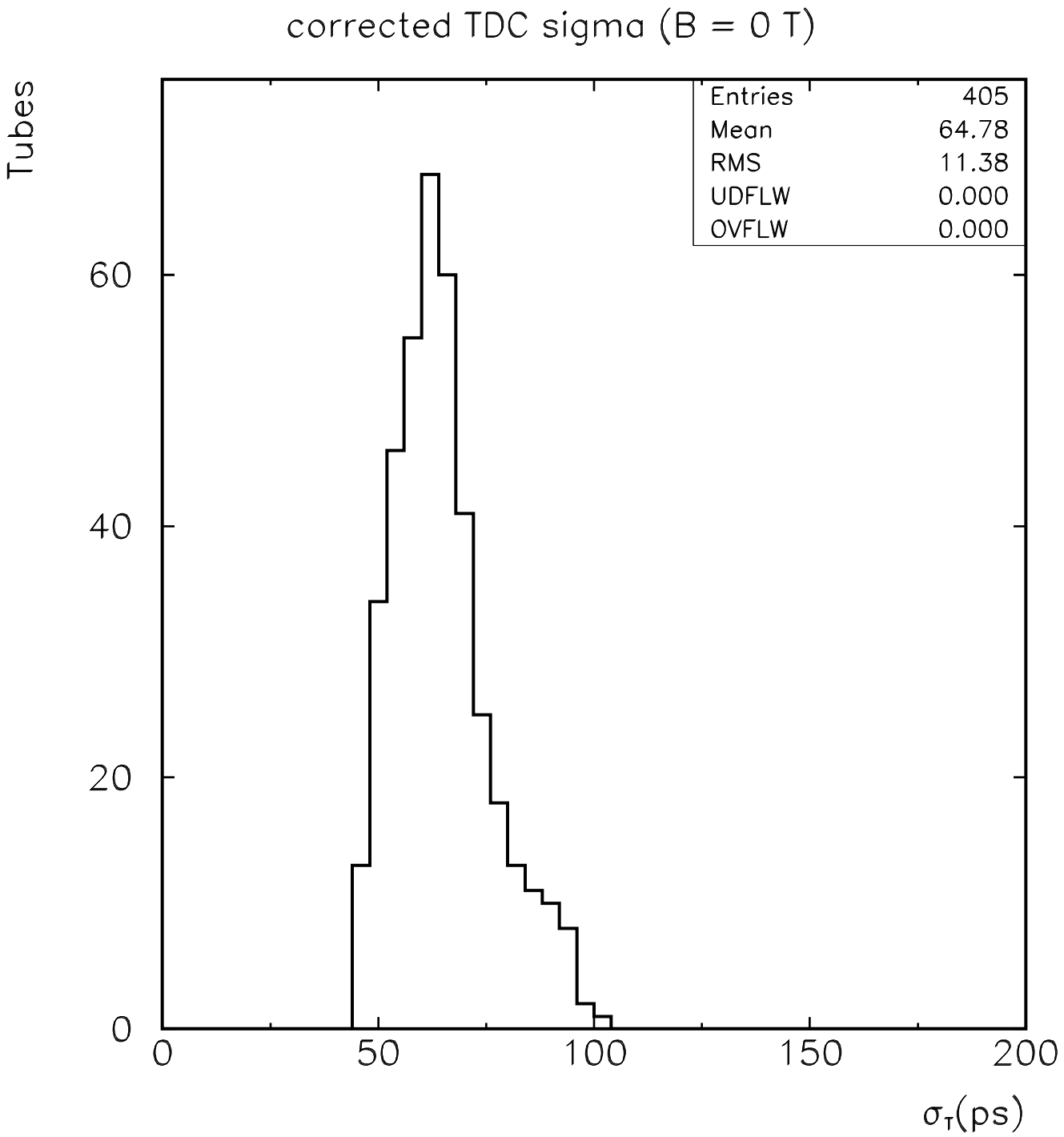

slope (B=0 T)
Tubes
80
60
40
20
0
6
7
8
9
10
Slope
Entries 405
Mean 8.455
RMS 0.2765
UDFLW 0.000
OVFLW 0.000

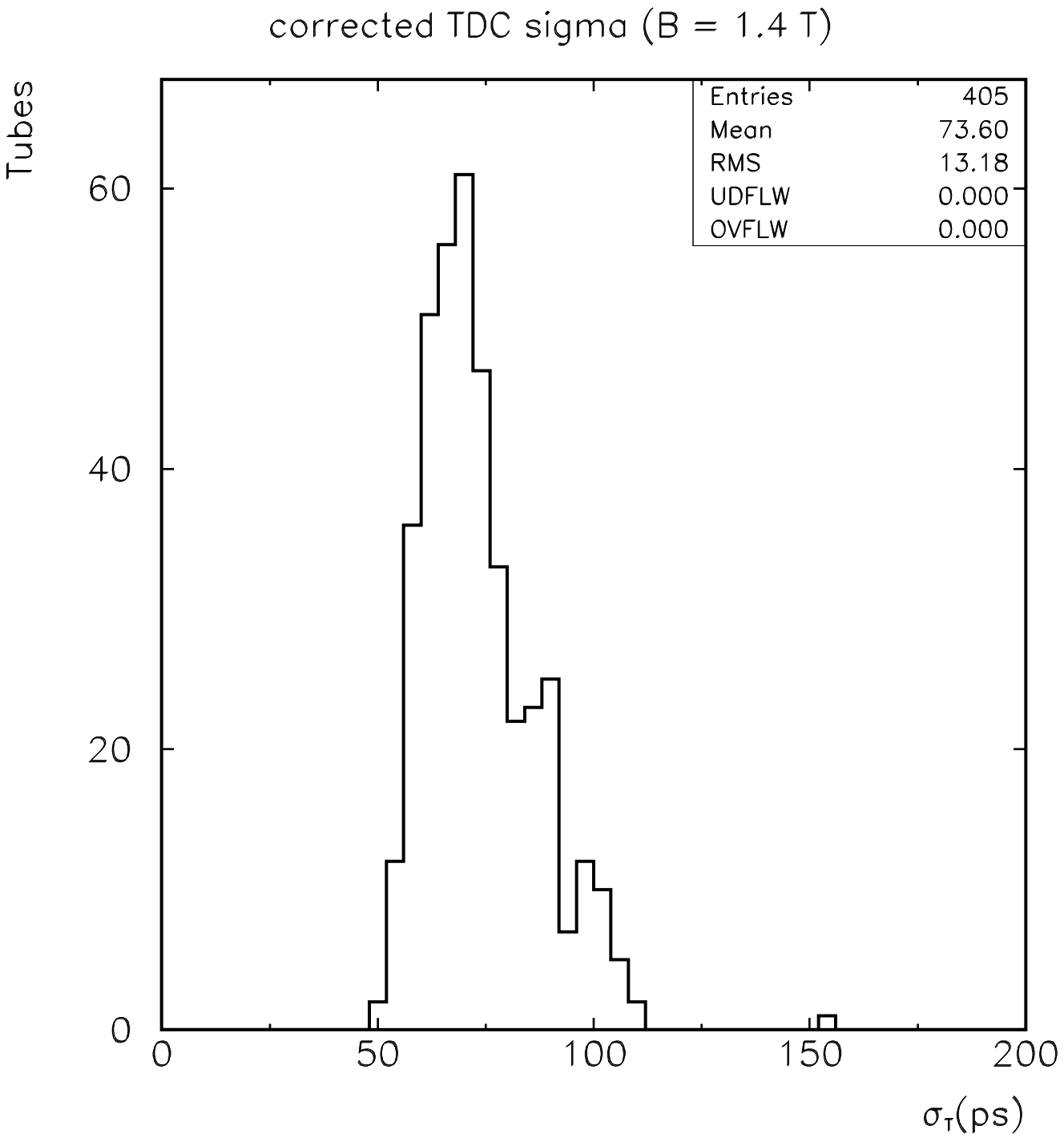

slope (B=1.4 T)
Tubes
60
40
20
0
6
7
8
9
10
Slope
Entries 405
Mean 8.058
RMS 0.3532
UDFLW 0.000
OVFLW 0.000

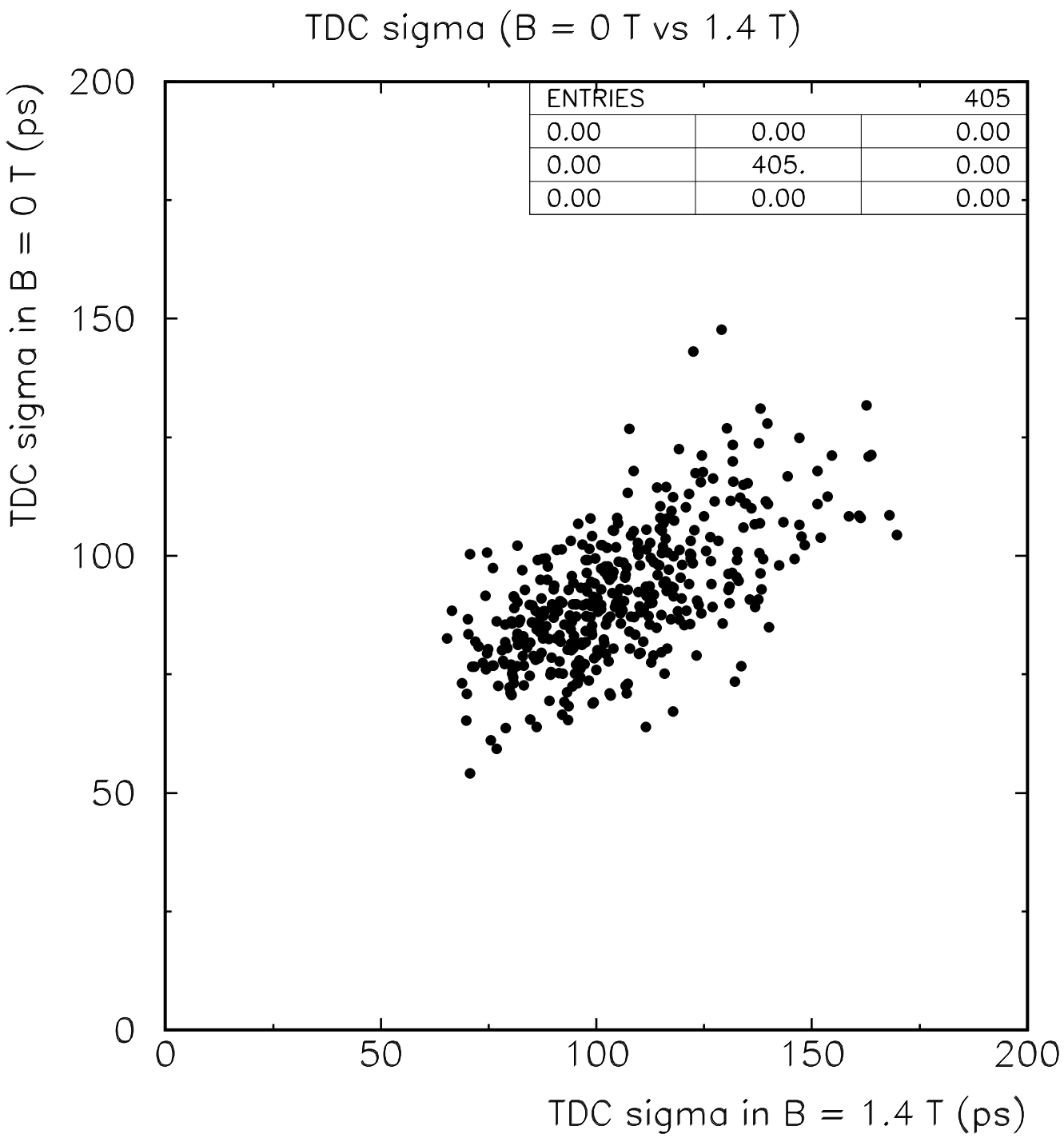

slope at B=1.4 T vs B=0 T
ENTRIES 405
0.00 0.00 0.00
0.00 • 405. 0.00
0.00 0.00 0.00
slope at B=1.4 T
slope at B=0 T
10
9
8
7
6
6
7
8
9
10

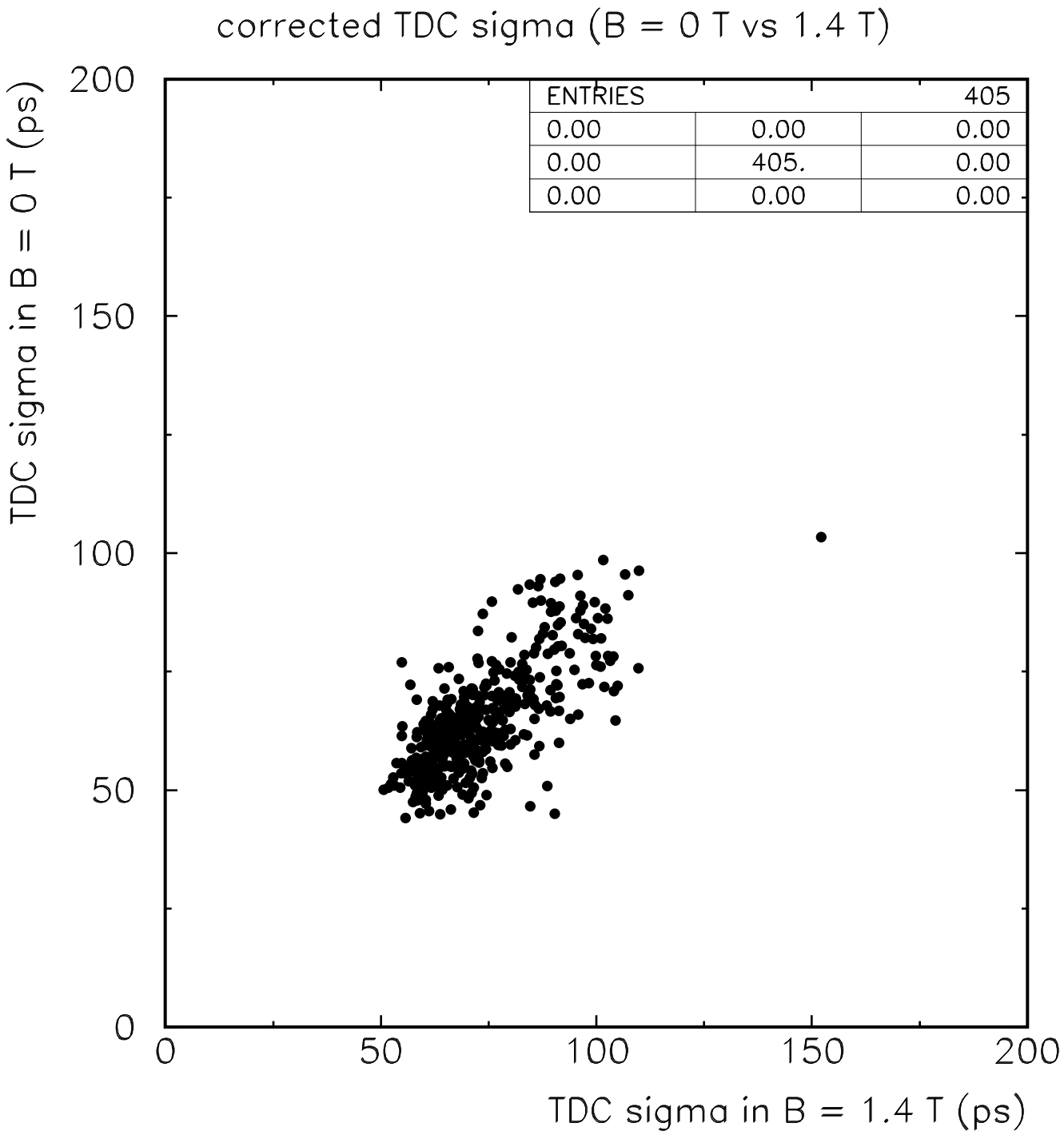

TDC sigma (B = 0 T)
Tubes
60
40
20
0
0
50
100
150
200
σ_T(ps)
Entries 405
Mean 91.74
RMS 14.08
UDFLW 0.000
OVFLW 0.000


TDC sigma (B = 1.4 T)
Tubes
Entries 405
Mean 105.4
RMS 20.72
UDFLW 0.000
OVFLW 0.000
0
10
20
30
40
0
50
100
150
200
σT(ps)


corrected TDC sigma (B = 0 T)
Tubes
Entries 405
Mean 64.78
RMS 11.38
UDFLW 0.000
OVFLW 0.000
0
20
40
60
0
50
100
150
200
σT(ps)


corrected TDC sigma (B = 1.4 T)
Tubes
Entries 405
Mean 73.60
RMS 13.18
UDFLW 0.000
OVFLW 0.000
0
20
40
60
0
50
100
150
200
σT(ps)


TDC sigma (B = 0 T vs 1.4 T)
ENTRIES 405
0.00 0.00 0.00
0.00 405. 0.00
0.00 0.00 0.00
TDC sigma in B = 0 T (ps)
TDC sigma in B = 1.4 T (ps)
0
50
100
150
200


corrected TDC sigma (B = 0 T vs 1.4 T)
ENTRIES 405
0.00 0.00 0.00
0.00 405. 0.00
0.00 0.00 0.00
TDC sigma in B = 0 T (ps)
TDC sigma in B = 1.4 T (ps)
0
50
100
150
200