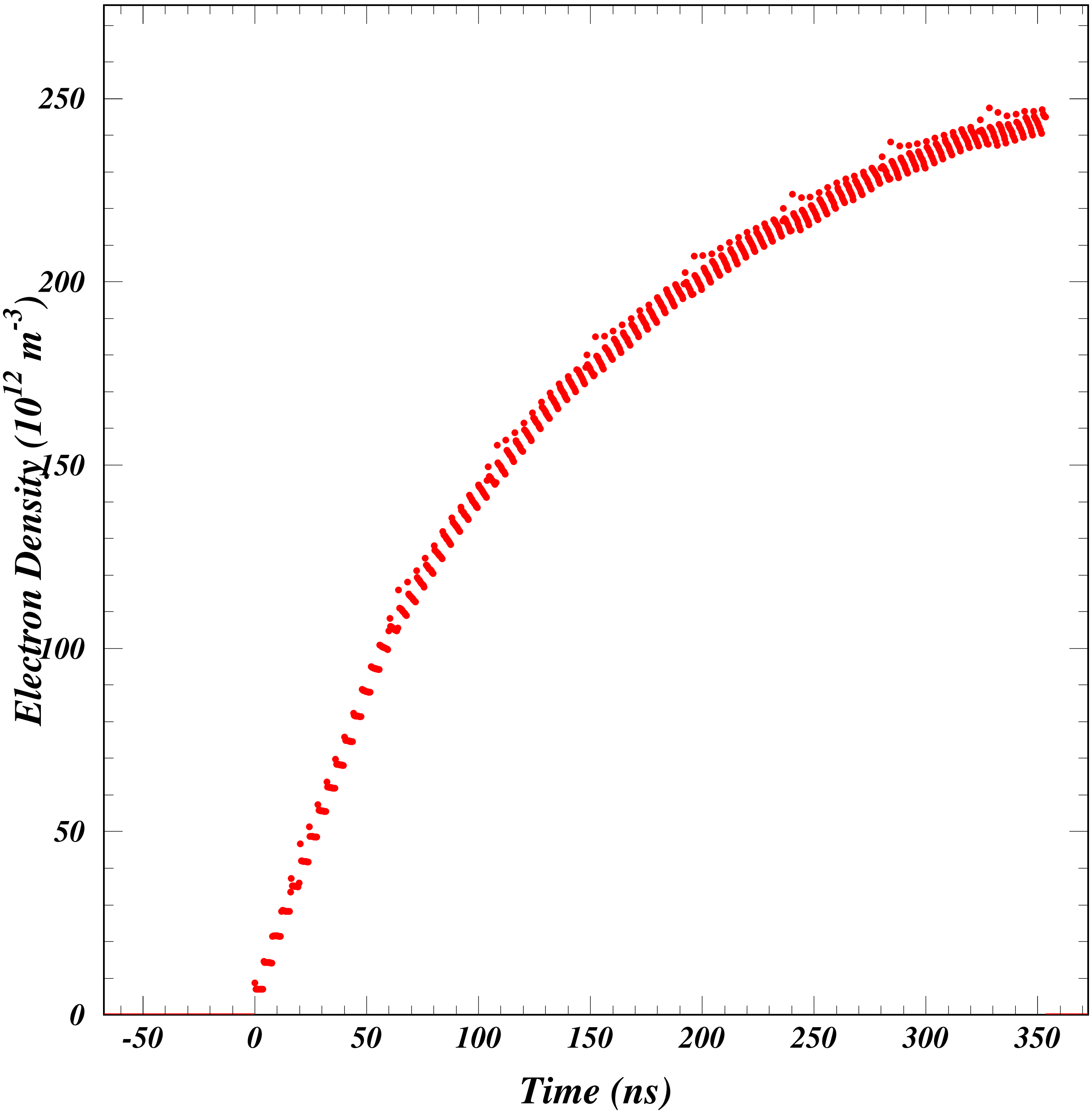
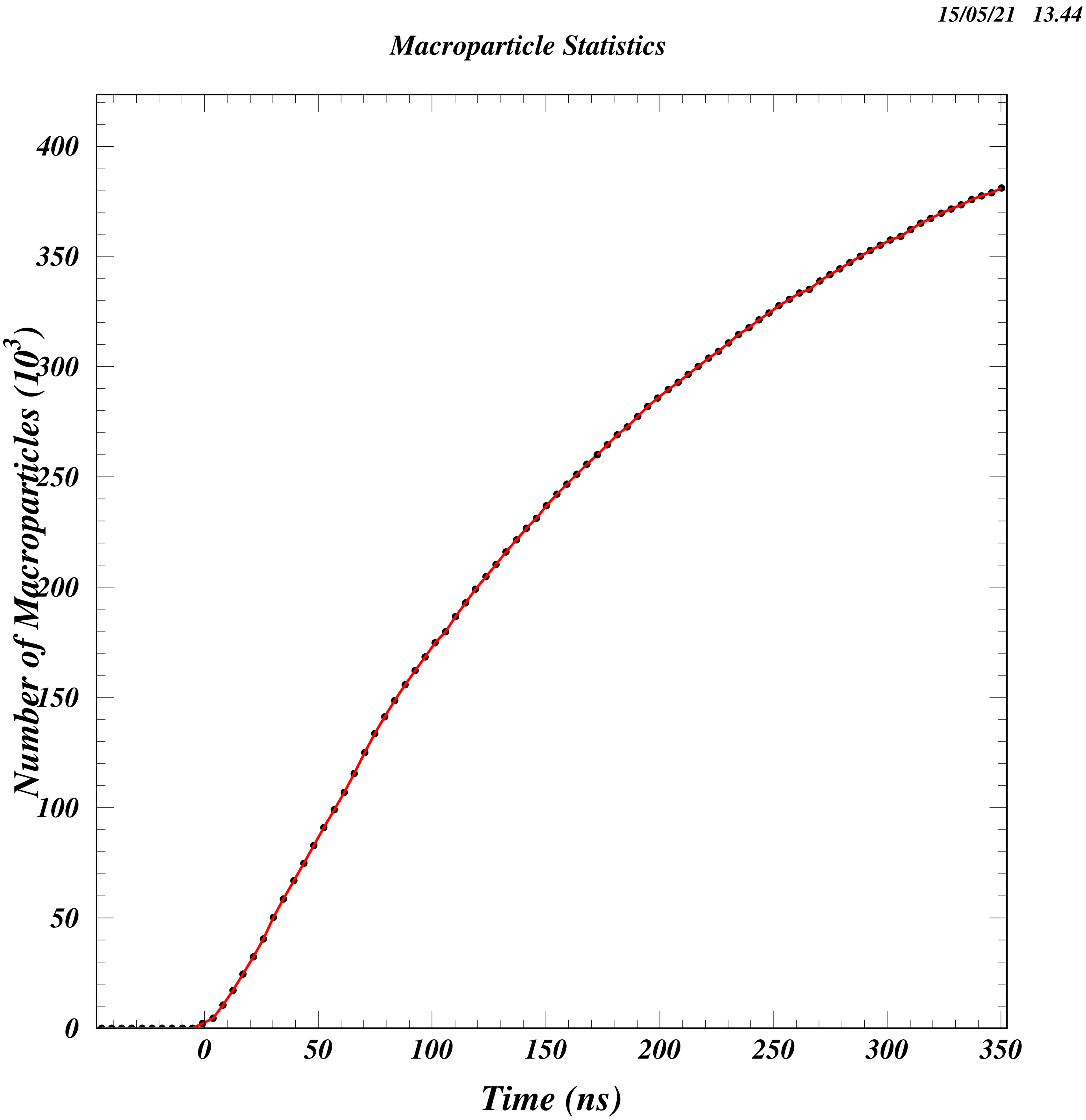
15/05/21 13.44

Job 39917: ECLOUD plots





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Macroparticle Statistics
Number of Macroparticles (10^3)
Time (ns)
0
50
100
150
200
250
300
350
400

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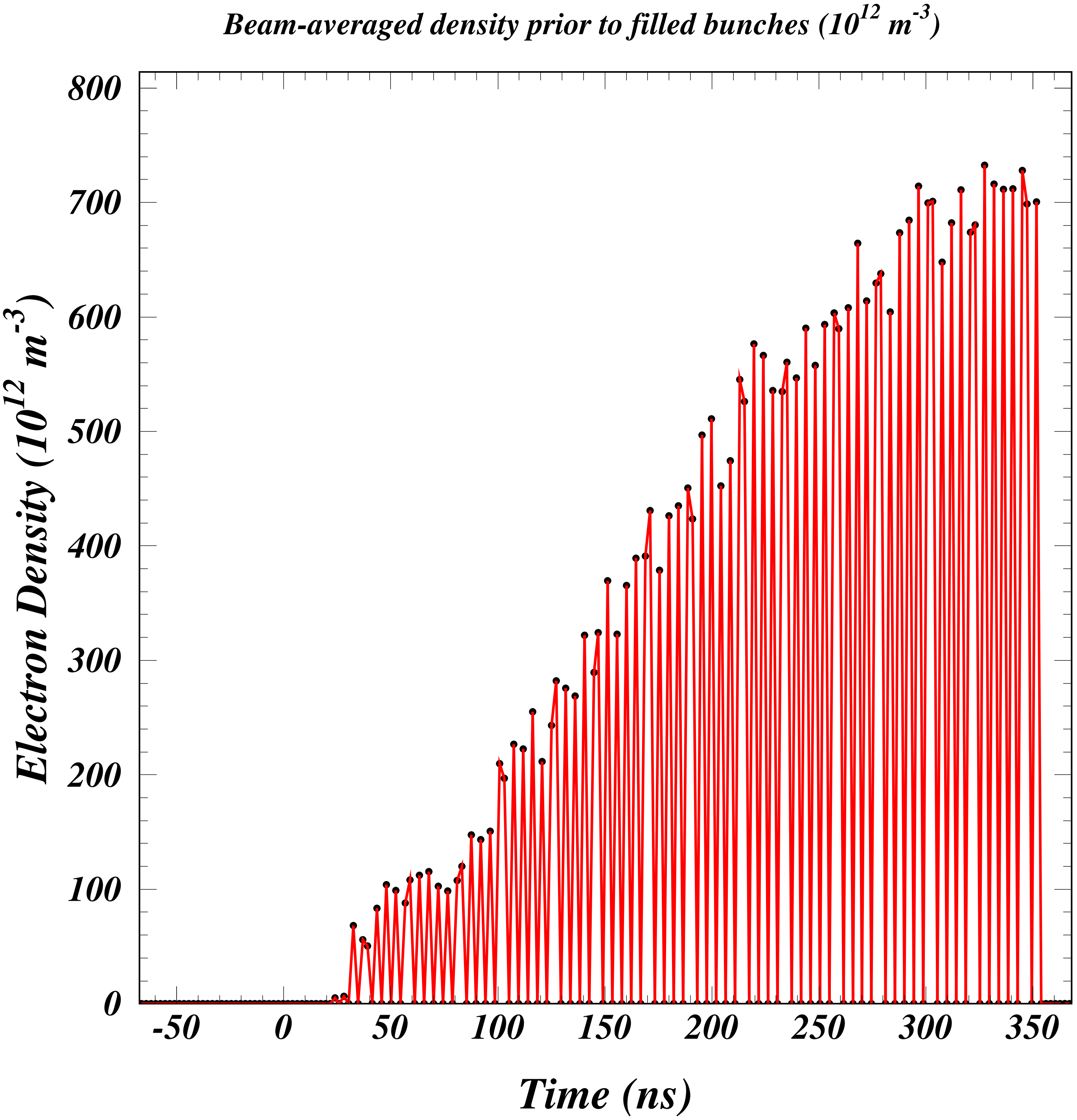
Beam-averaged density prior to filled bunches (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
Time (ns)
800
700
600
500
400
300
200
100
0
-50
0
50
100
150
200
250
300
350

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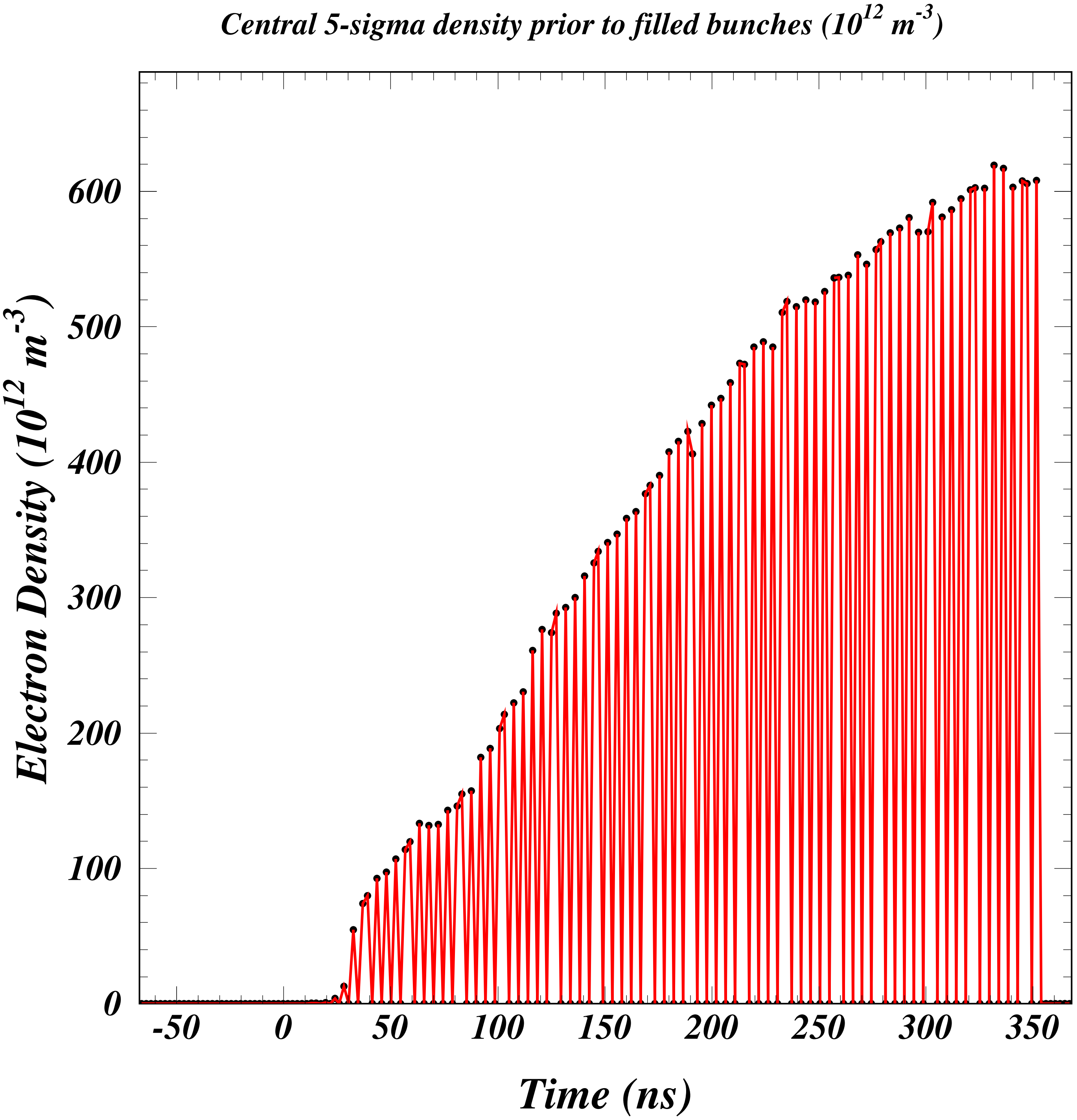
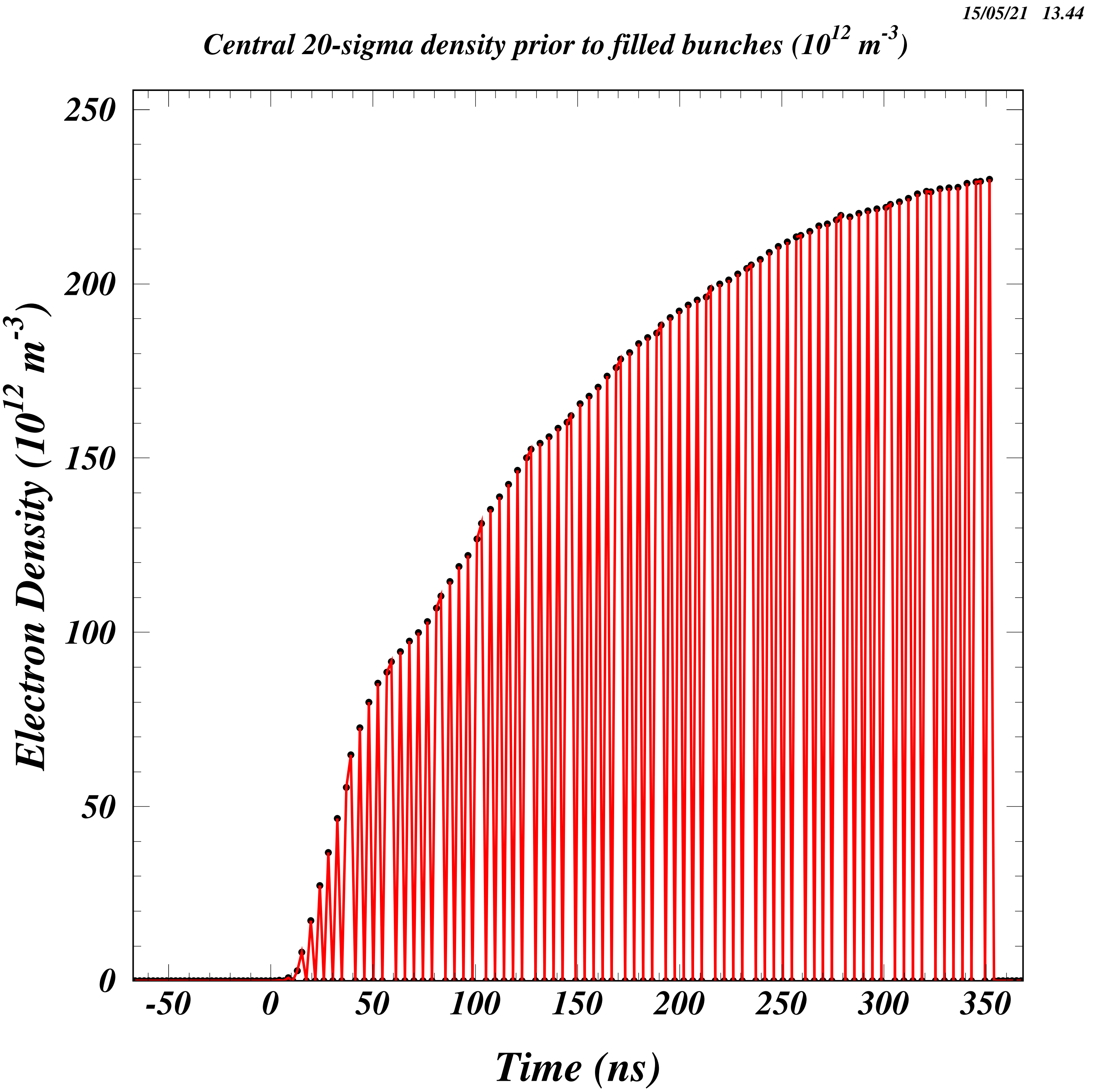
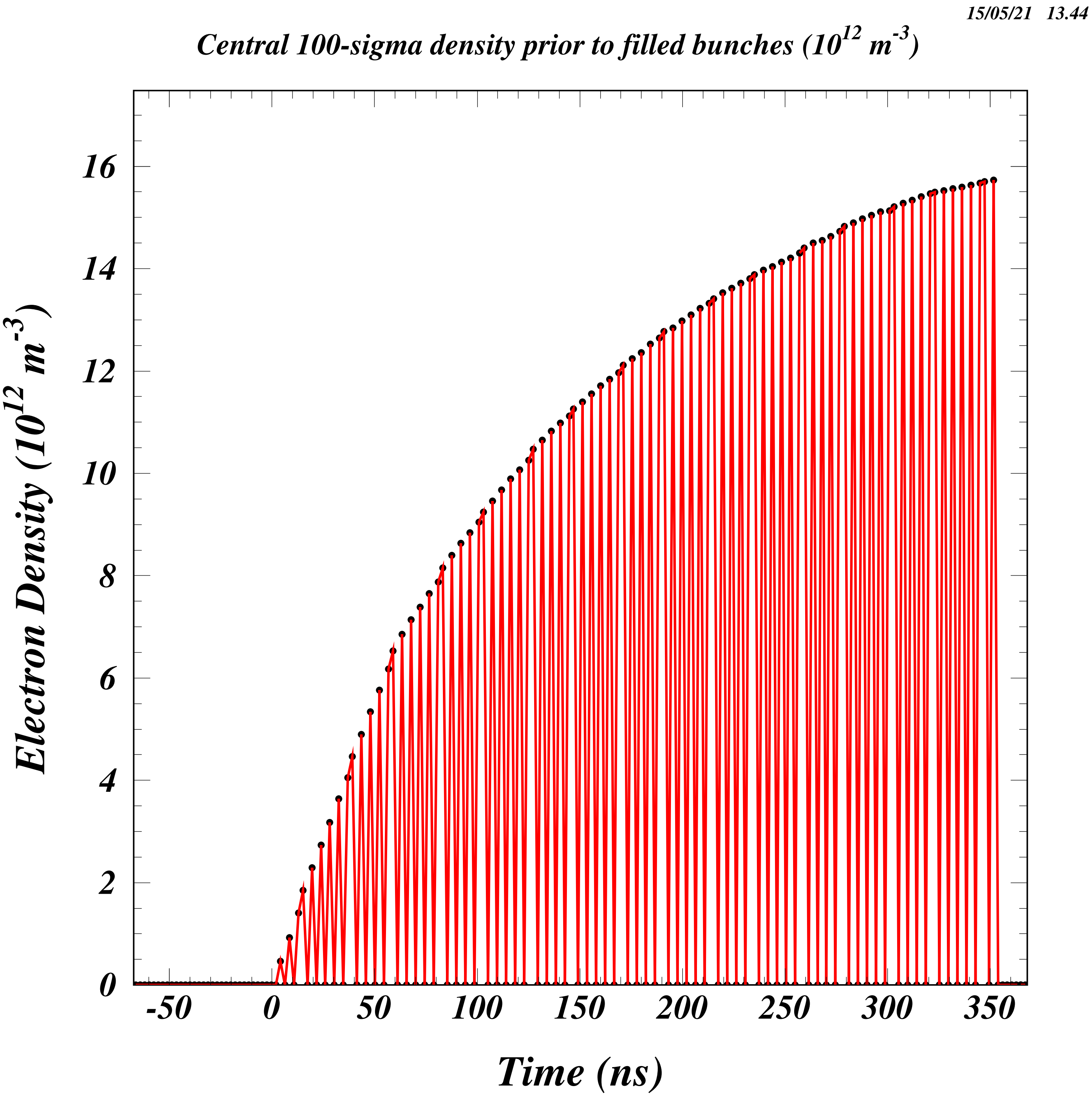
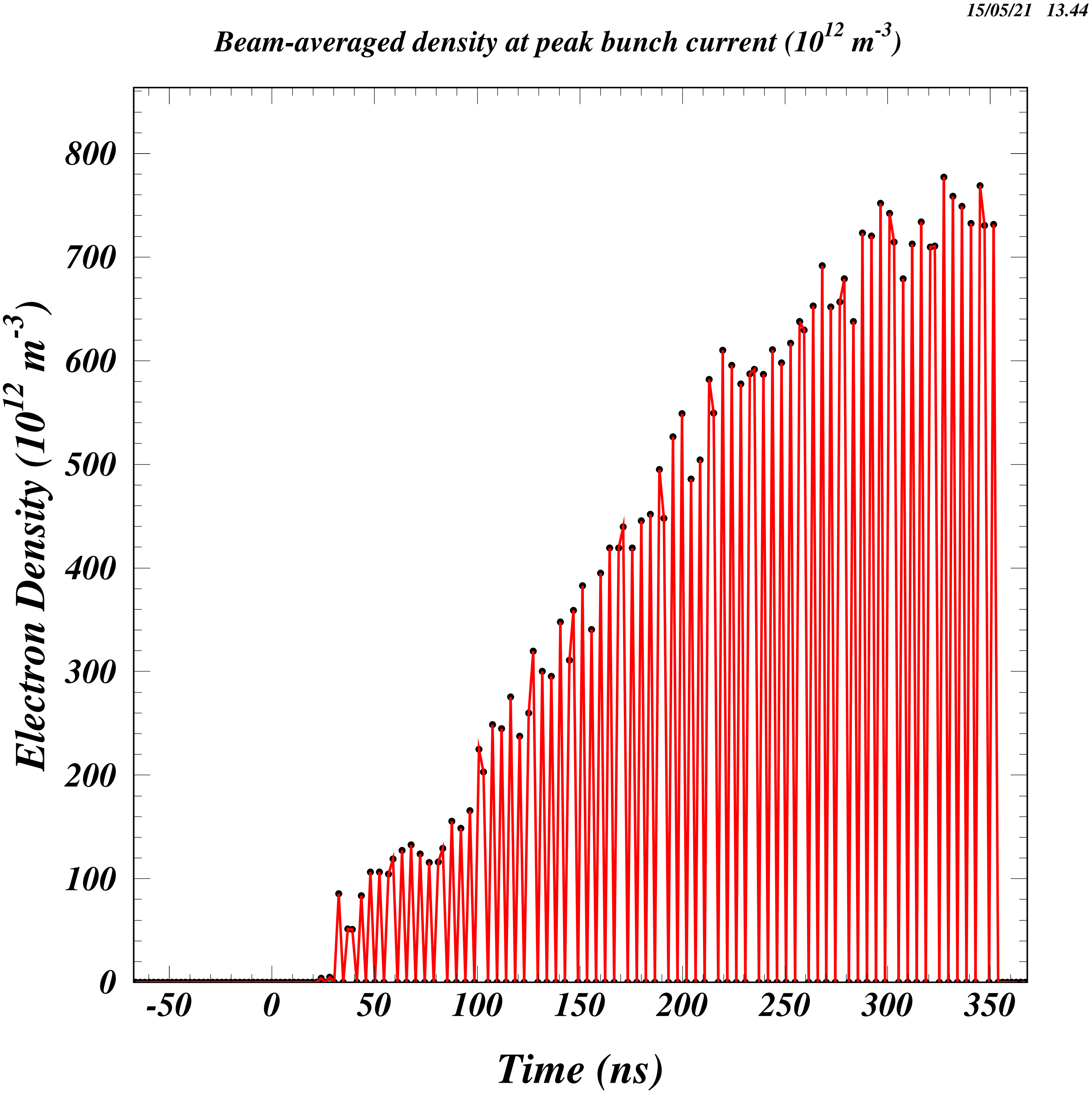
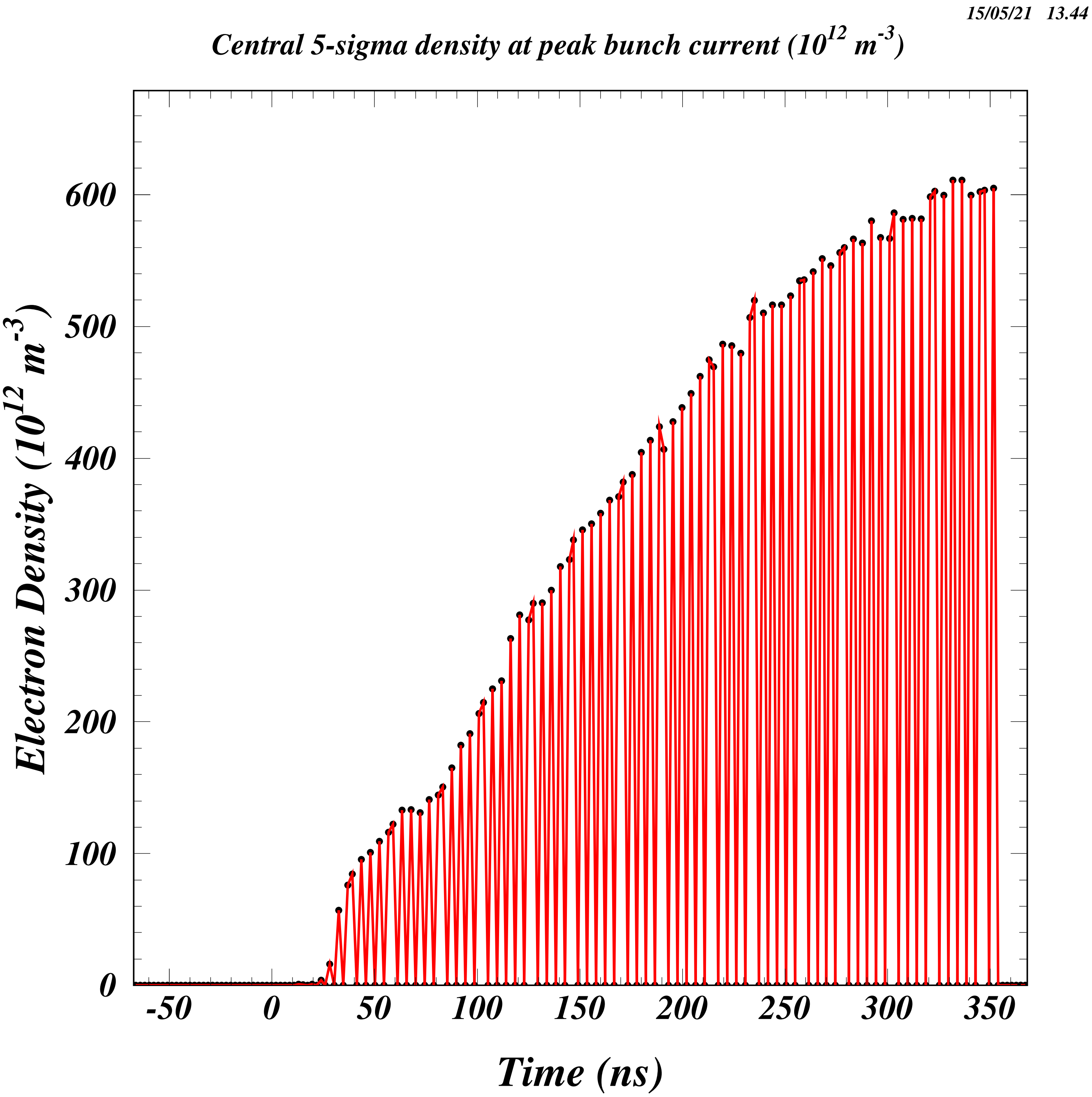
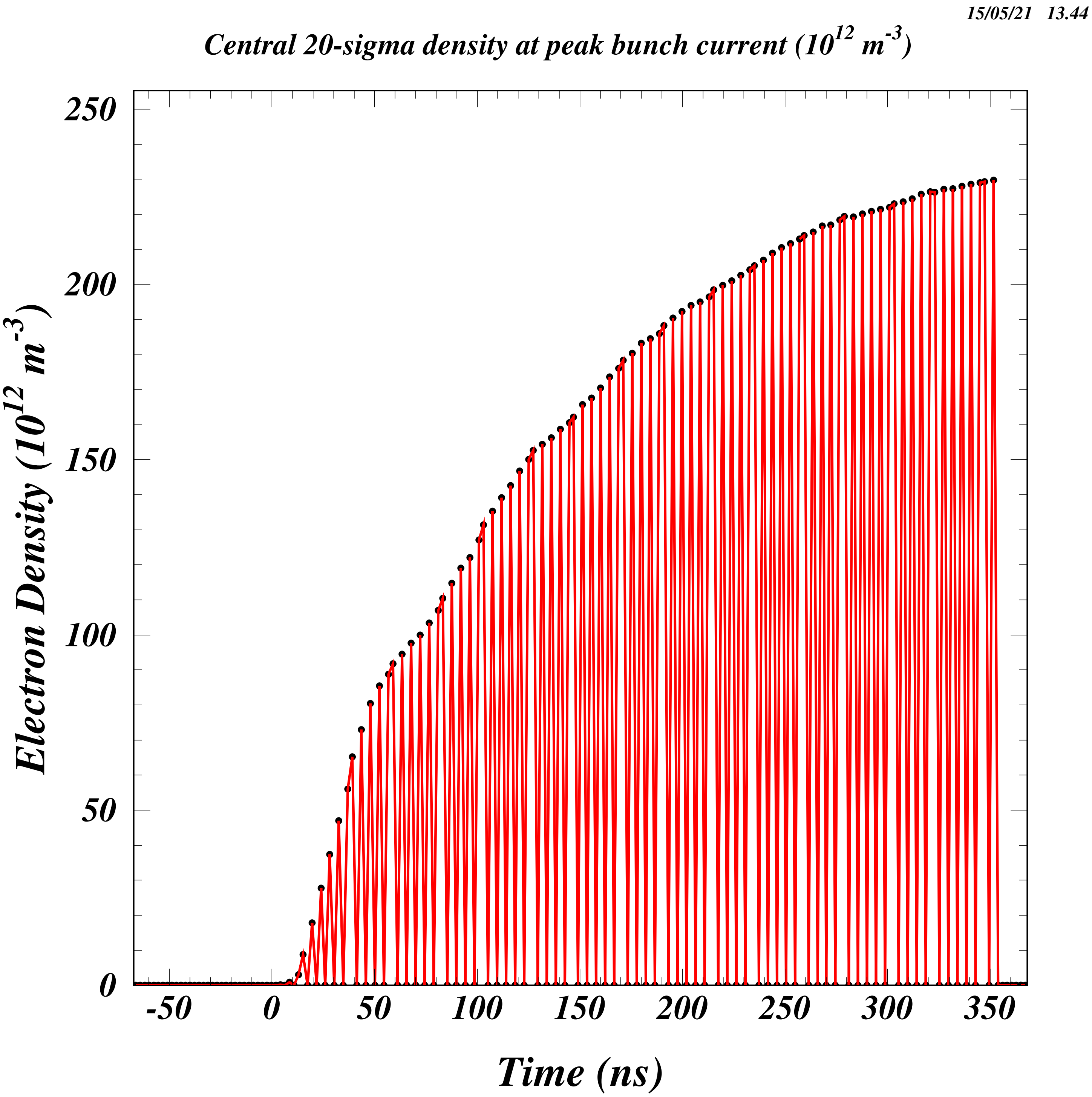

Central 5-sigma density prior to filled bunches (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
0
100
200
300
400
500
600
-50
0
50
100
150
200
250
300
350
Time (ns)


15/05/21 13.44
Central 20-sigma density prior to filled bunches (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
250
200
150
100
50
0
-50
0
50
100
150
200
250
300
350
Time (ns)


15/05/21 13.44
Central 100-sigma density prior to filled bunches (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
Time (ns)
0
2
4
6
8
10
12
14
16
-50
0
50
100
150
200
250
300
350


15/05/21 13.44
Beam-averaged density at peak bunch current (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
0
100
200
300
400
500
600
700
800
-50
0
50
100
150
200
250
300
350
Time (ns)


15/05/21 13.44
Central 5-sigma density at peak bunch current (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
0
100
200
300
400
500
600
-50
0
50
100
150
200
250
300
350
Time (ns)



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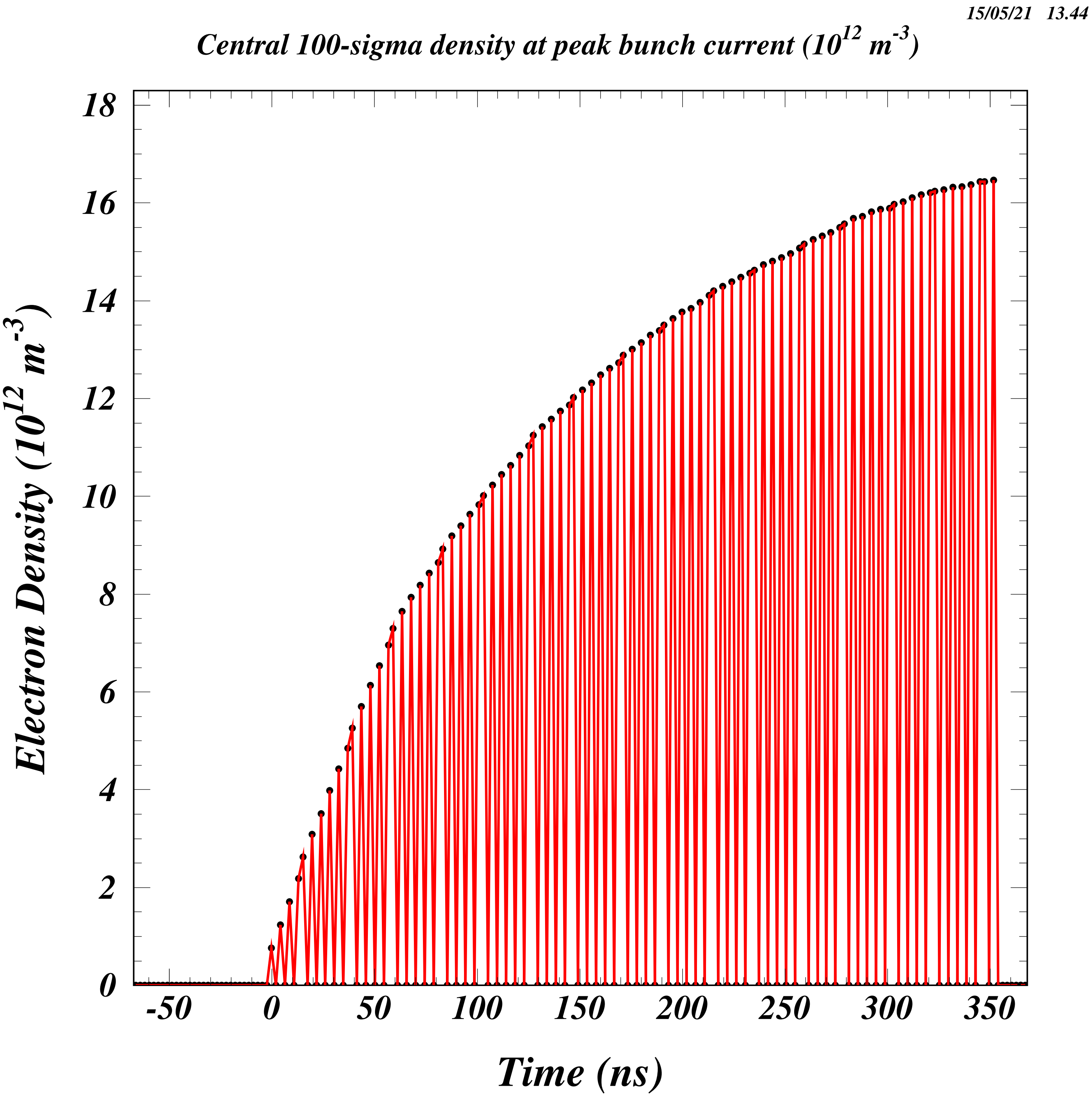
Central 20-sigma density at peak bunch current (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
Time (ns)
0
50
100
150
200
250
-50
300
350



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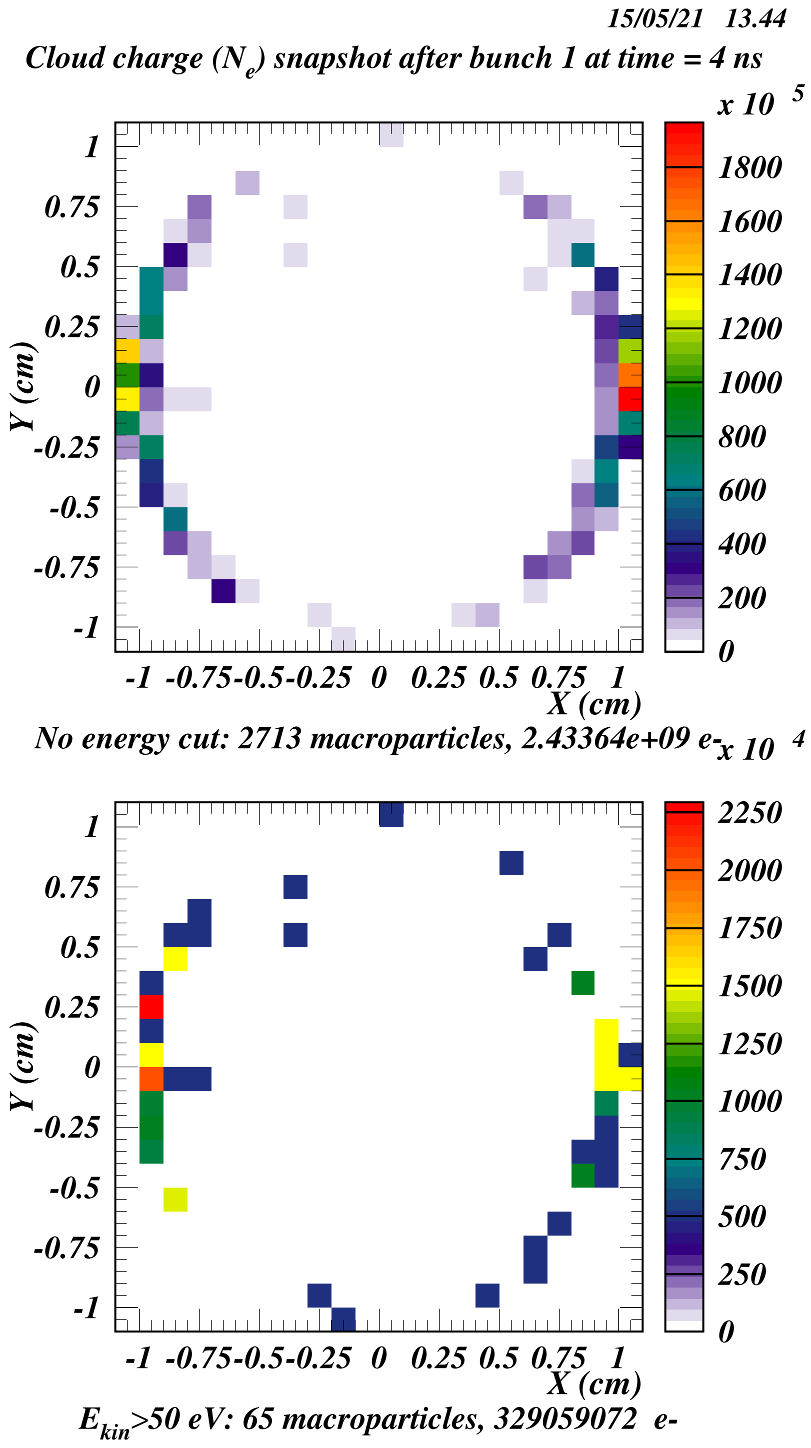
Central 100-sigma density at peak bunch current (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
Time (ns)
0
2
4
6
8
10
12
14
16
18
-50
0
50
100
150
200
250
300
350



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Cloud charge (N_e) snapshot after bunch 1 at time = 4 ns
x 10 5
1800
1600
1400
1200
1000
800
600
400
200
0
Y (cm)
X (cm)
No energy cut: 2713 macroparticles, 2.43364e+09 e-
x 10 4
2250
2000
1750
1500
1250
1000
750
500
250
0
Y (cm)
X (cm)
E_{kin}>50 eV: 65 macroparticles, 329059072 e-

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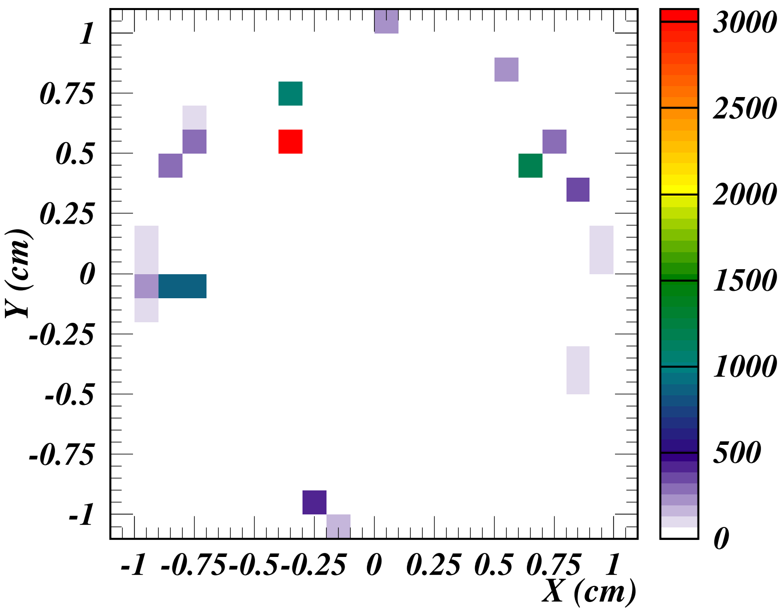
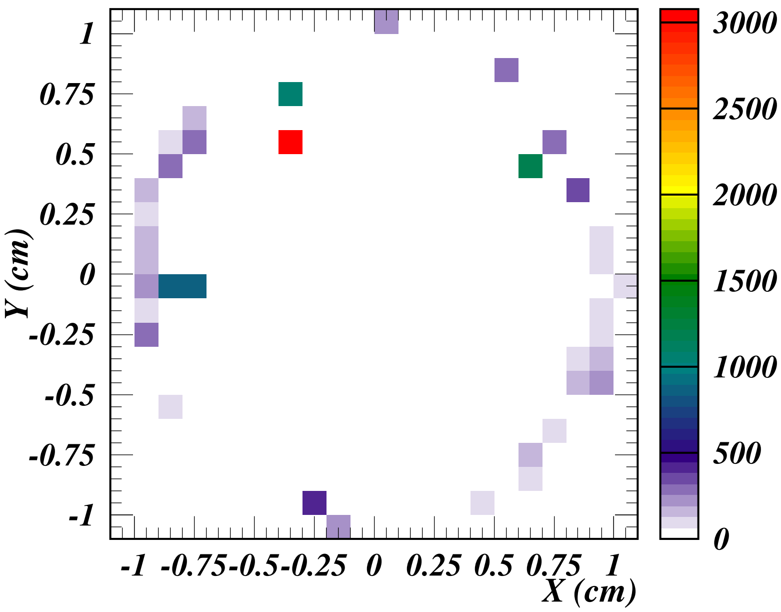
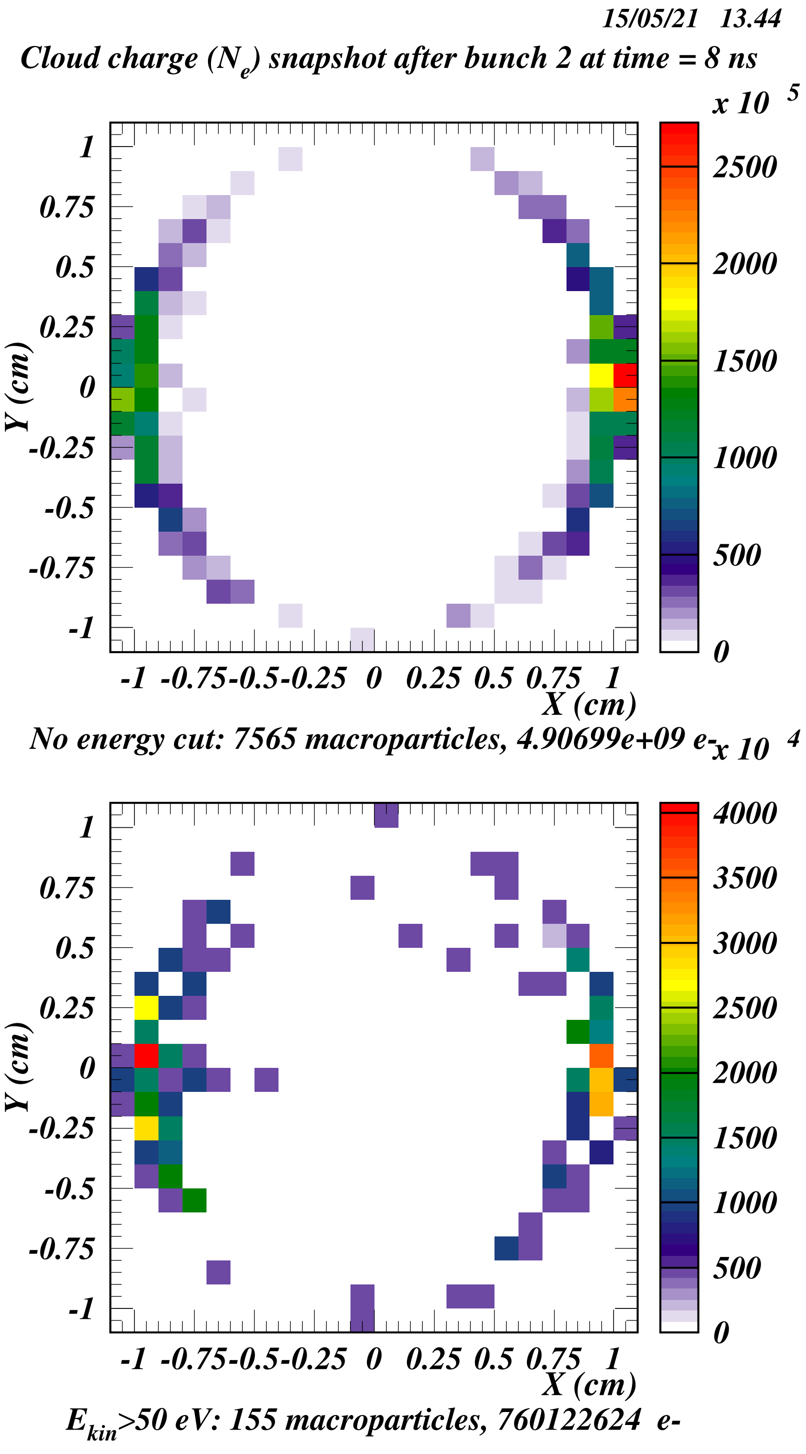
Cloud energy (eV) snapshot after bunch 1 at time = 4 ns



No energy cut: 2713 macroparticles, 2.43364e+09 e-



E_{kin}>50 eV: 65 macroparticles, 329059072 e-


15/05/21 13.44
Cloud charge (N_e) snapshot after bunch 2 at time = 8 ns
x 10^5
2500
2000
1500
1000
500
0
1
0.75
0.5
0.25
0
-0.25
-0.5
-0.75
-1
Y (cm)
-1 -0.75 -0.5 -0.25 0 0.25 0.5 0.75 1
X (cm)
No energy cut: 7565 macroparticles, 4.90699e+09 e-
x 10^4
4000
3500
3000
2500
2000
1500
1000
500
0
1
0.75
0.5
0.25
0
-0.25
-0.5
-0.75
-1
Y (cm)
-1 -0.75 -0.5 -0.25 0 0.25 0.5 0.75 1
X (cm)
E_{kin}>50 eV: 155 macroparticles, 760122624 e-

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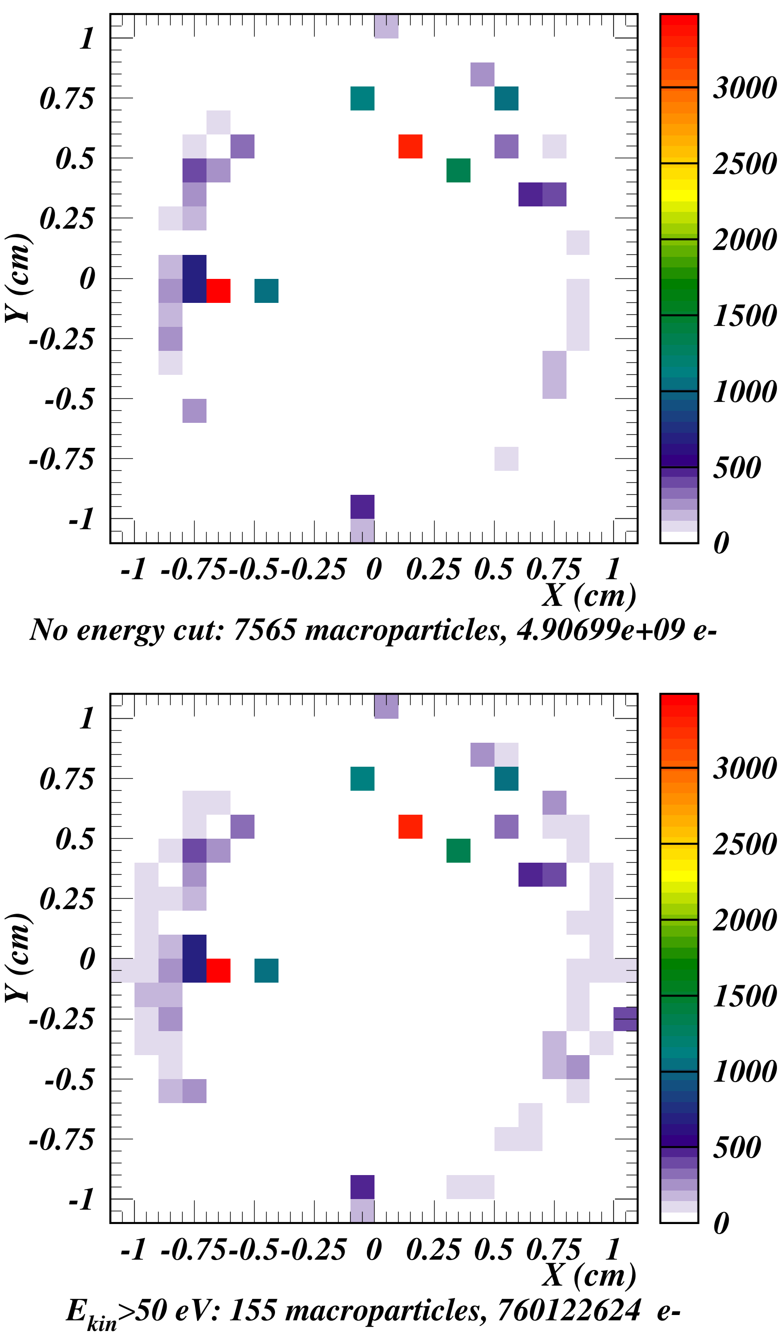
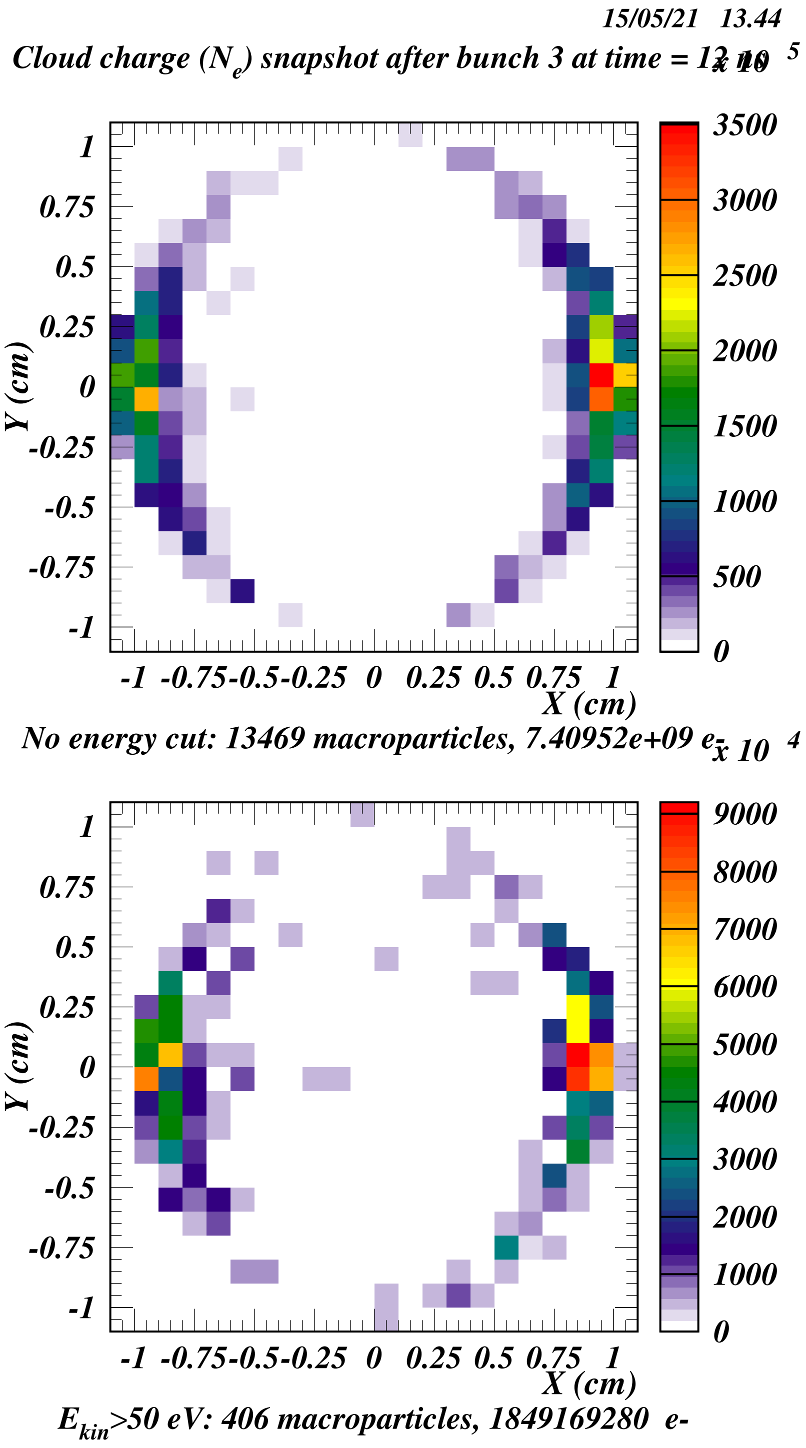
Cloud energy (eV) snapshot after bunch 2 at time = 8 ns





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Cloud charge (N_e) snapshot after bunch 3 at time = 12 ns
x 10^5
Y (cm)
X (cm)
No energy cut: 13469 macroparticles, 7.40952e+09 e-
x 10^4
Y (cm)
X (cm)
E_{kin}>50 eV: 406 macroparticles, 1849169280 e-

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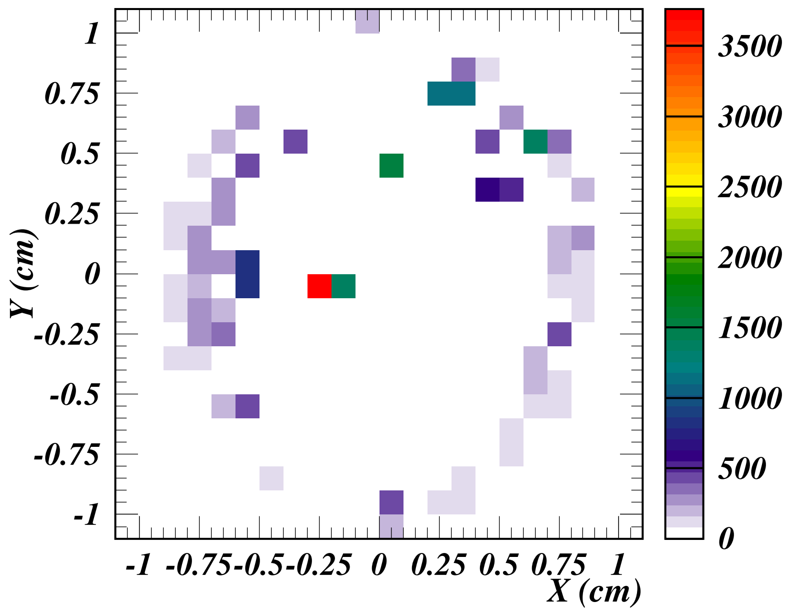
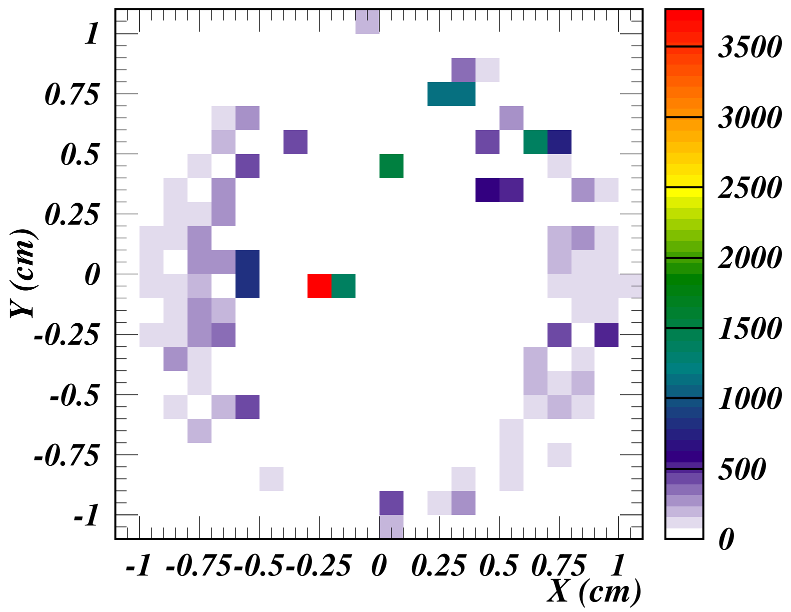
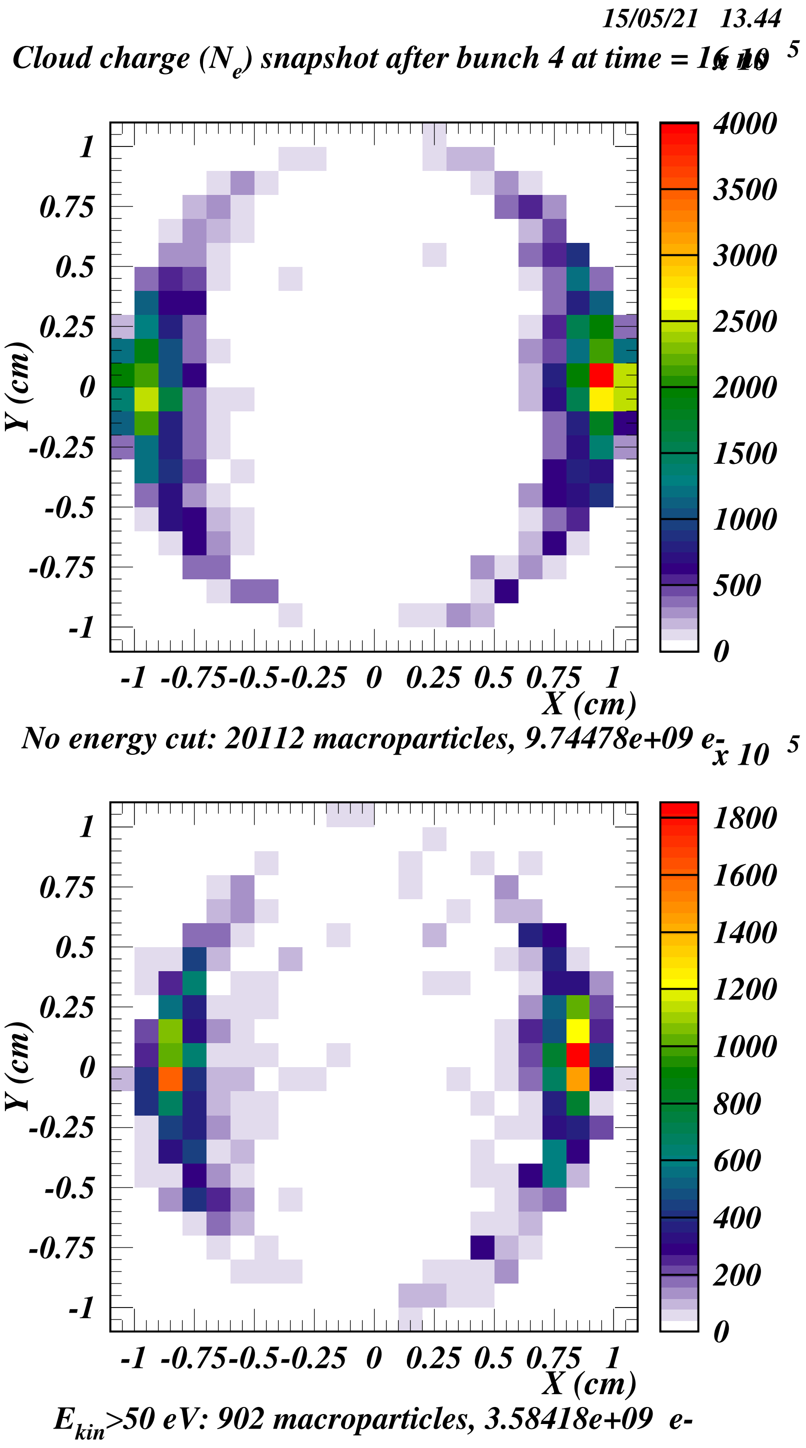
Cloud energy (eV) snapshot after bunch 3 at time = 12 ns



No energy cut: 13469 macroparticles, 7.40952e+09 e-



E_{kin}>50 eV: 406 macroparticles, 1849169280 e-


15/05/21 13.44
Cloud charge (N_e) snapshot after bunch 4 at time = 16 ns
x 10 5
4000
3500
3000
2500
2000
1500
1000
500
0
Y (cm)
X (cm)
No energy cut: 20112 macroparticles, 9.74478e+09 e-
x 10 5
1800
1600
1400
1200
1000
800
600
400
200
0
Y (cm)
X (cm)
E_{kin}>50 eV: 902 macroparticles, 3.58418e+09 e-

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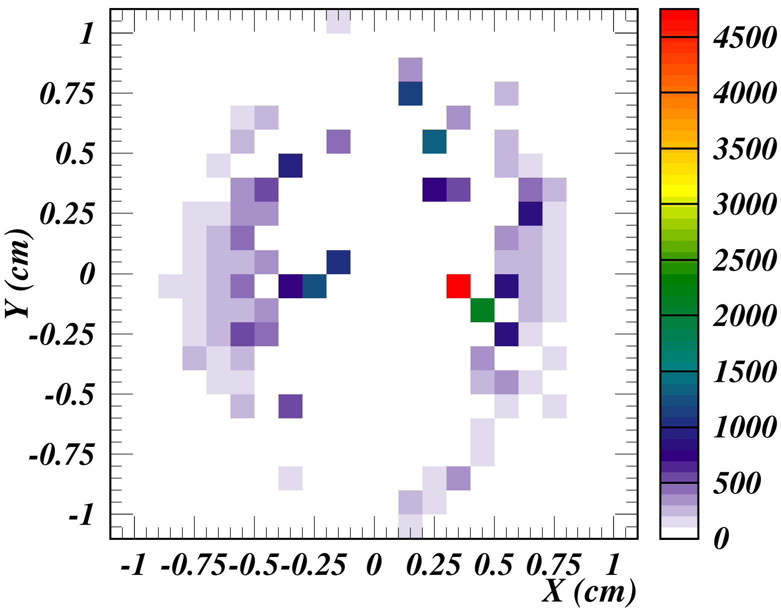
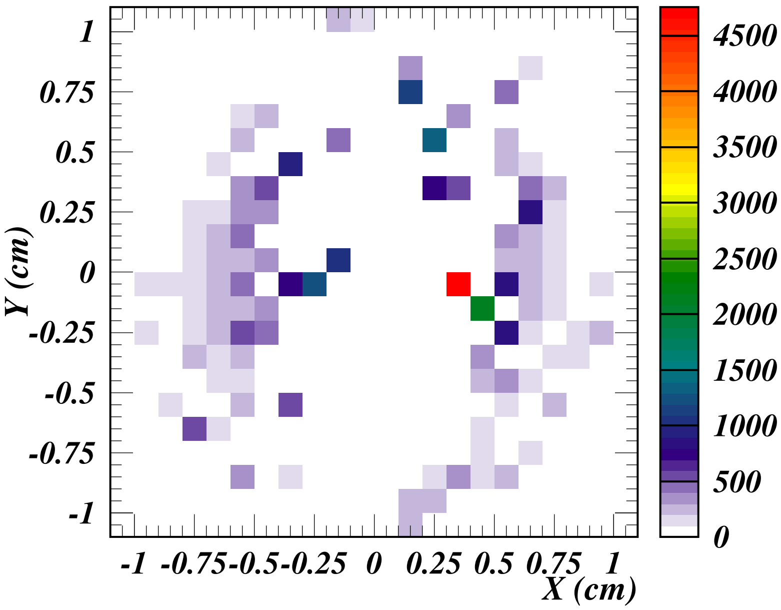
Cloud energy (eV) snapshot after bunch 4 at time = 16 ns



No energy cut: 20112 macroparticles, 9.74478e+09 e-



E_{kin}>50 eV: 902 macroparticles, 3.58418e+09 e-

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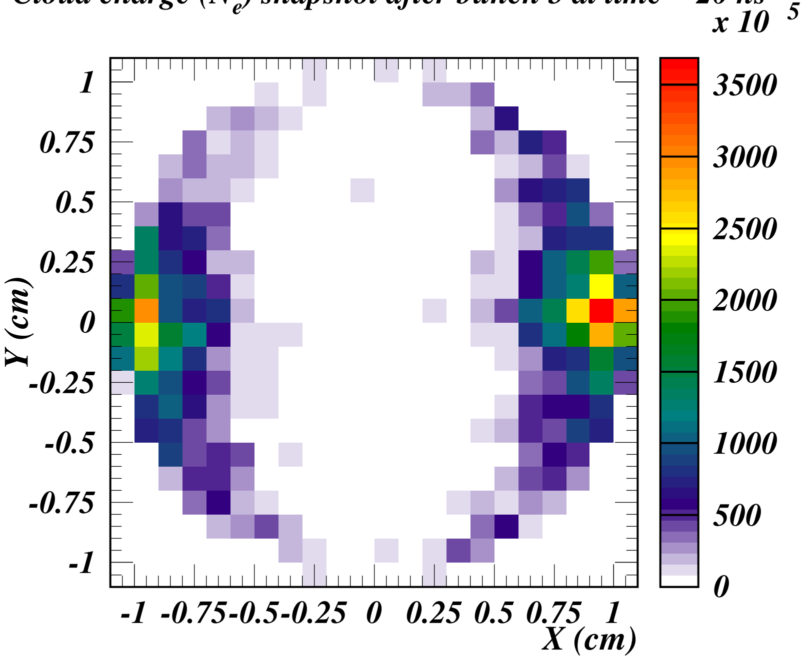
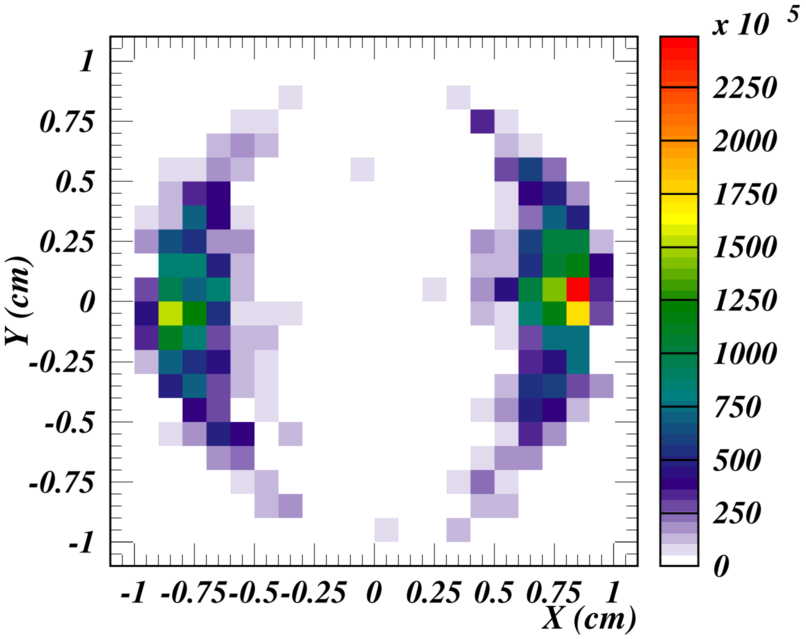
Cloud charge (N_e) snapshot after bunch 5 at time = 20 ns



No energy cut: 27223 macroparticles, 1.20986e+10 e-



E_{kin}>50 eV: 3188 macroparticles, 5.76016e+09 e-

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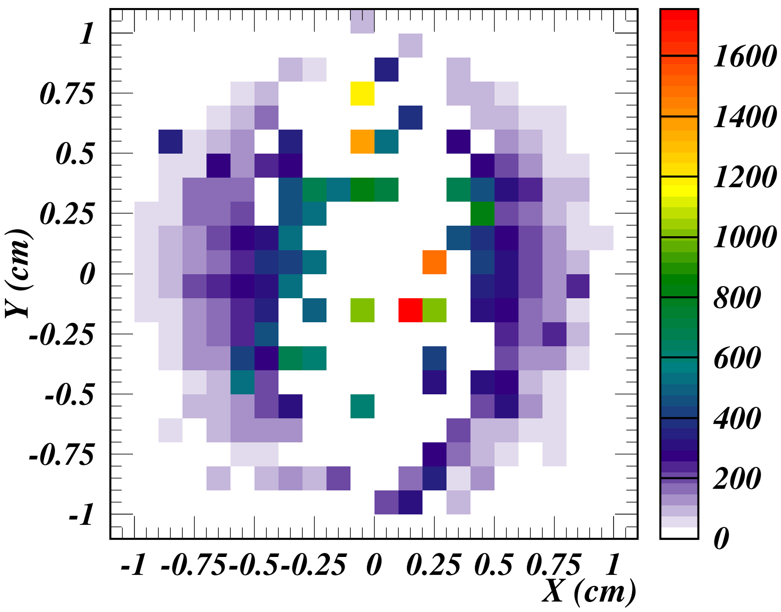
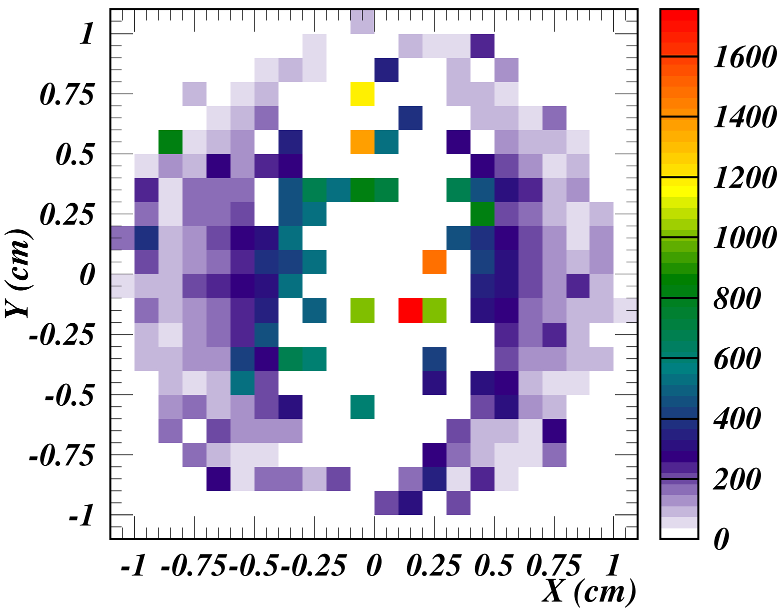
Cloud energy (eV) snapshot after bunch 5 at time = 20 ns



No energy cut: 27223 macroparticles, 1.20986e+10 e-



E_{kin}>50 eV: 3188 macroparticles, 5.76016e+09 e-

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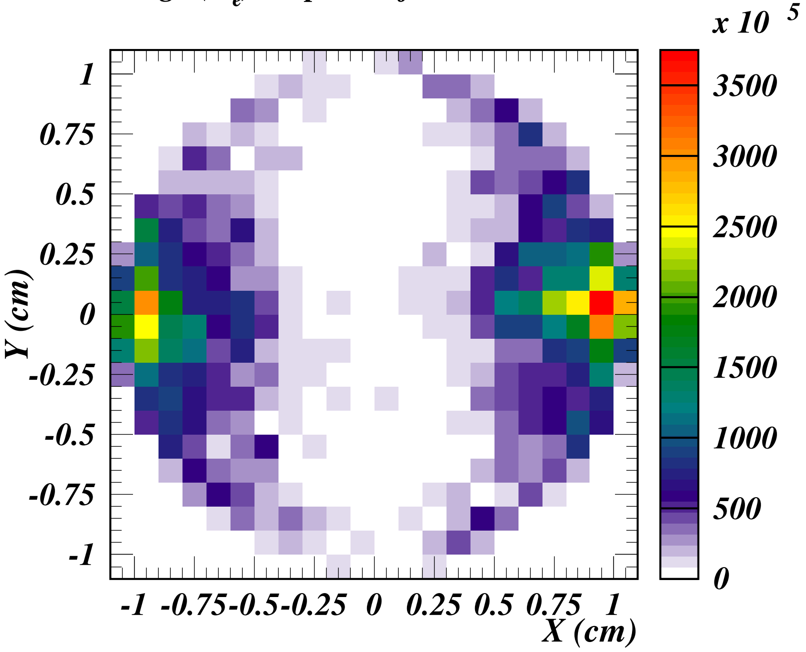
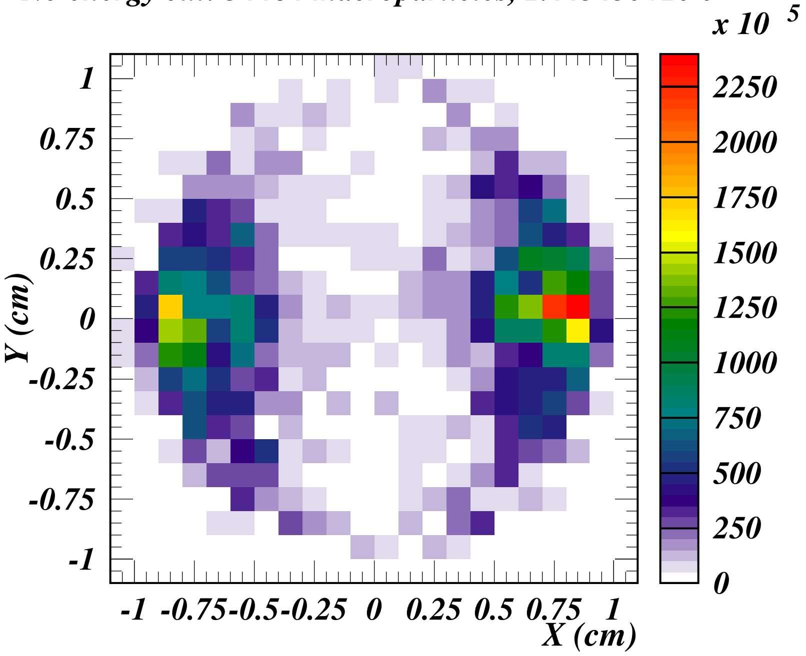
Cloud charge (N_e) snapshot after bunch 6 at time = 24 ns



No energy cut: 34464 macroparticles, 1.44545e+10 e-



E_{kin}>50 eV: 6927 macroparticles, 8.08684e+09 e-

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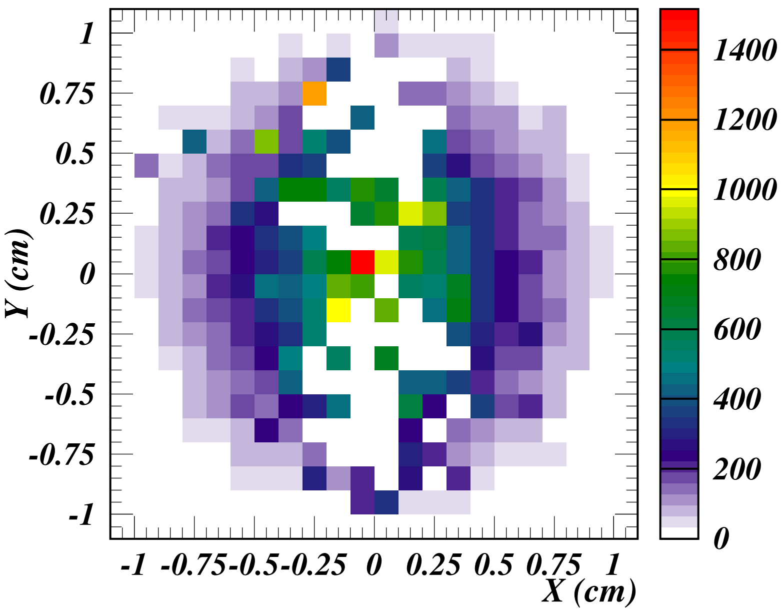
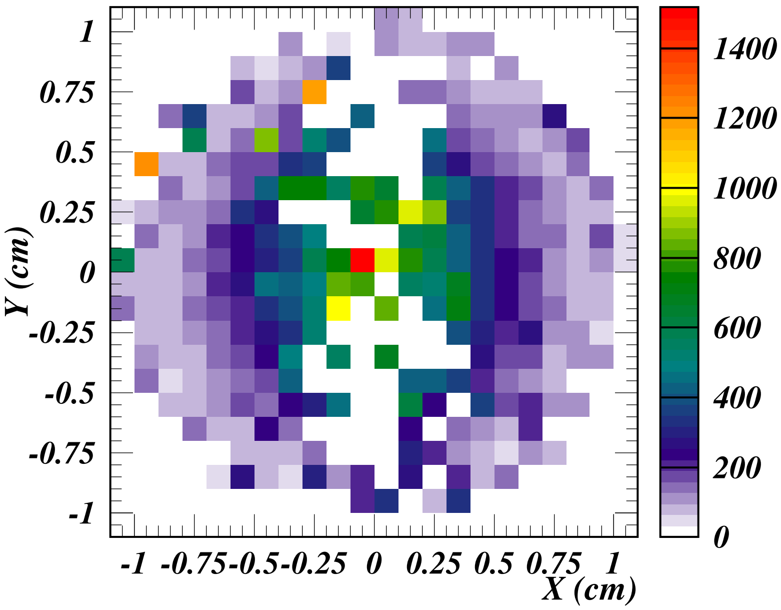
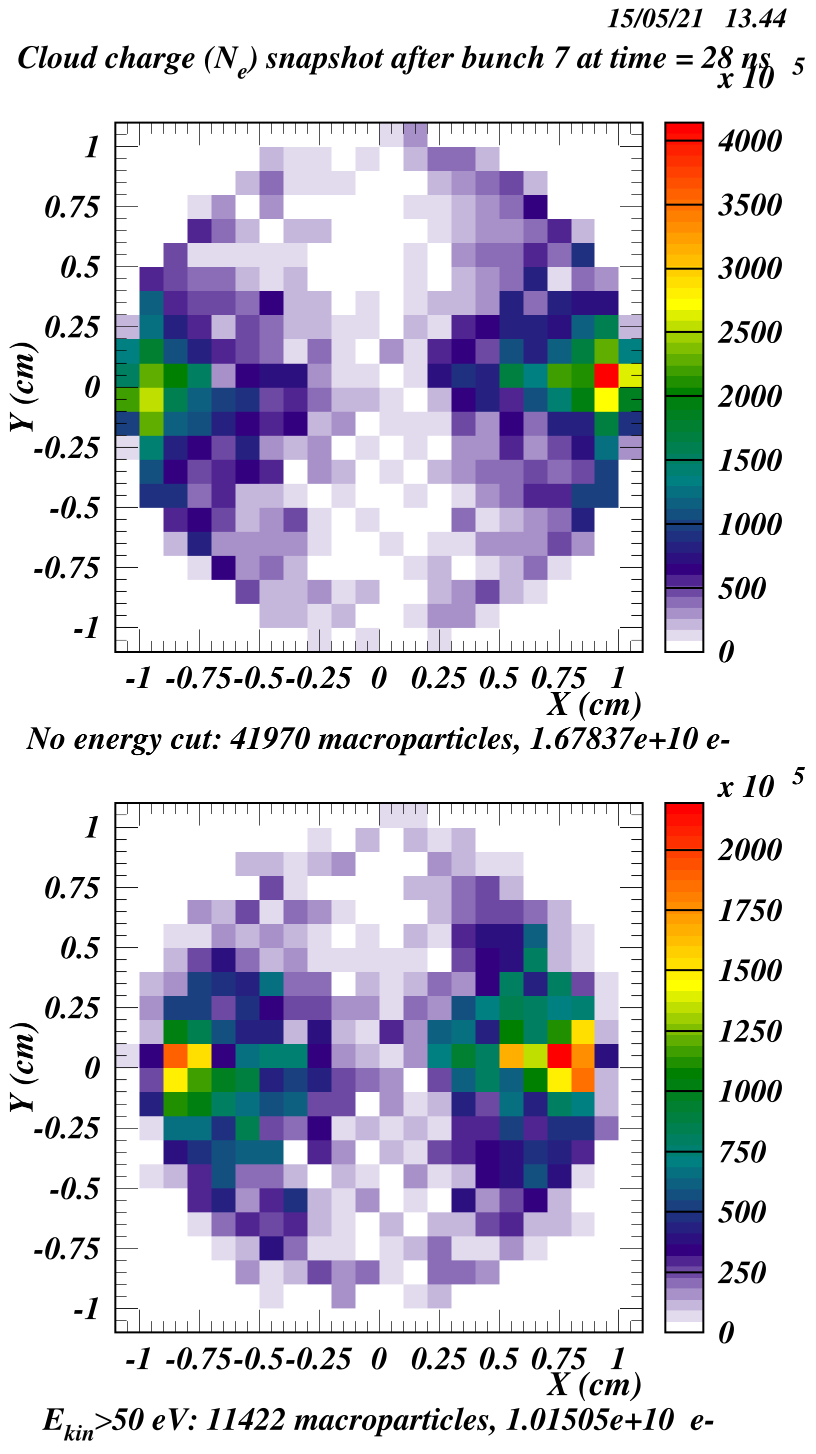
Cloud energy (eV) snapshot after bunch 6 at time = 24 ns



No energy cut: 34464 macroparticles, 1.44545e+10 e-



E_{kin}>50 eV: 6927 macroparticles, 8.08684e+09 e-


15/05/21 13.44
Cloud charge (N_e) snapshot after bunch 7 at time = 28 ns
x 10 5
4000
3500
3000
2500
2000
1500
1000
500
0
1
0.75
0.5
0.25
0
-0.25
-0.5
-0.75
-1
Y (cm)
-1 -0.75 -0.5 -0.25 0 0.25 0.5 0.75 1
X (cm)
No energy cut: 41970 macroparticles, 1.67837e+10 e-
x 10 5
2000
1750
1500
1250
1000
750
500
250
0
1
0.75
0.5
0.25
0
-0.25
-0.5
-0.75
-1
Y (cm)
-1 -0.75 -0.5 -0.25 0 0.25 0.5 0.75 1
X (cm)
E_{kin}>50 eV: 11422 macroparticles, 1.01505e+10 e-

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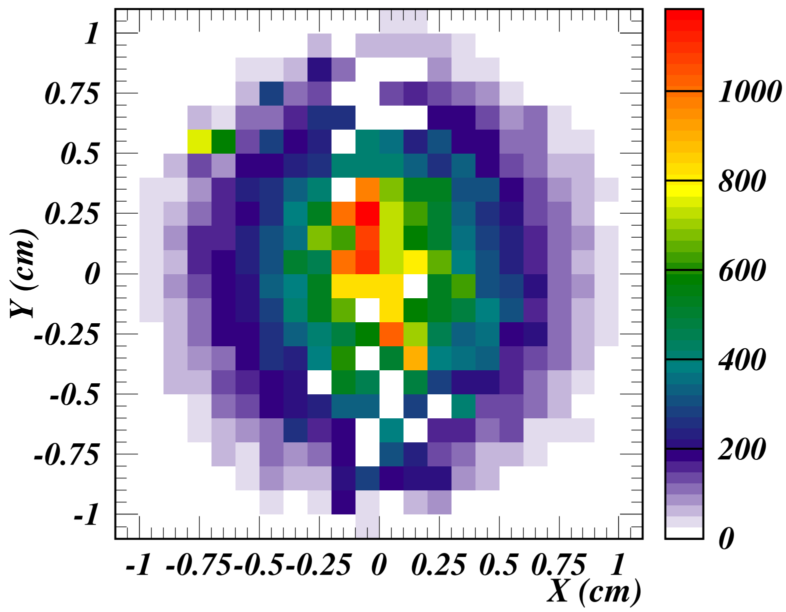
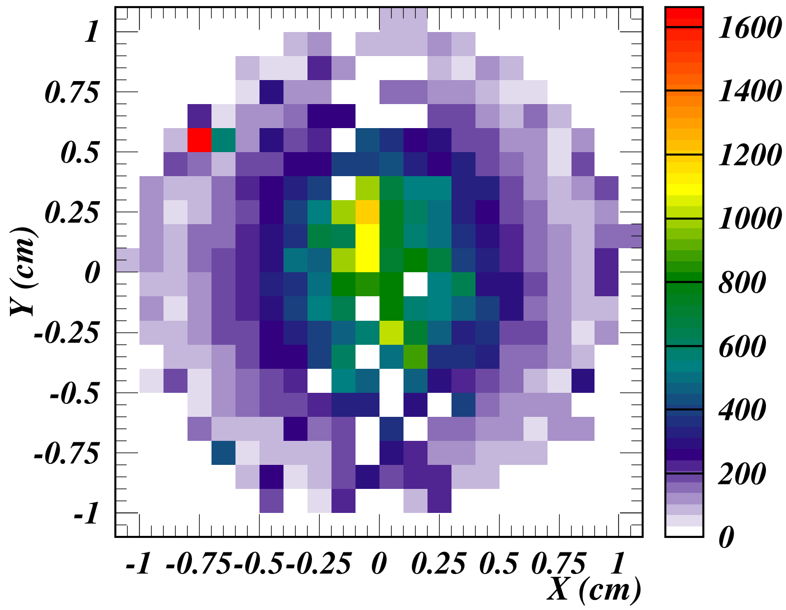
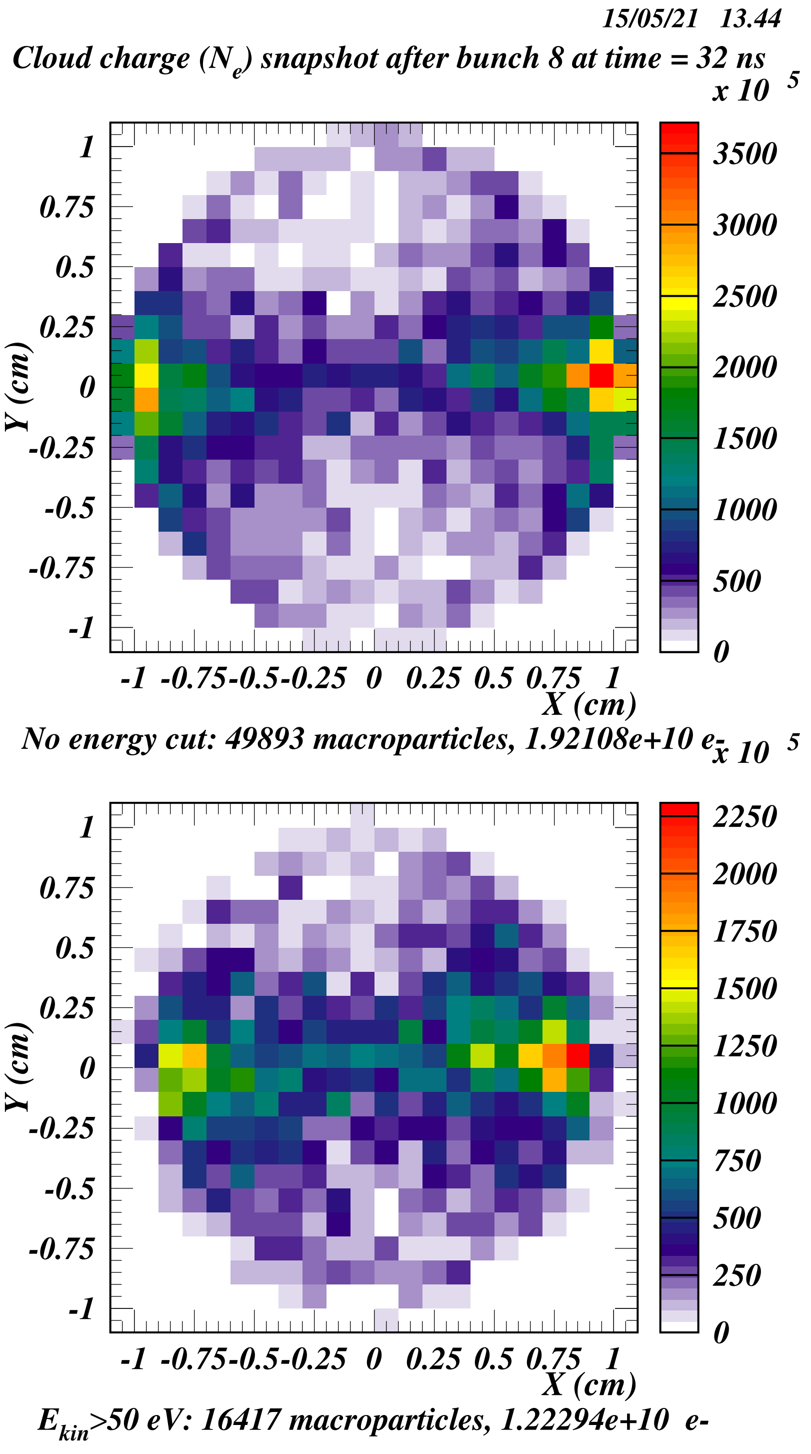
Cloud energy (eV) snapshot after bunch 7 at time = 28 ns



No energy cut: 41970 macroparticles, 1.67837e+10 e-



E_{kin}>50 eV: 11422 macroparticles, 1.01505e+10 e-


15/05/21 13.44
Cloud charge (N_e) snapshot after bunch 8 at time = 32 ns
x 10 5
Y (cm)
X (cm)
3500
3000
2500
2000
1500
1000
500
0
No energy cut: 49893 macroparticles, 1.92108e+10 e-
x 10 5
2250
2000
1750
1500
1250
1000
750
500
250
0
E_{kin}>50 eV: 16417 macroparticles, 1.22294e+10 e-

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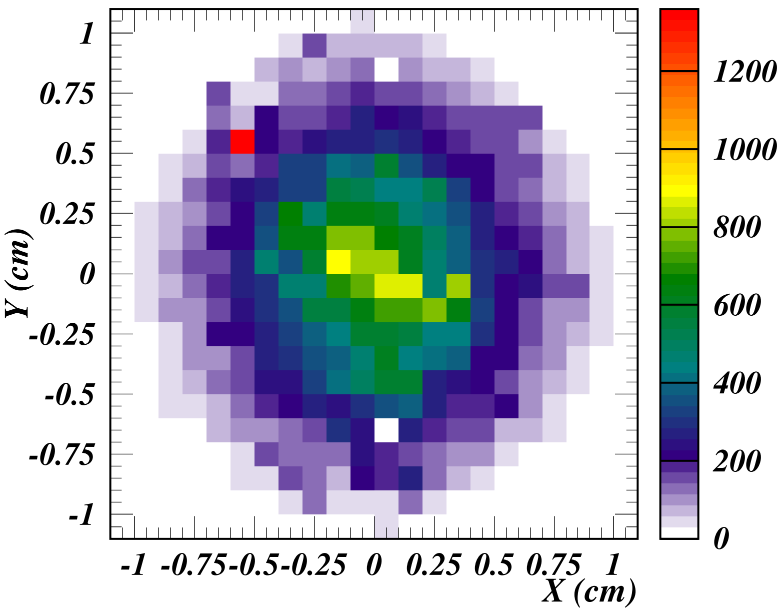
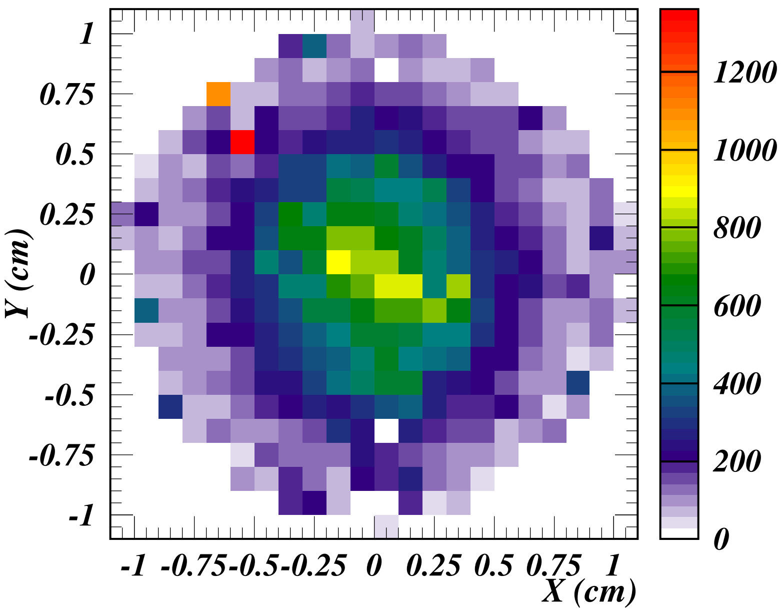
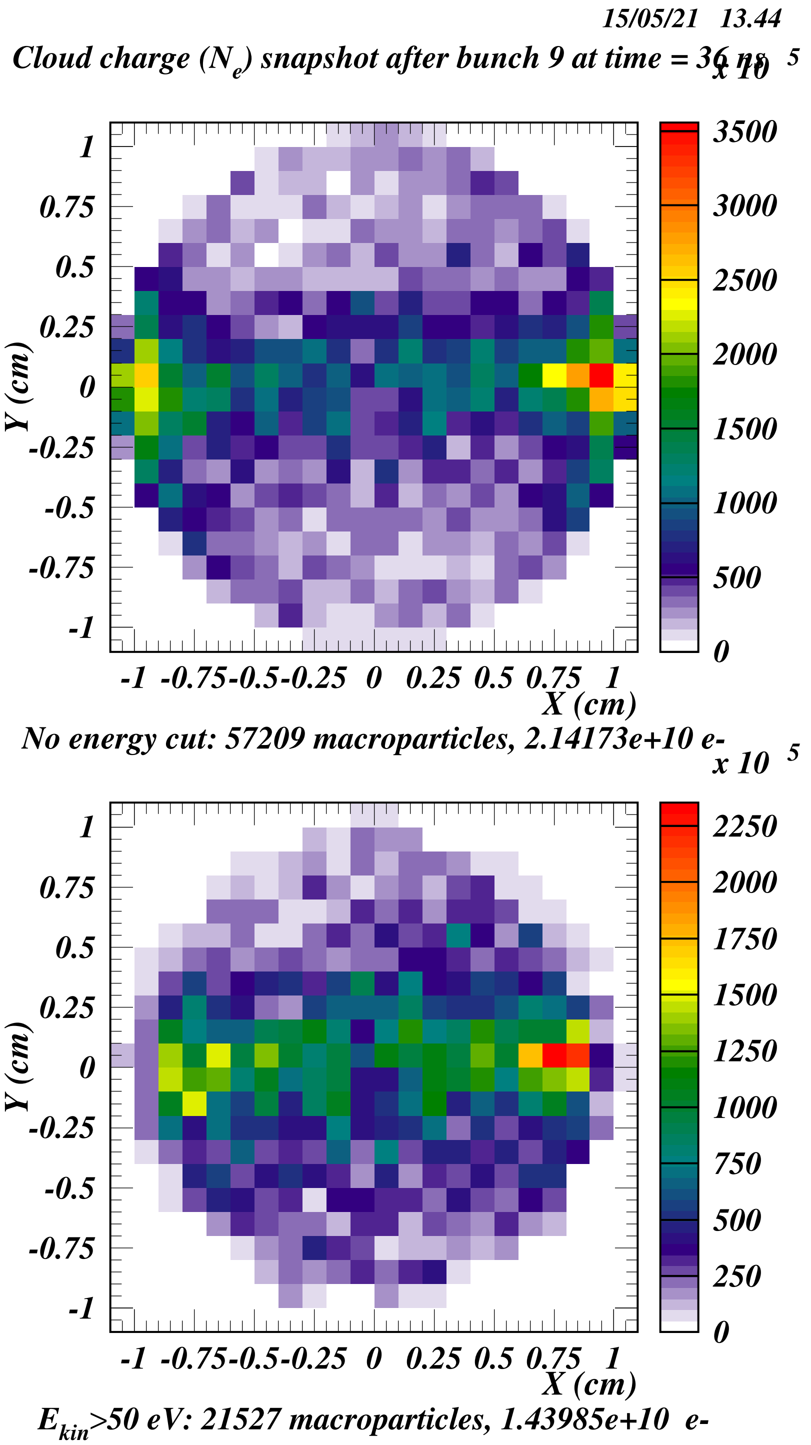
Cloud energy (eV) snapshot after bunch 8 at time = 32 ns

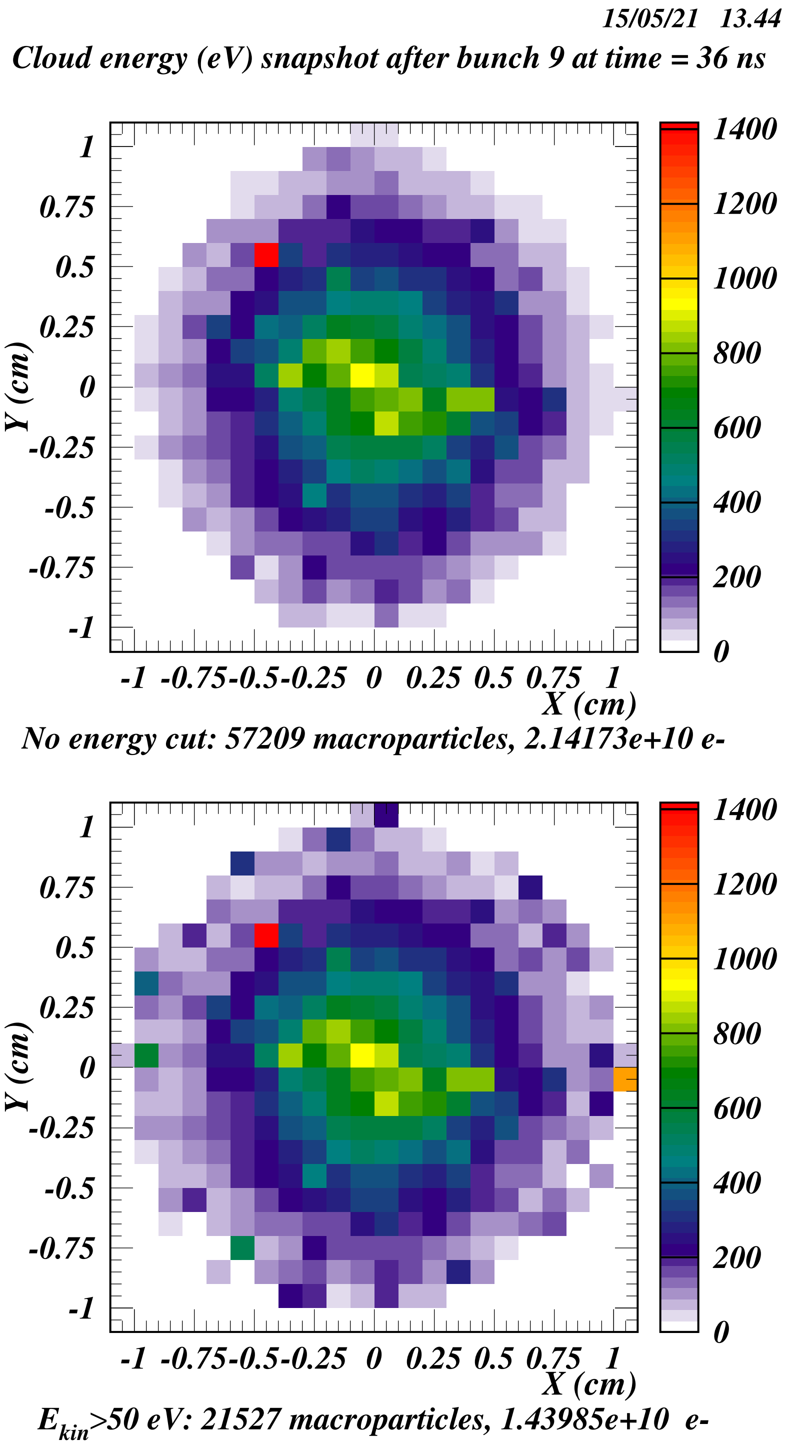


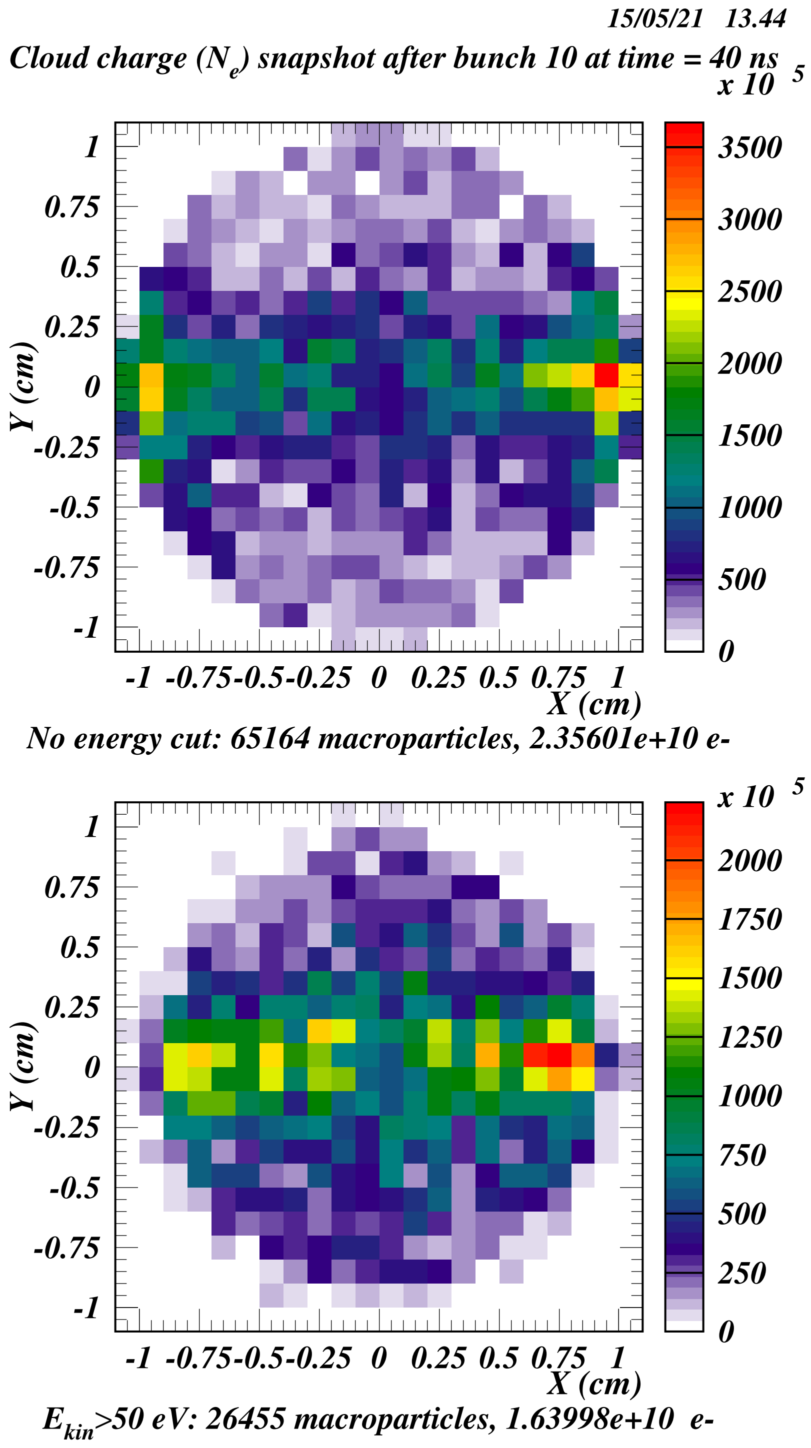
No energy cut: 49893 macroparticles, 1.92108e+10 e-



E_{kin}>50 eV: 16417 macroparticles, 1.22294e+10 e-


15/05/21 13.44
Cloud charge (N_e) snapshot after bunch 9 at time = 36 ns
x 10^5
3500
3000
2500
2000
1500
1000
500
0
Y (cm)
X (cm)
1
0.75
0.5
0.25
0
-0.25
-0.5
-0.75
-1
No energy cut: 57209 macroparticles, 2.14173e+10 e-
x 10^5
2250
2000
1750
1500
1250
1000
750
500
250
0
Y (cm)
X (cm)
E_{kin}>50 eV: 21527 macroparticles, 1.43985e+10 e-


15/05/21 13.44
Cloud energy (eV) snapshot after bunch 9 at time = 36 ns
Y (cm)
X (cm)
1
0.75
0.5
0.25
0
-0.25
-0.5
-0.75
-1
-1 -0.75-0.5-0.25 0 0.25 0.5 0.75 1
1400
1200
1000
800
600
400
200
0
No energy cut: 57209 macroparticles, 2.14173e+10 e-
E_{kin}>50 eV: 21527 macroparticles, 1.43985e+10 e-


15/05/21 13.44
Cloud charge (N_e) snapshot after bunch 10 at time = 40 ns
x 10^5
Y (cm)
X (cm)
No energy cut: 65164 macroparticles, 2.35601e+10 e-
x 10^5
Y (cm)
X (cm)
E_kin>50 eV: 26455 macroparticles, 1.63998e+10 e-

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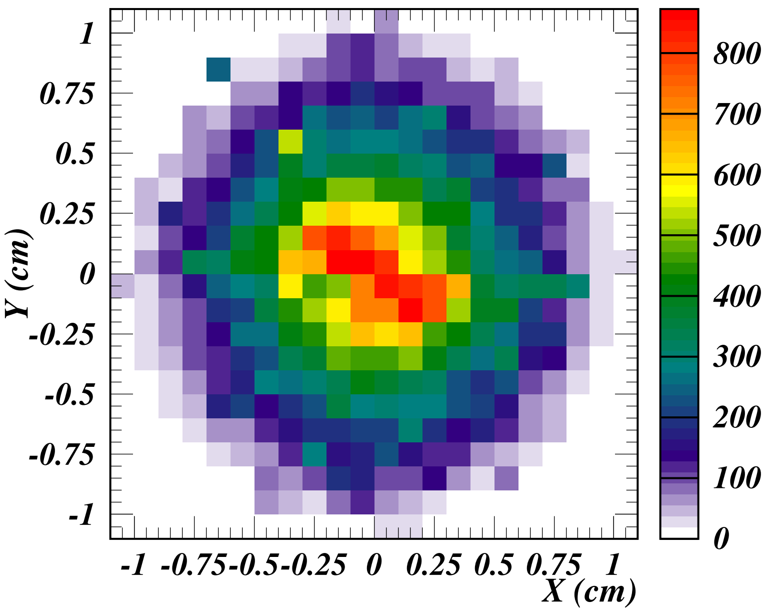
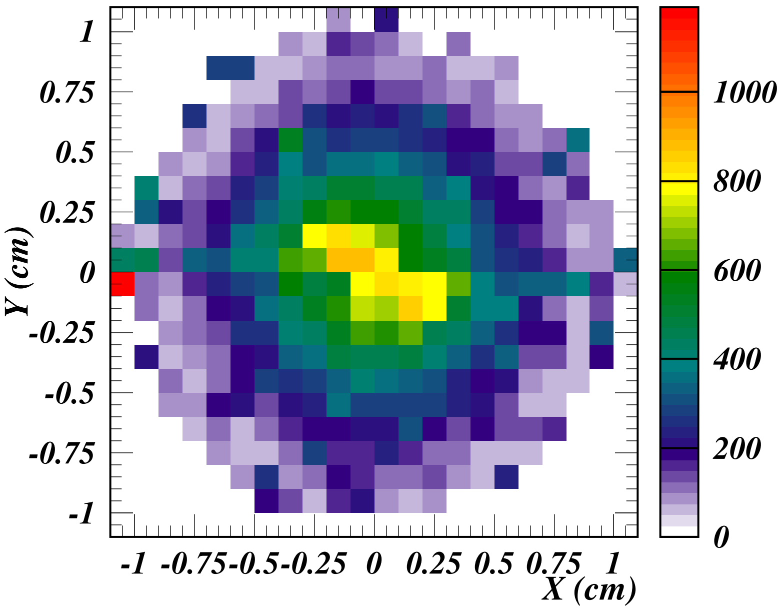
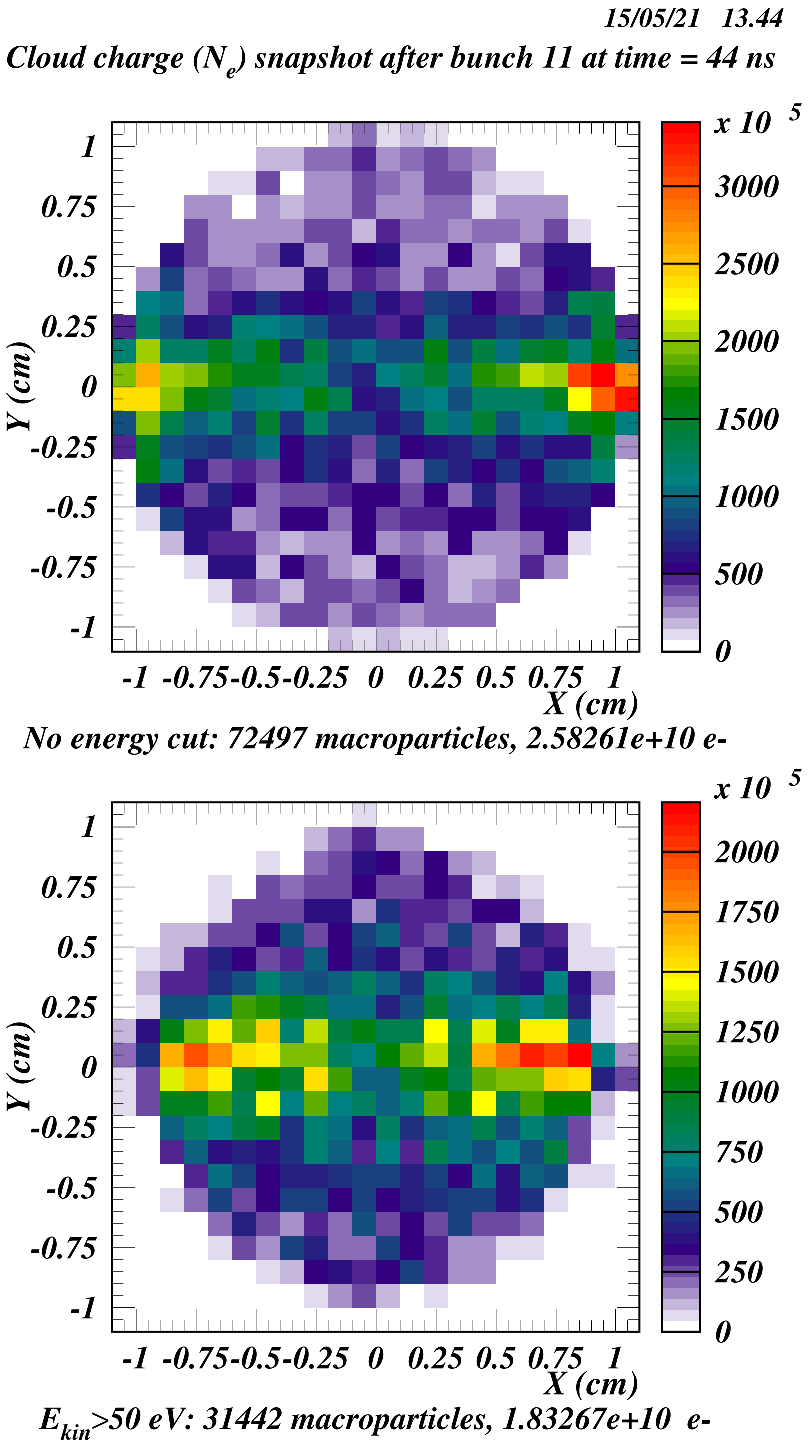
Cloud energy (eV) snapshot after bunch 10 at time = 40 ns



No energy cut: 65164 macroparticles, 2.35601e+10 e-



E_{kin}>50 eV: 26455 macroparticles, 1.63998e+10 e-


15/05/21 13.44
Cloud charge (N_e) snapshot after bunch 11 at time = 44 ns
x 10 5
Y (cm)
X (cm)
No energy cut: 72497 macroparticles, 2.58261e+10 e-
E_{kin}>50 eV: 31442 macroparticles, 1.83267e+10 e-

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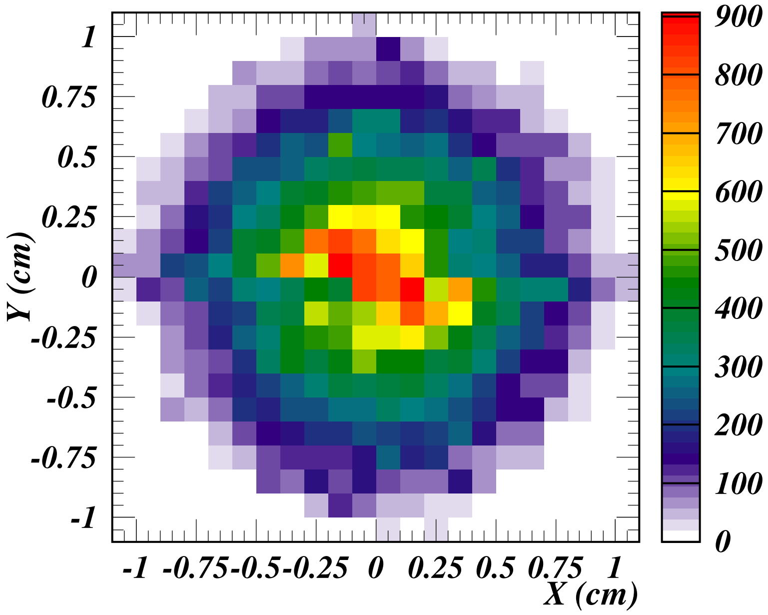
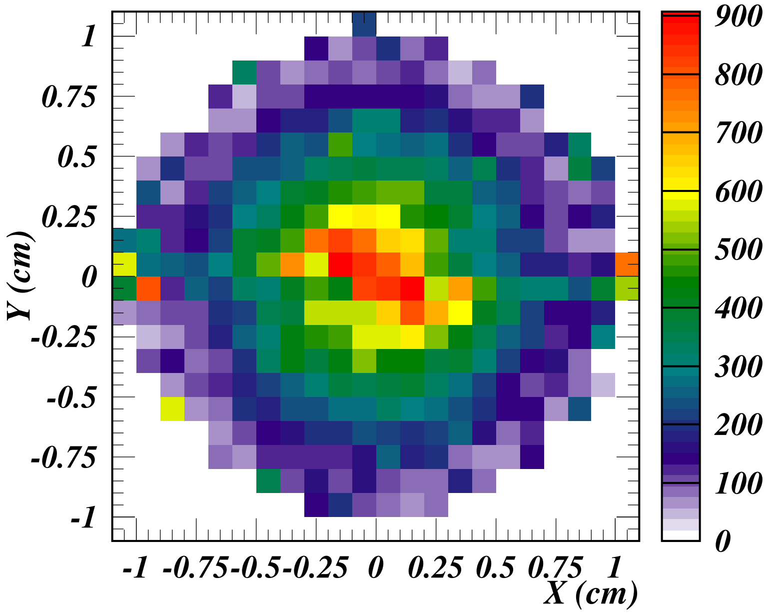
Cloud energy (eV) snapshot after bunch 11 at time = 44 ns



No energy cut: 72497 macroparticles, 2.58261e+10 e-



E_{kin}>50 eV: 31442 macroparticles, 1.83267e+10 e-

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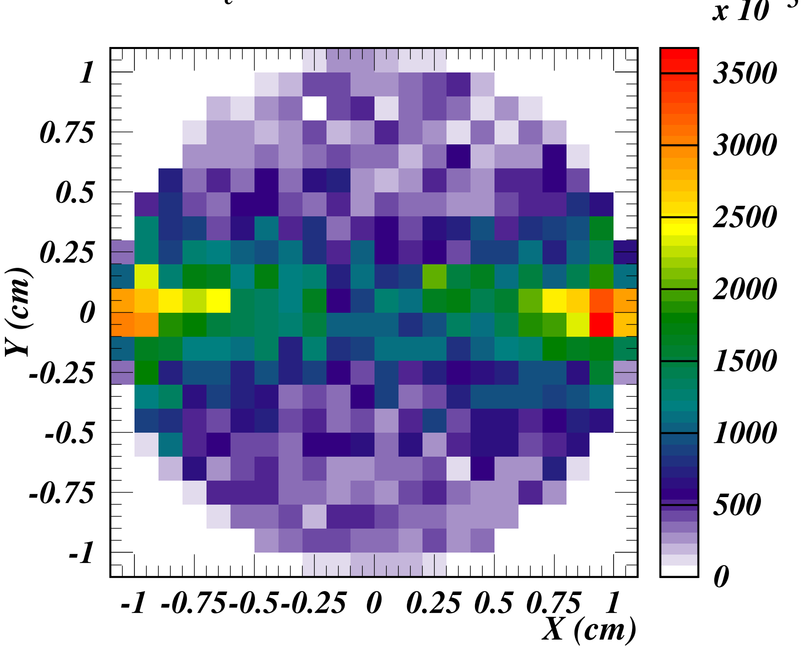
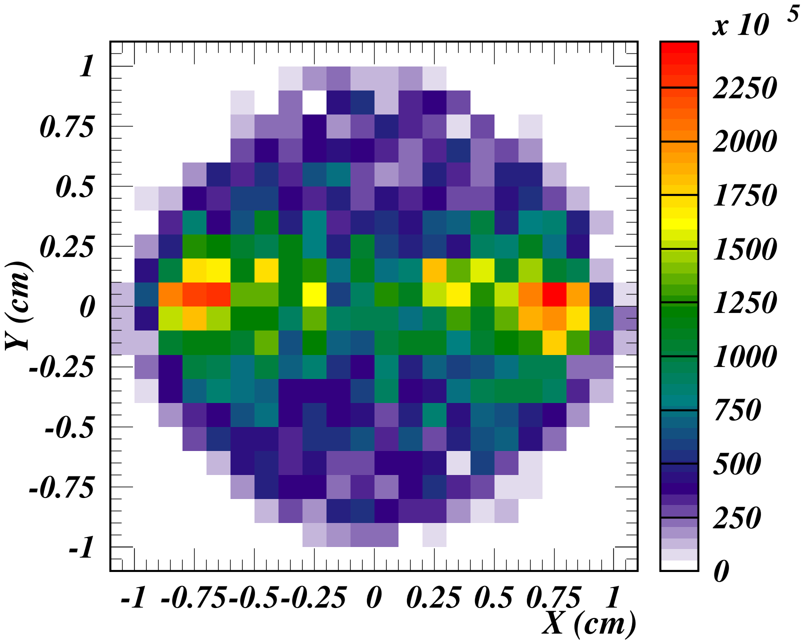
Cloud charge (N_e) snapshot after bunch 12 at time = 48 ns



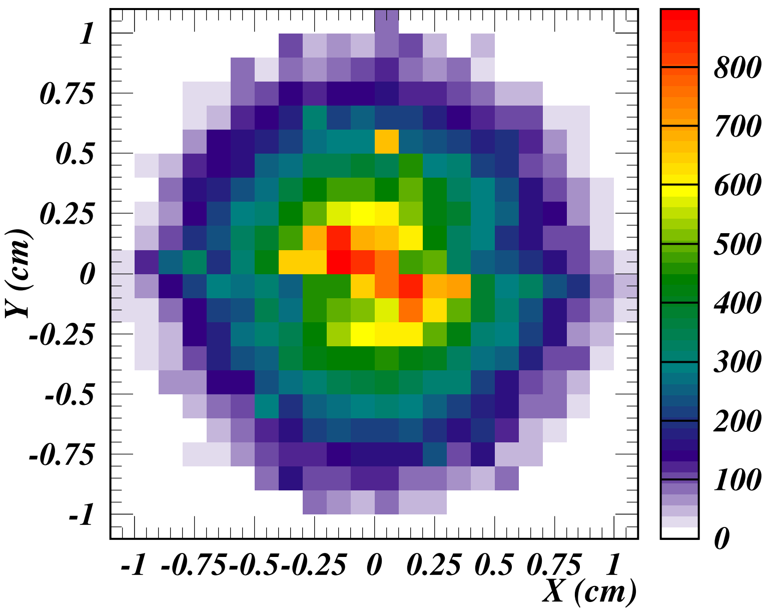
No energy cut: 80035 macroparticles, 2.81637e+10 e-



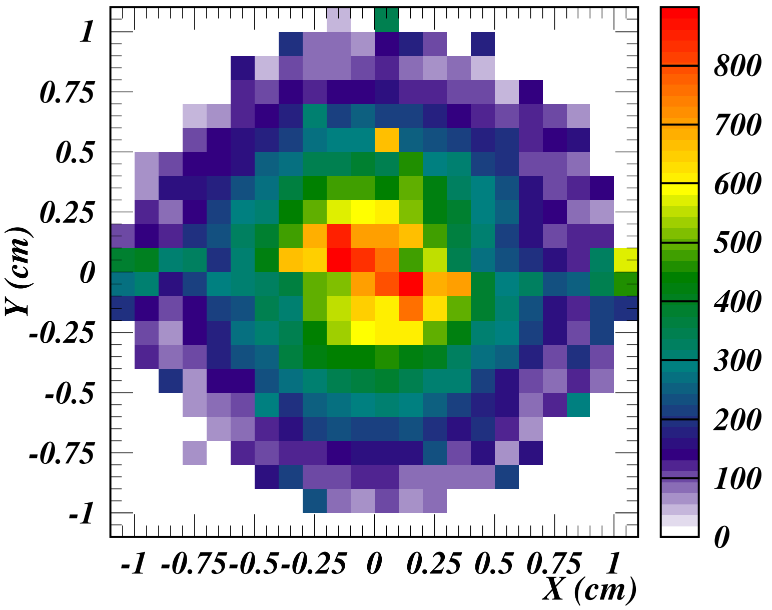
E_{kin}>50 eV: 36542 macroparticles, 2.01308e+10 e-

15/05/21 13.44

Cloud energy (eV) snapshot after bunch 12 at time = 48 ns



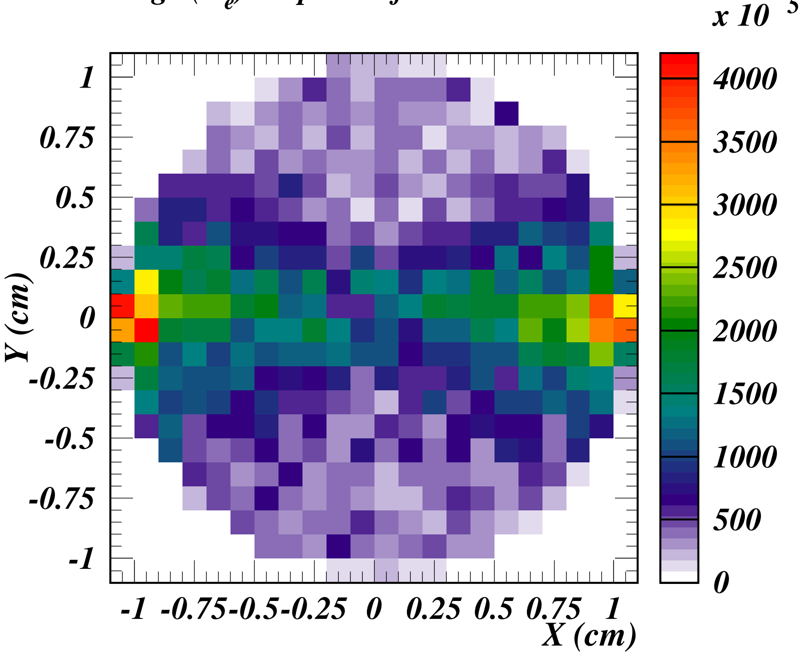
No energy cut: 80035 macroparticles, 2.81637e+10 e-



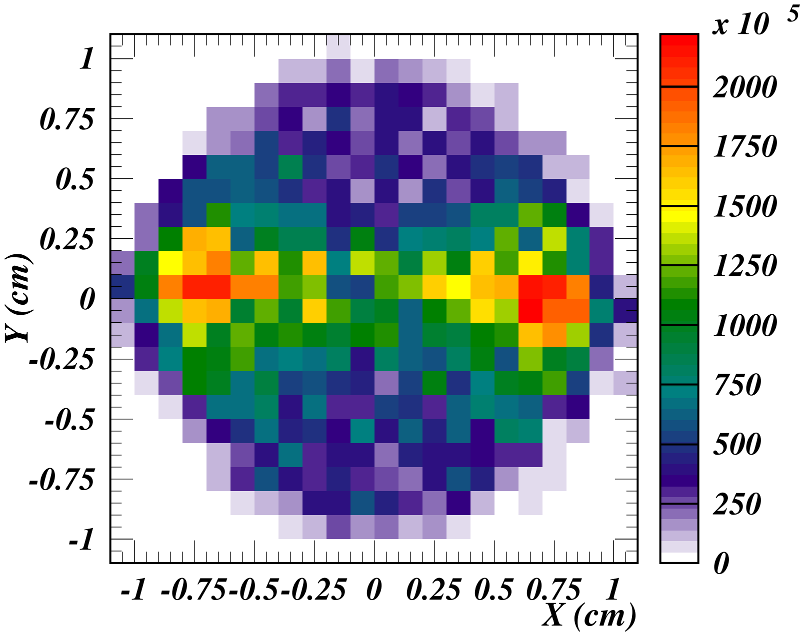
E_{kin}>50 eV: 36542 macroparticles, 2.01308e+10 e-

15/05/21 13.44

Cloud charge (N_e) snapshot after bunch 13 at time = 52 ns



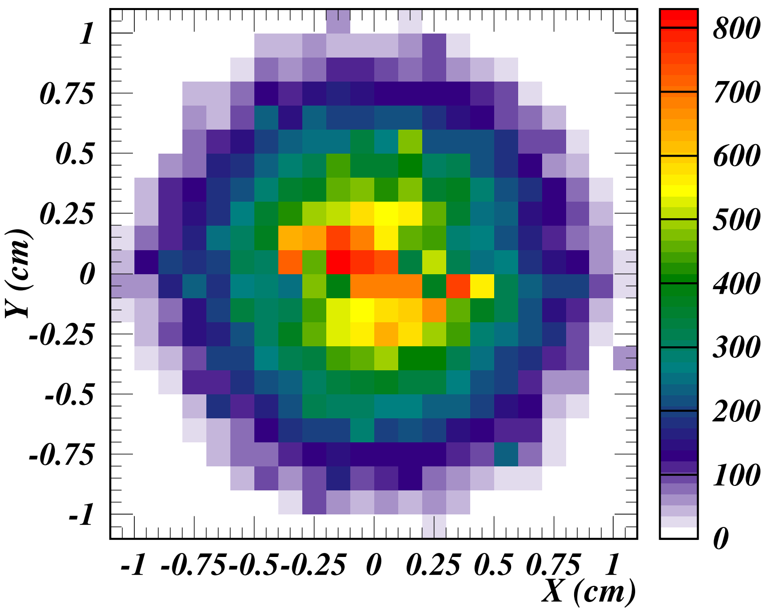
No energy cut: 87747 macroparticles, 3.04393e+10 e-



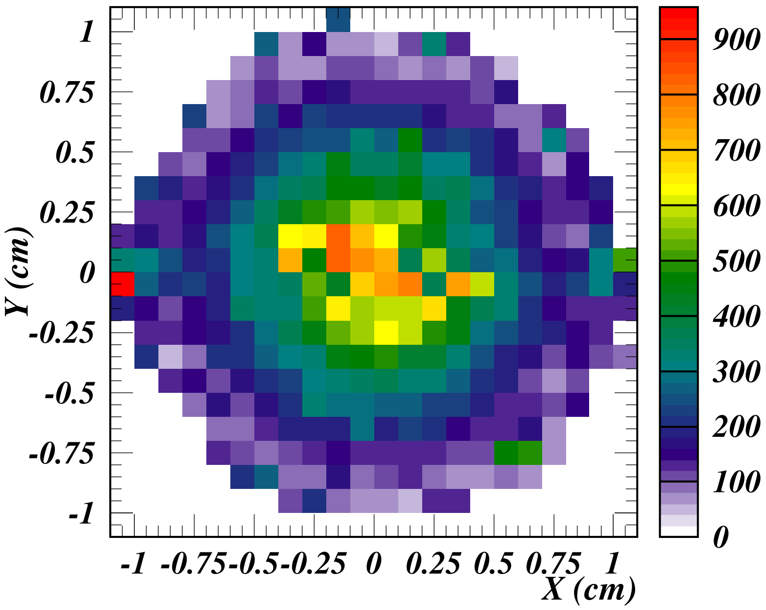
E_{kin}>50 eV: 42044 macroparticles, 2.16823e+10 e-

15/05/21 13.45

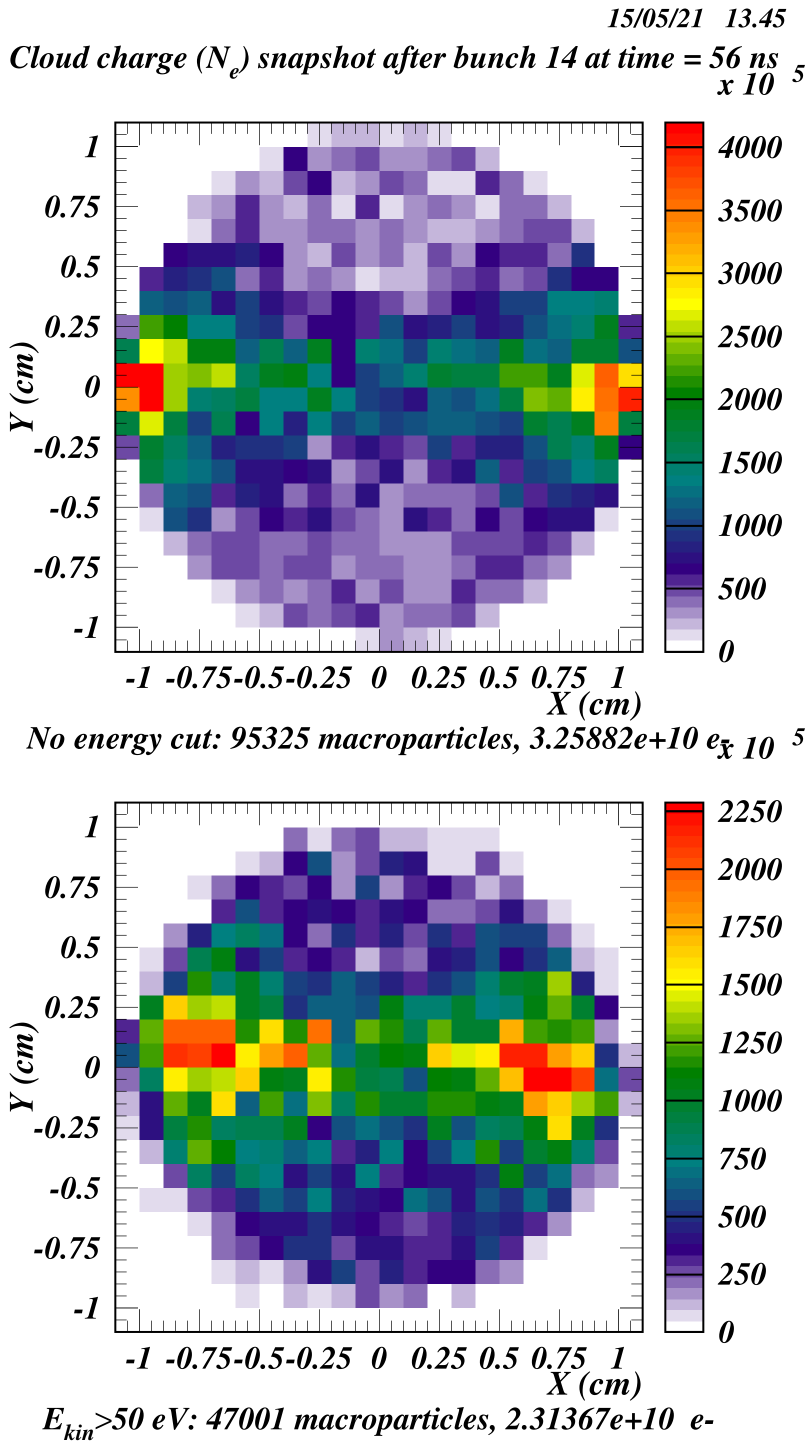
Cloud energy (eV) snapshot after bunch 13 at time = 52 ns



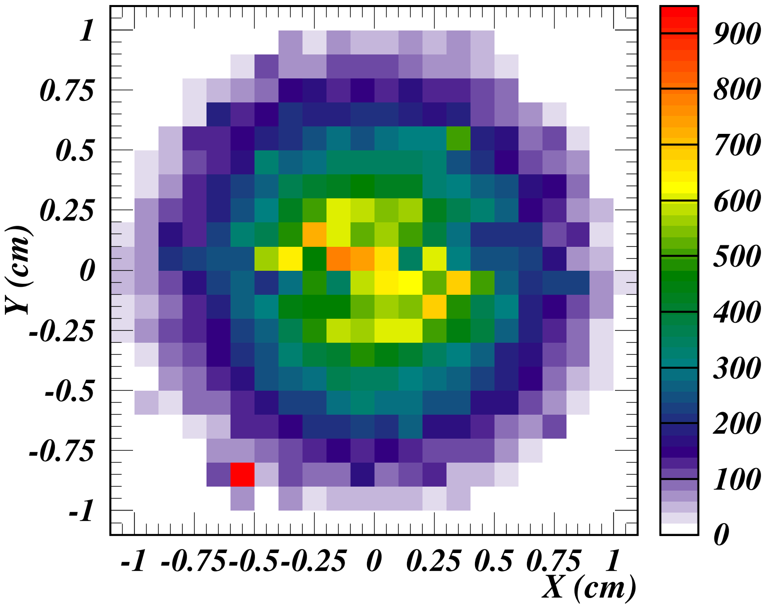
No energy cut: 87747 macroparticles, 3.04393e+10 e-



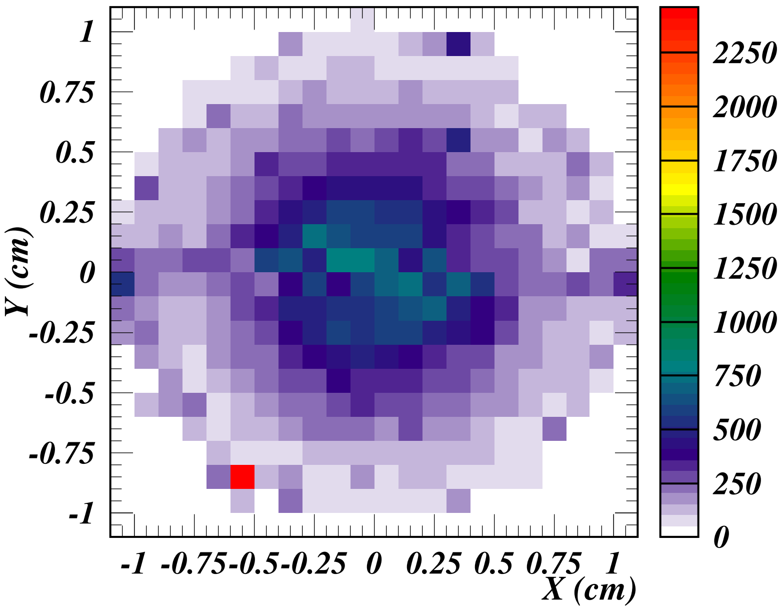
E_{kin}>50 eV: 42044 macroparticles, 2.16823e+10 e-


15/05/21 13.45
Cloud charge (N_e) snapshot after bunch 14 at time = 56 ns
x 10 5
1
0.75
0.5
0.25
0
-0.25
-0.5
-0.75
-1
Y (cm)
-1 -0.75 -0.5 -0.25 0 0.25 0.5 0.75 1
X (cm)
4000
3500
3000
2500
2000
1500
1000
500
0
No energy cut: 95325 macroparticles, 3.25882e+10 e-
x 10 5
2250
2000
1750
1500
1250
1000
750
500
250
0
Y (cm)
X (cm)
E_{kin}>50 eV: 47001 macroparticles, 2.31367e+10 e-

Cloud energy (eV) snapshot after bunch 14 at time = 56 ns

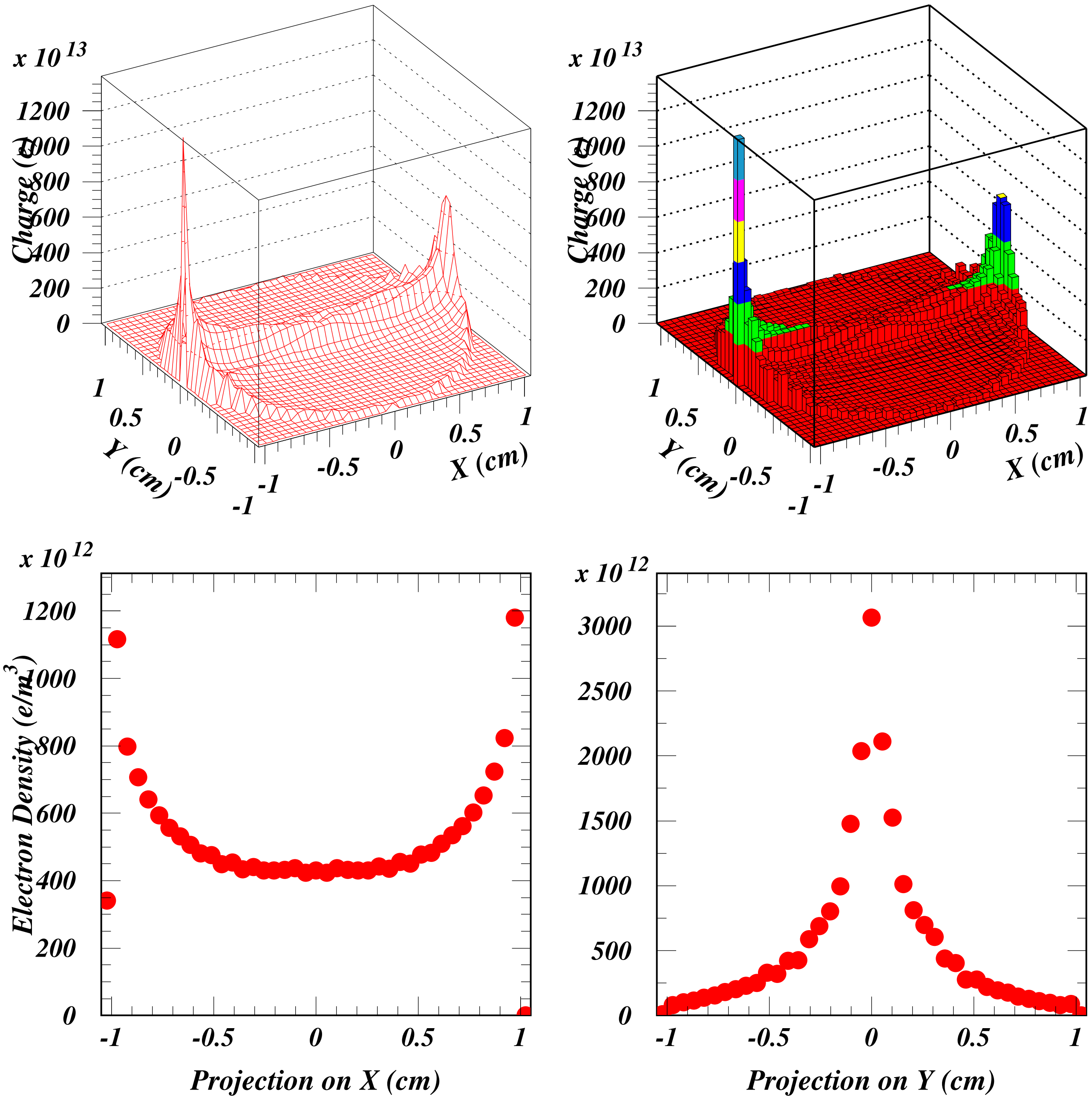


No energy cut: 95325 macroparticles, 3.25882e+10 e-

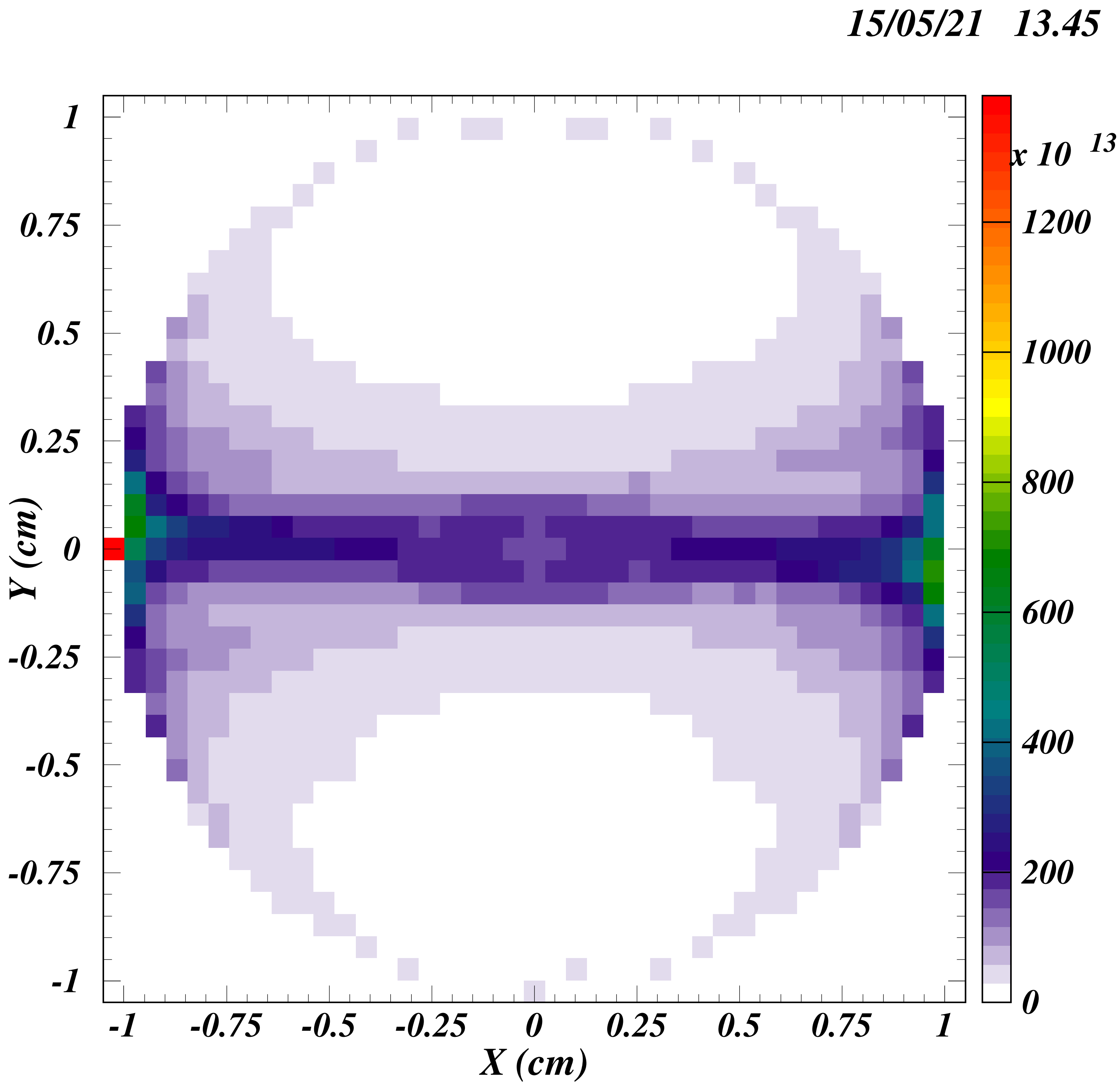


E_{kin}>50 eV: 47001 macroparticles, 2.31367e+10 e-

15/05/21 13.45

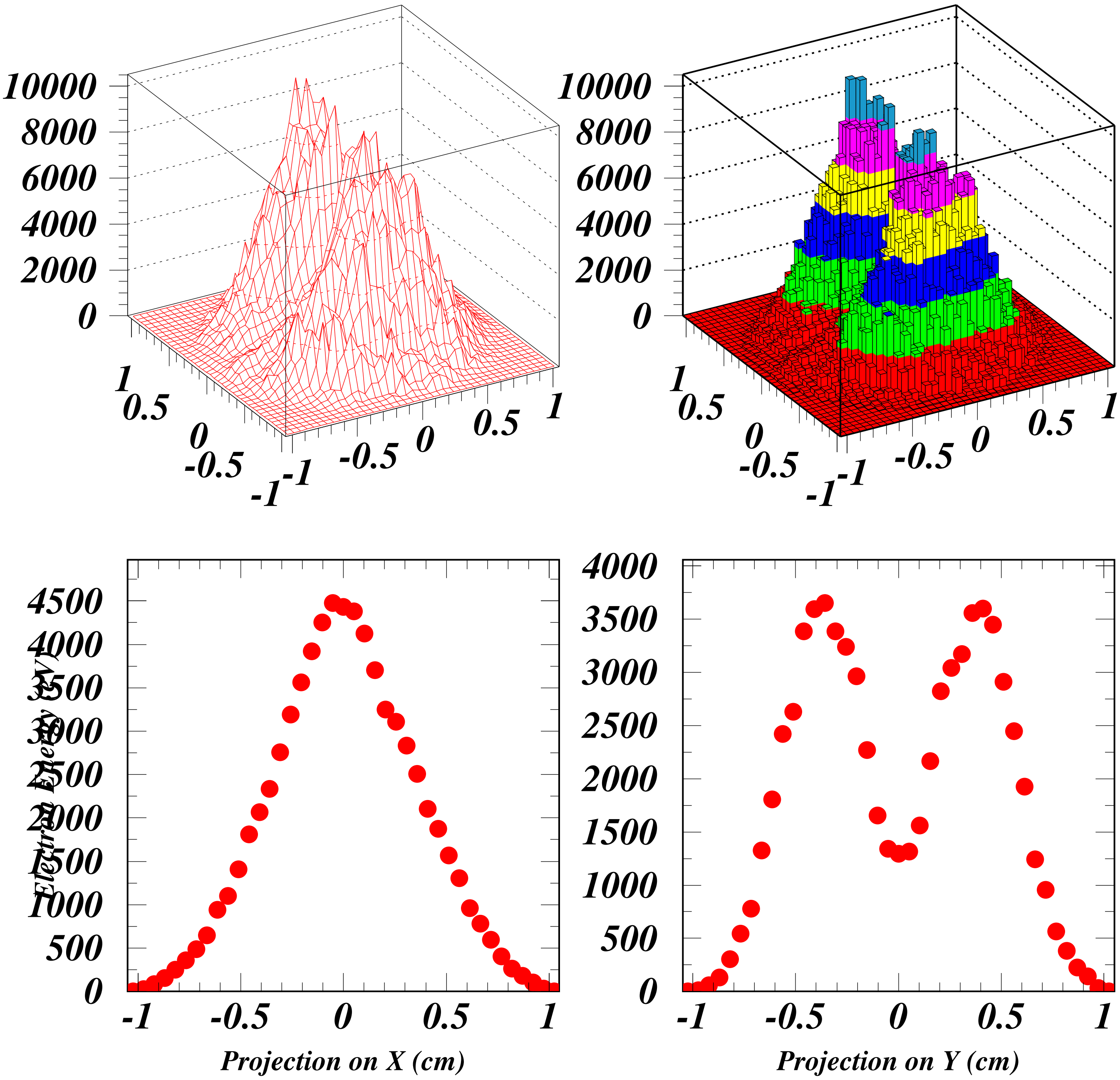


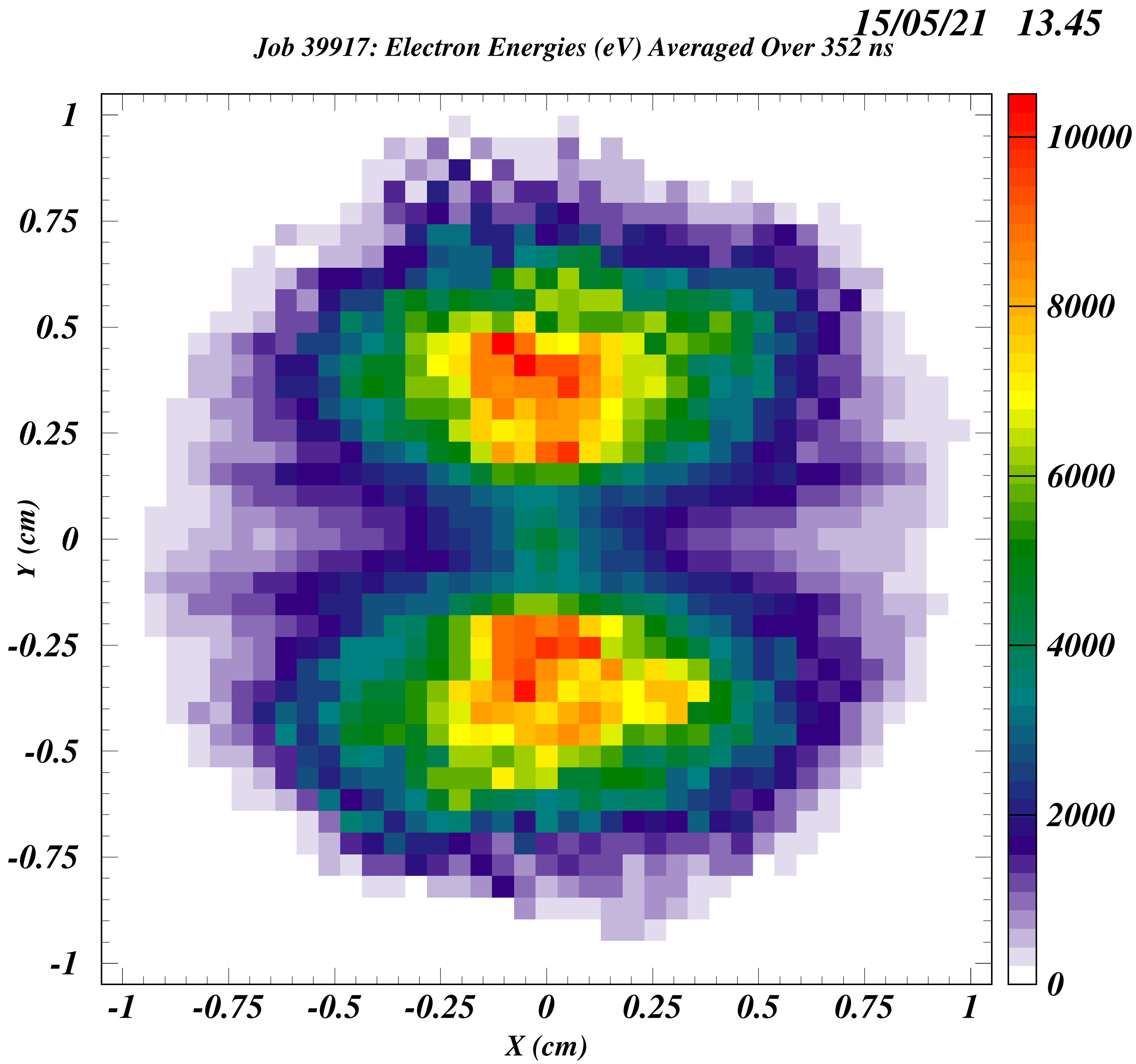
x 10^13
Charge (e)
1200
1000
800
600
400
200
0
Y (cm)
X (cm)
x 10^12
Electron Density (e/m^3)
Projection on X (cm)
Projection on Y (cm)
3000
2500
2000
1500
1000
500

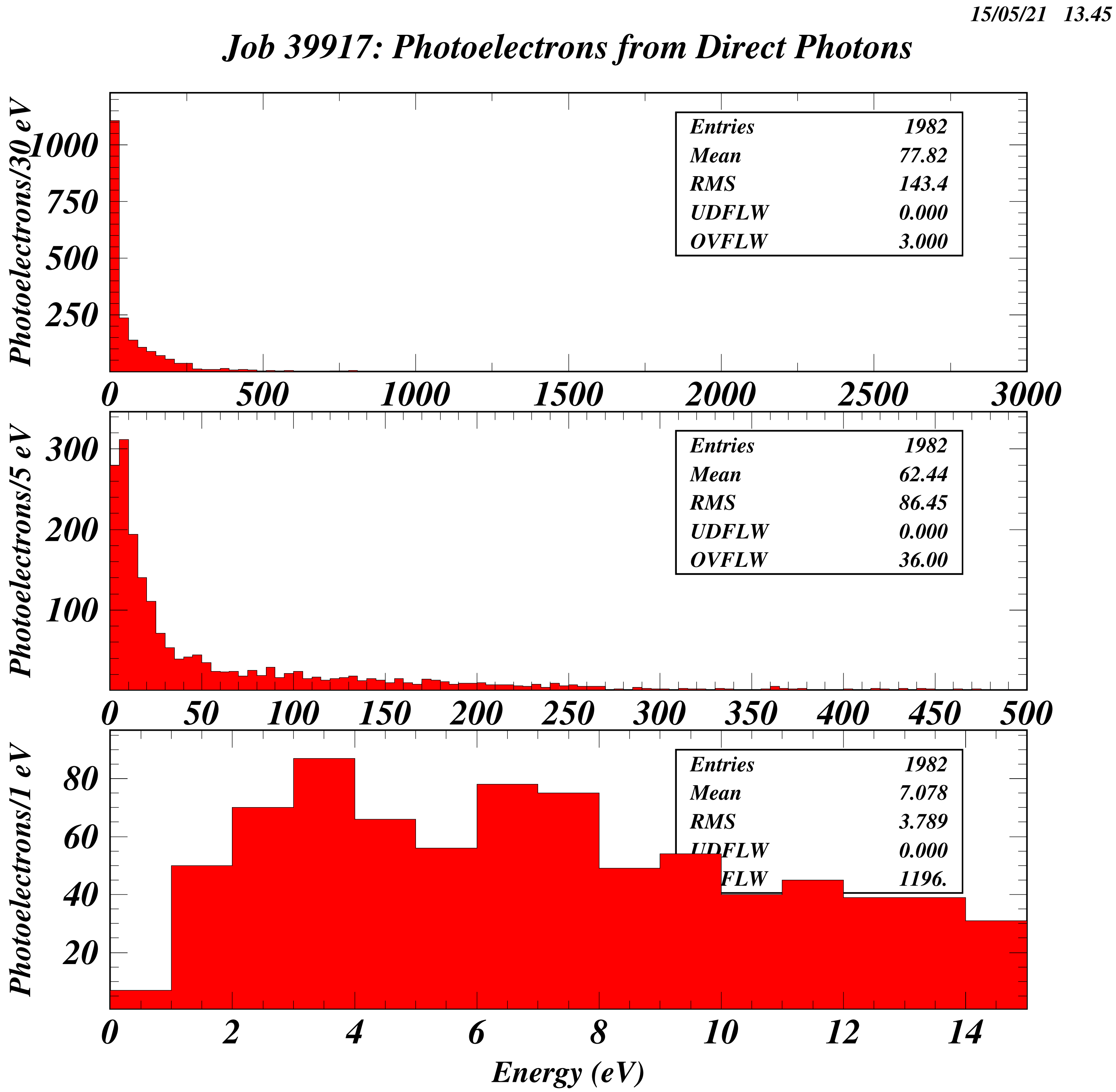

15/05/21 13.45
x 10 13
1200
1000
800
600
400
200
0
1
0.75
0.5
0.25
0
-0.25
-0.5
-0.75
-1
Y (cm)
-1
-0.75
-0.5
-0.25
0
0.25
0.5
0.75
1
X (cm)

15/05/21 13.45

Job 39917: Electron Energies (eV) Averaged Over 352 ns

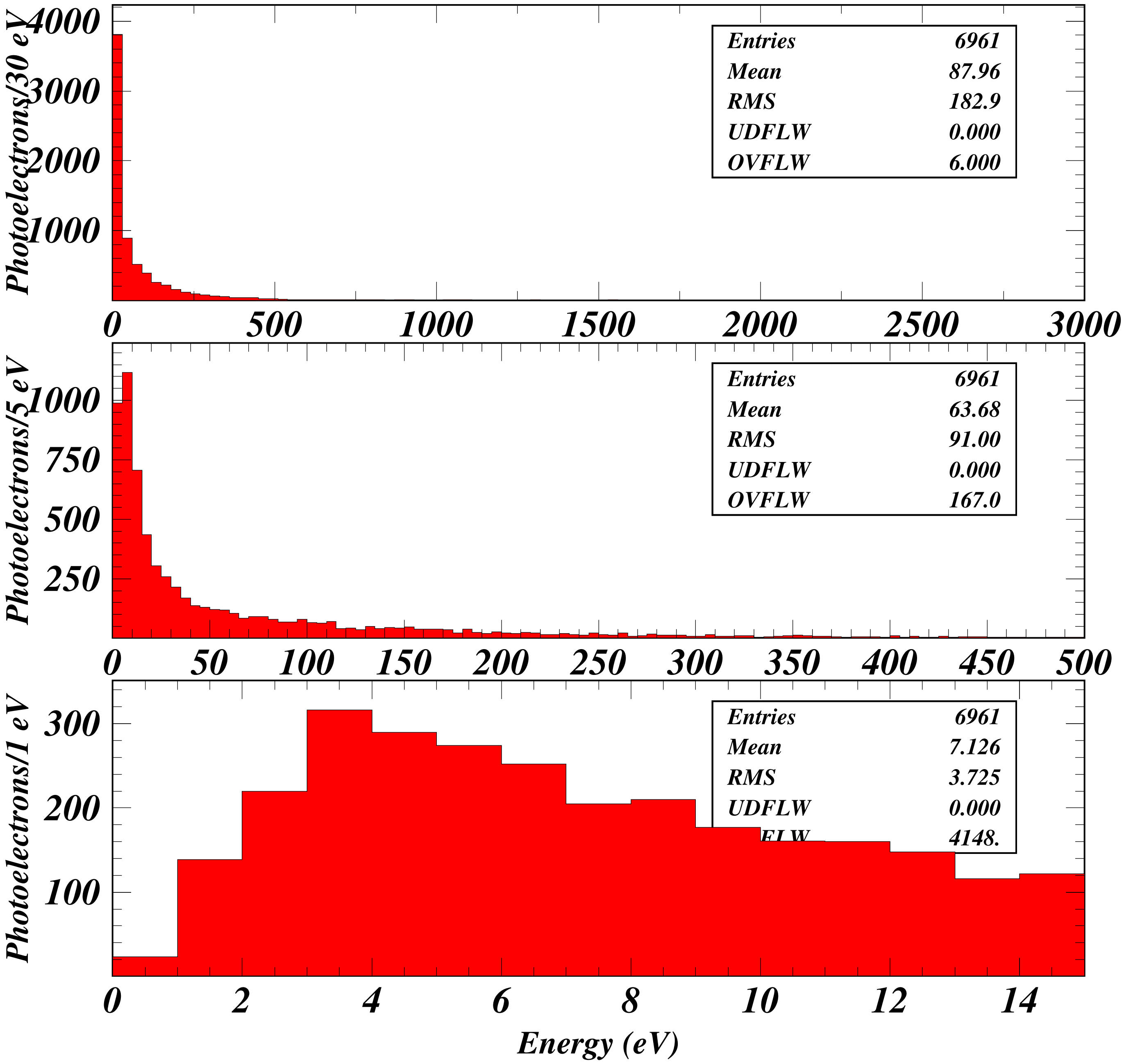



15/05/21 13.45
Job 39917: Electron Energies (eV) Averaged Over 352 ns
Y (cm)
X (cm)
1
0.75
0.5
0.25
0
-0.25
-0.5
-0.75
-1
10000
8000
6000
4000
2000
0


15/05/21 13.45
Job 39917: Photoelectrons from Direct Photons
Photoelectrons/30 eV
Entries 1982
Mean 77.82
RMS 143.4
UDFLW 0.000
OVFLW 3.000
0
250
500
750
1000
500
1000
1500
2000
2500
3000
Photoelectrons/5 eV
Entries 1982
Mean 62.44
RMS 86.45
UDFLW 0.000
OVFLW 36.00
100
200
300
0
50
100
150
200
250
300
350
400
450
500
Photoelectrons/1 eV
Entries 1982
Mean 7.078
RMS 3.789
UDFLW 0.000
FLW 1196.
20
40
60
80
0
2
4
6
8
10
12
14
Energy (eV)

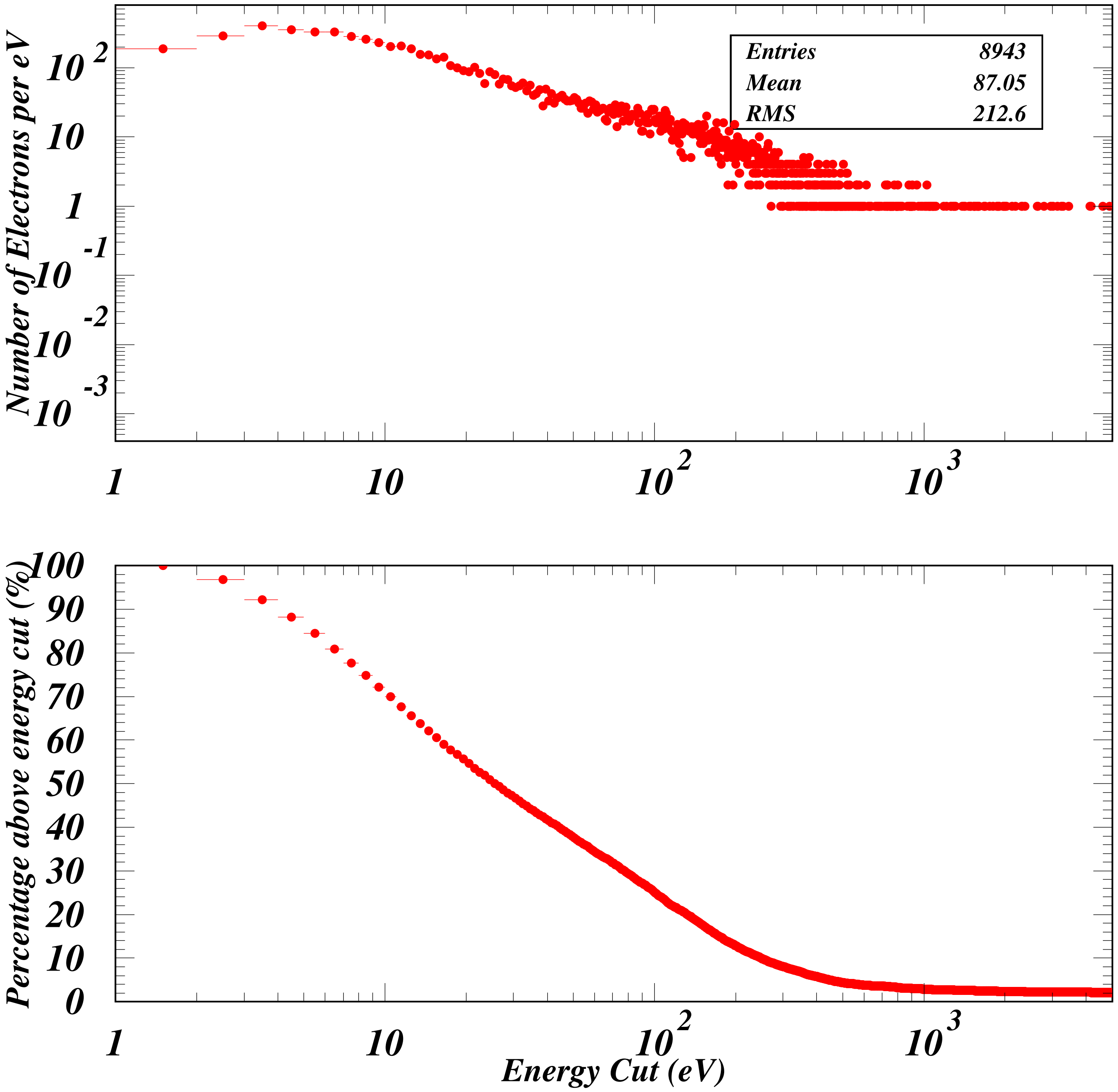
15/05/21 13.45

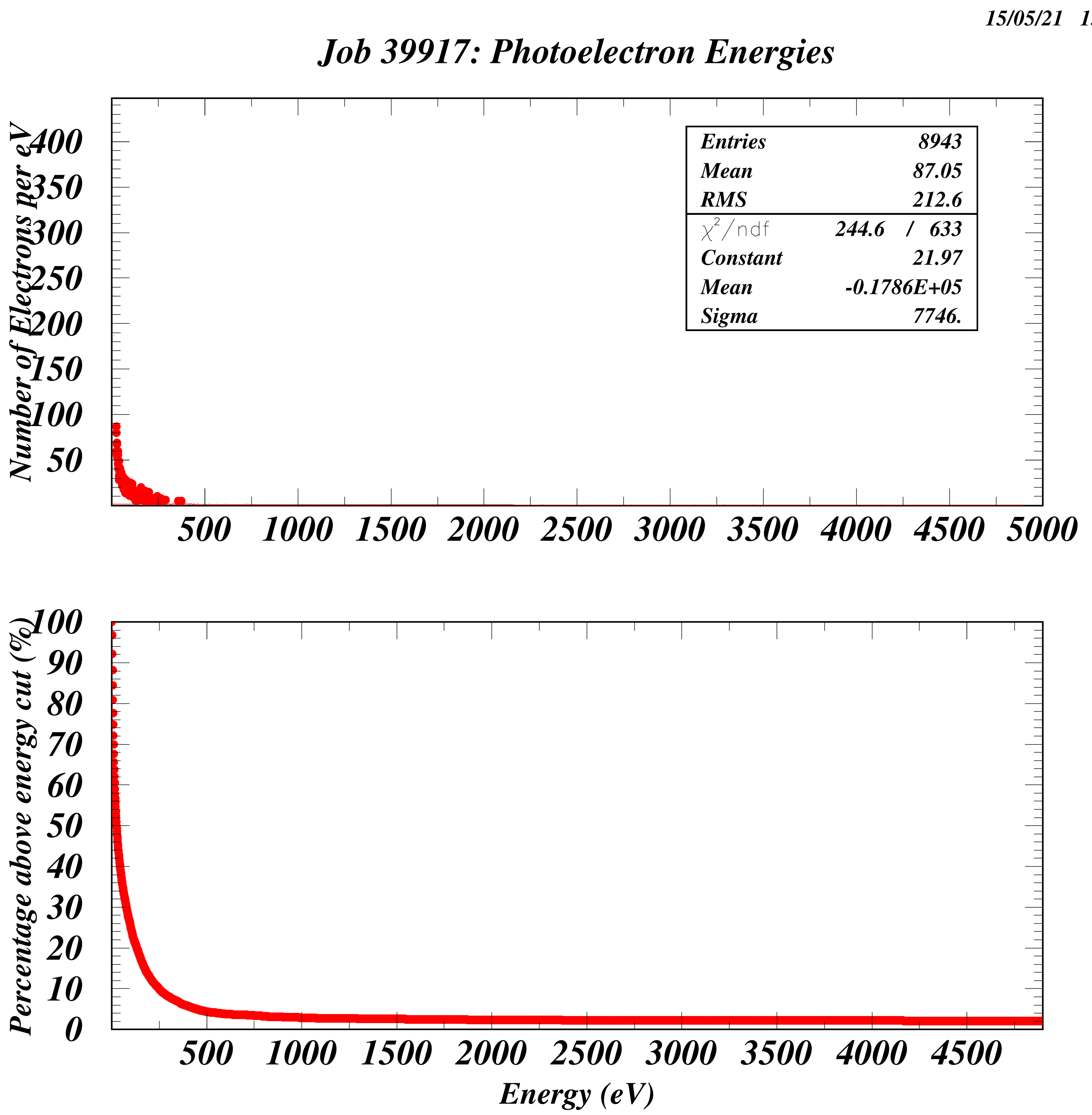
Job 39917: Photoelectrons from Reflected Photons



15/05/21 13.45

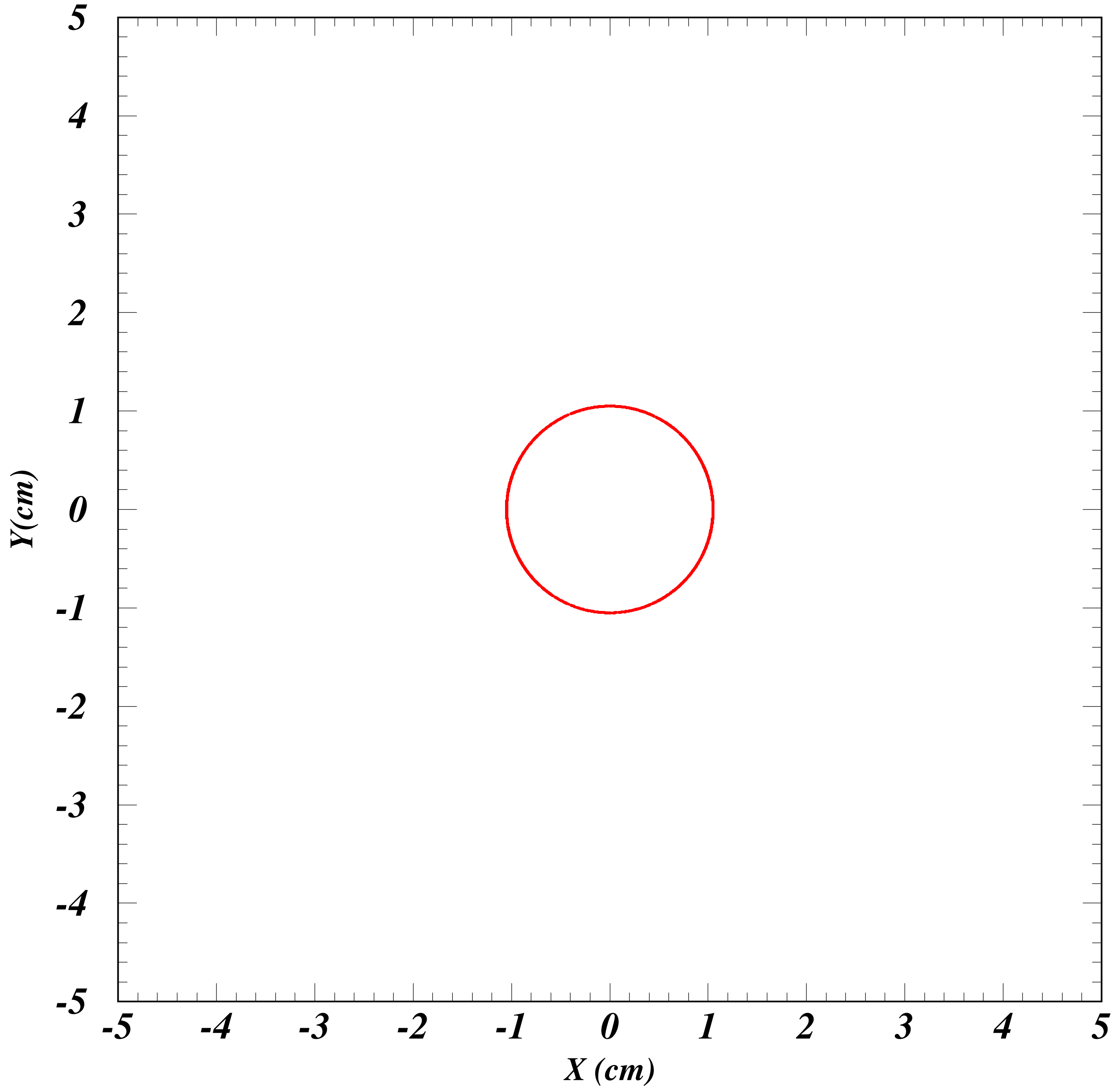
Job 39917: Photoelectron Energies




15/05/21 13.45
Job 39917: Photoelectron Energies
Entries 8943
Mean 87.05
RMS 212.6
χ^2/ndf 244.6 / 633
Constant 21.97
Mean -0.1786E+05
Sigma 7746.
Number of Electrons per eV
400
350
300
250
200
150
100
50
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
Percentage above energy cut (%)
100
90
80
70
60
50
40
30
20
10
0
500
1000
1500
2000
2500
3000
3500
4000
4500
Energy (eV)

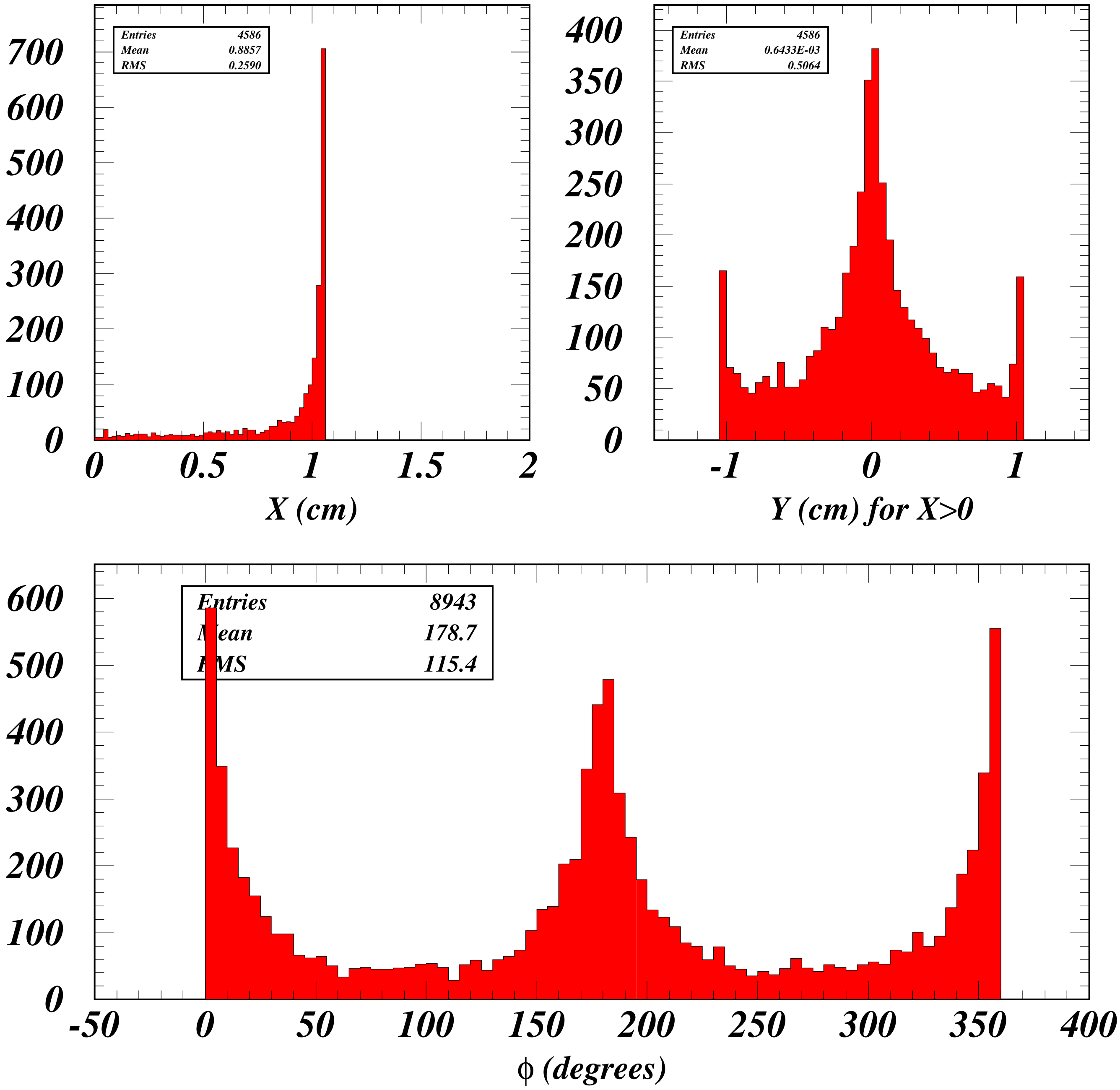
15/05/21 13.45

Job 39917: Photoelectron Production Distributions



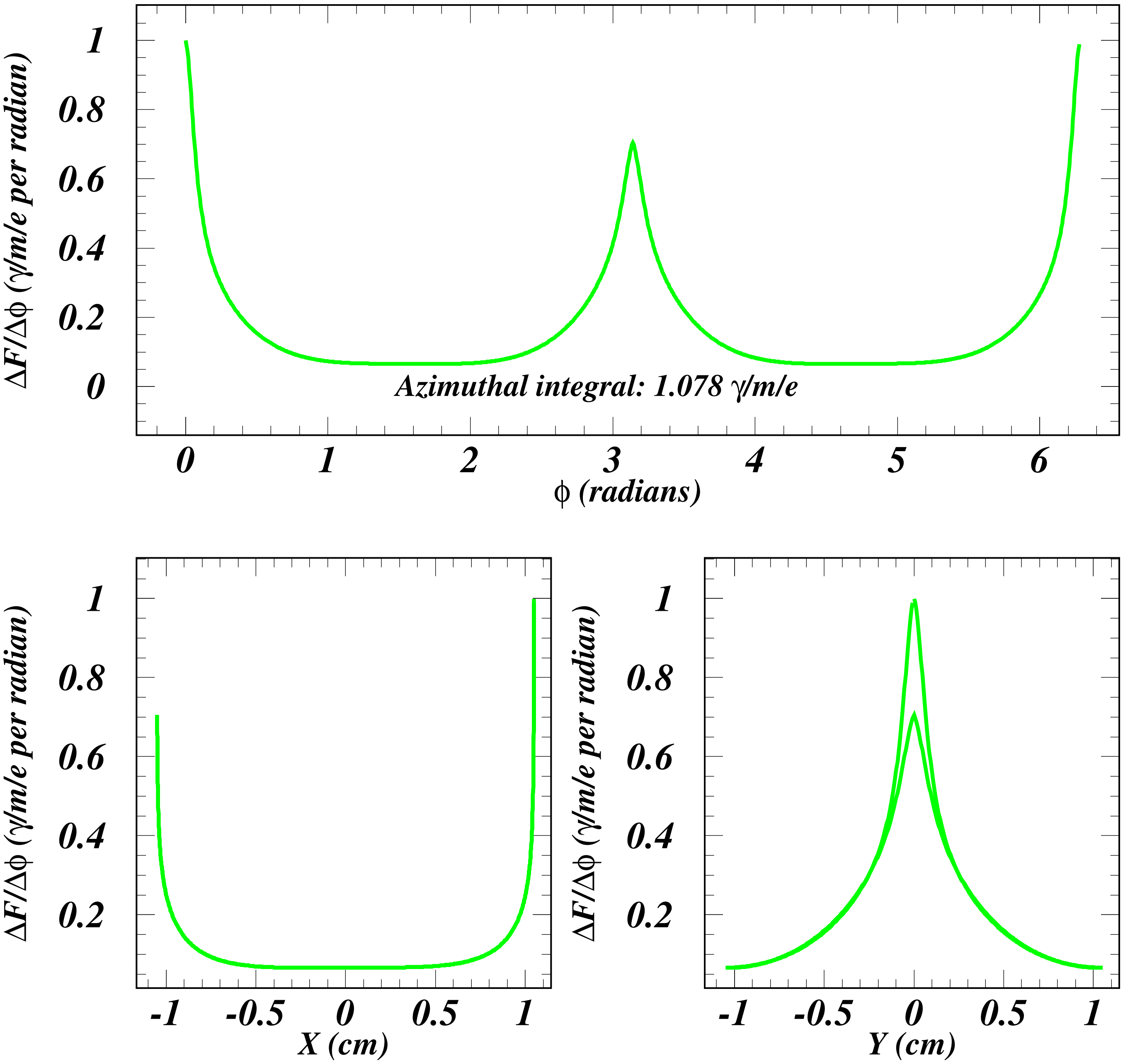
15/05/21 13.45

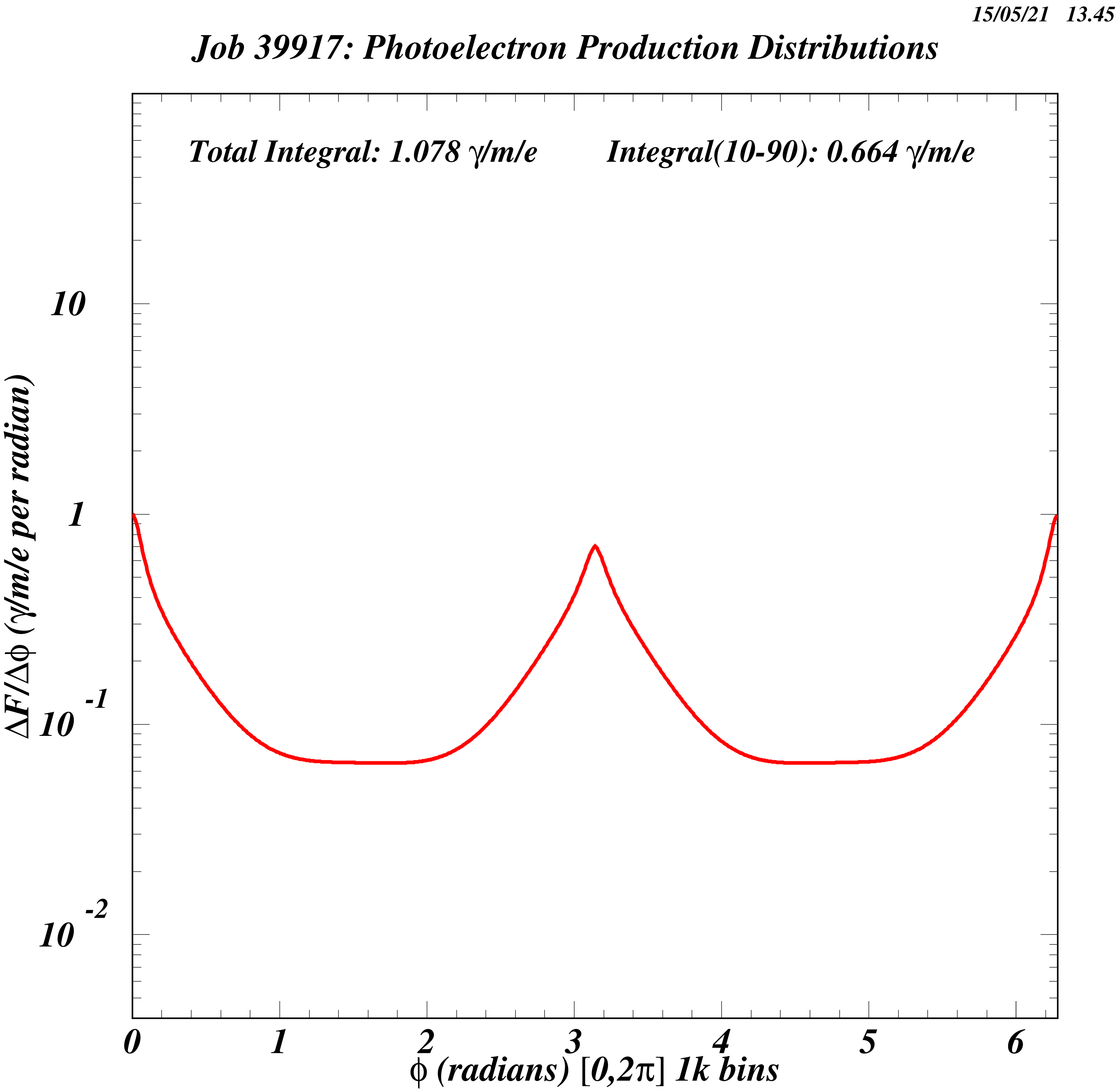
Job 39917: Photoelectron Production Distributions



15/05/21 13.45

Job 39917: Photoelectron Production Distributions





15/05/21 13.45
Job 39917: Photoelectron Production Distributions
Total Integral: 1.078 γ/m/e
Integral(10-90): 0.664 γ/m/e
ΔF/Δφ (γ/m/e per radian)
10
1
10 -1
10 -2
0
1
2
3
4
5
6
φ (radians) [0,2π] 1k bins