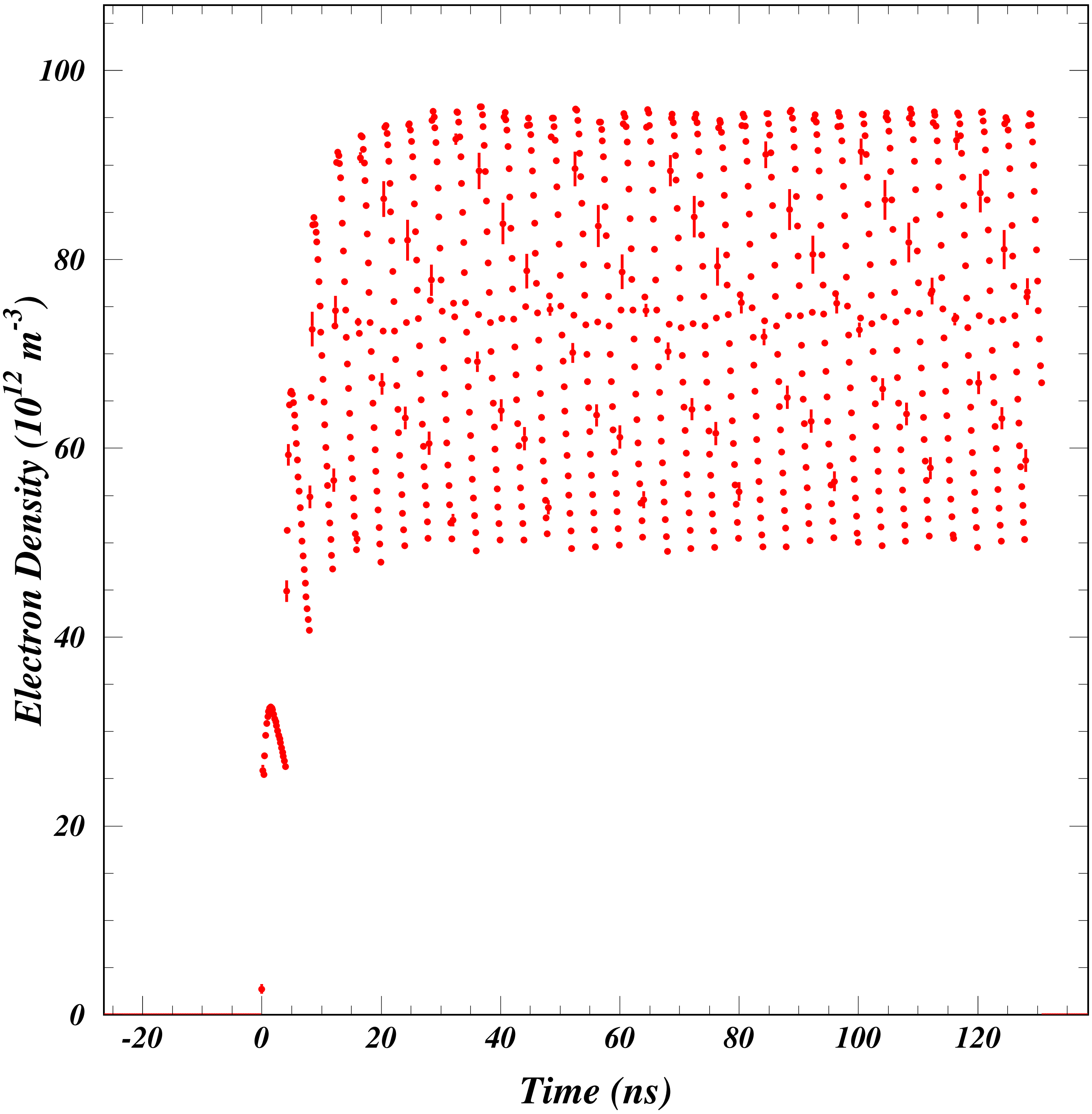
15/05/21 13.47

Job 39918: ECLOUD plots



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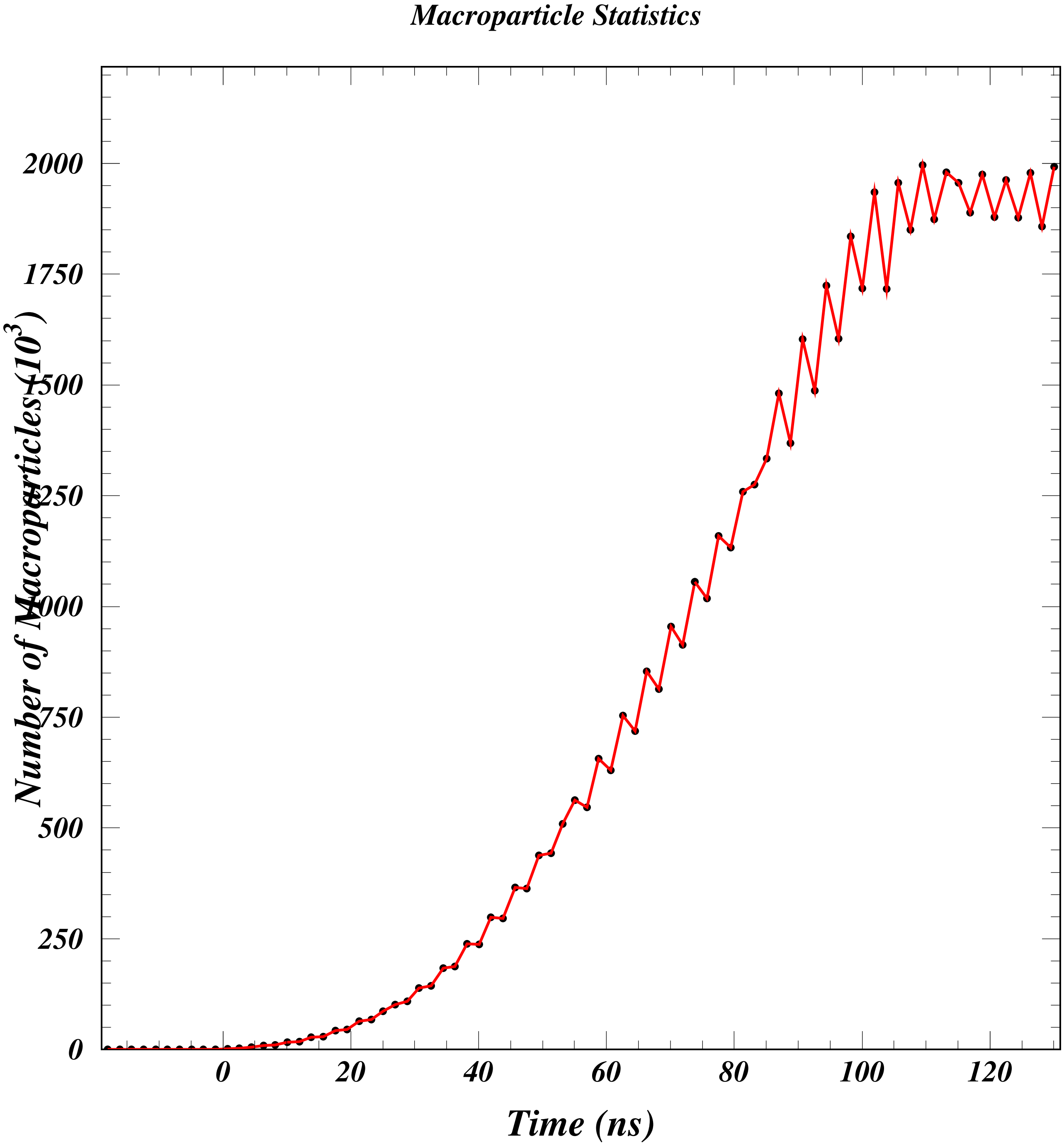
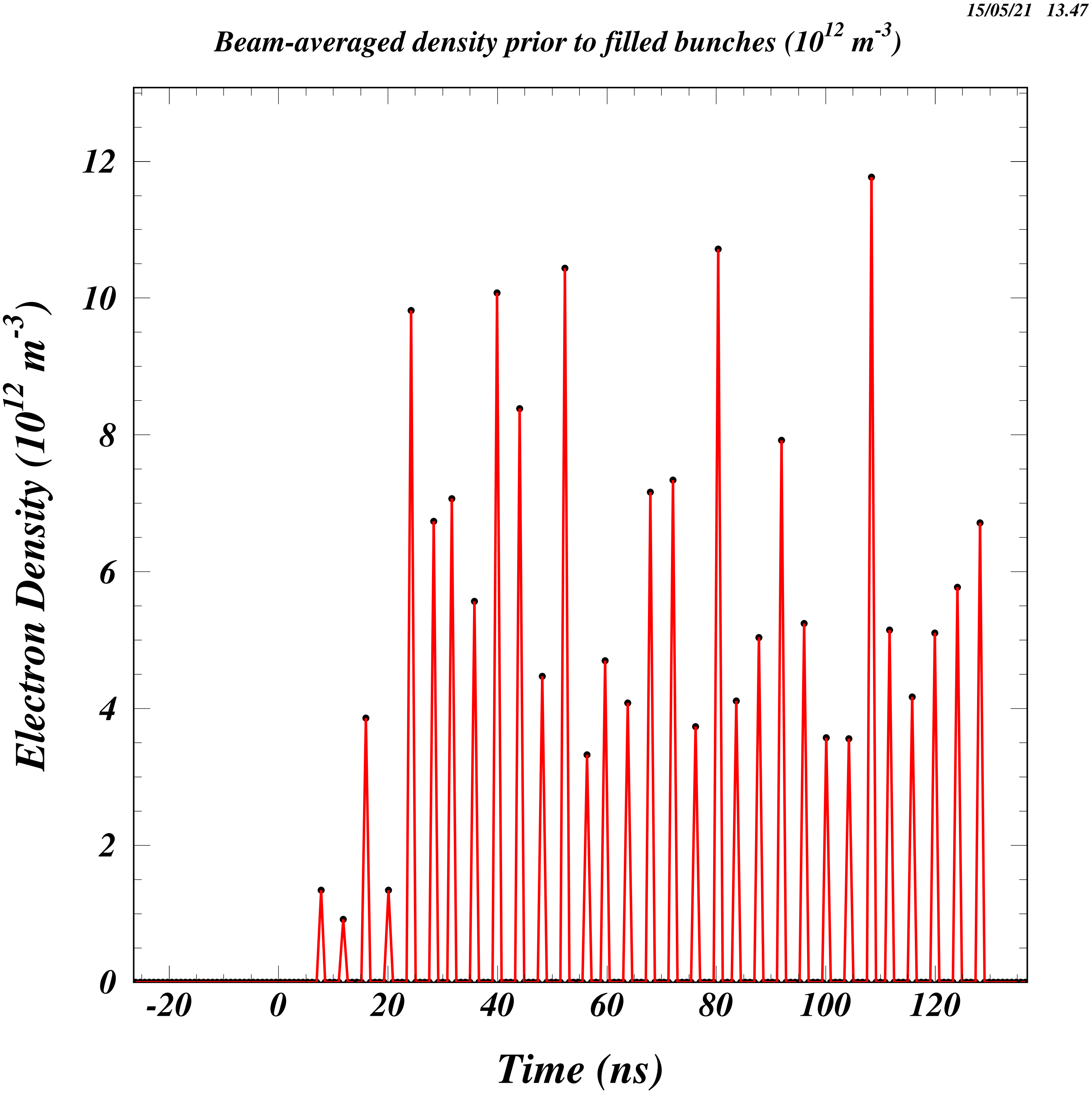

Macroparticle Statistics
Number of Macroparticles (10^3)
Time (ns)
0
250
500
750
1000
1250
1500
1750
2000
0
20
40
60
80
100
120



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Beam-averaged density prior to filled bunches (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
Time (ns)
0
2
4
6
8
10
12
-20
0
20
40
60
80
100
120

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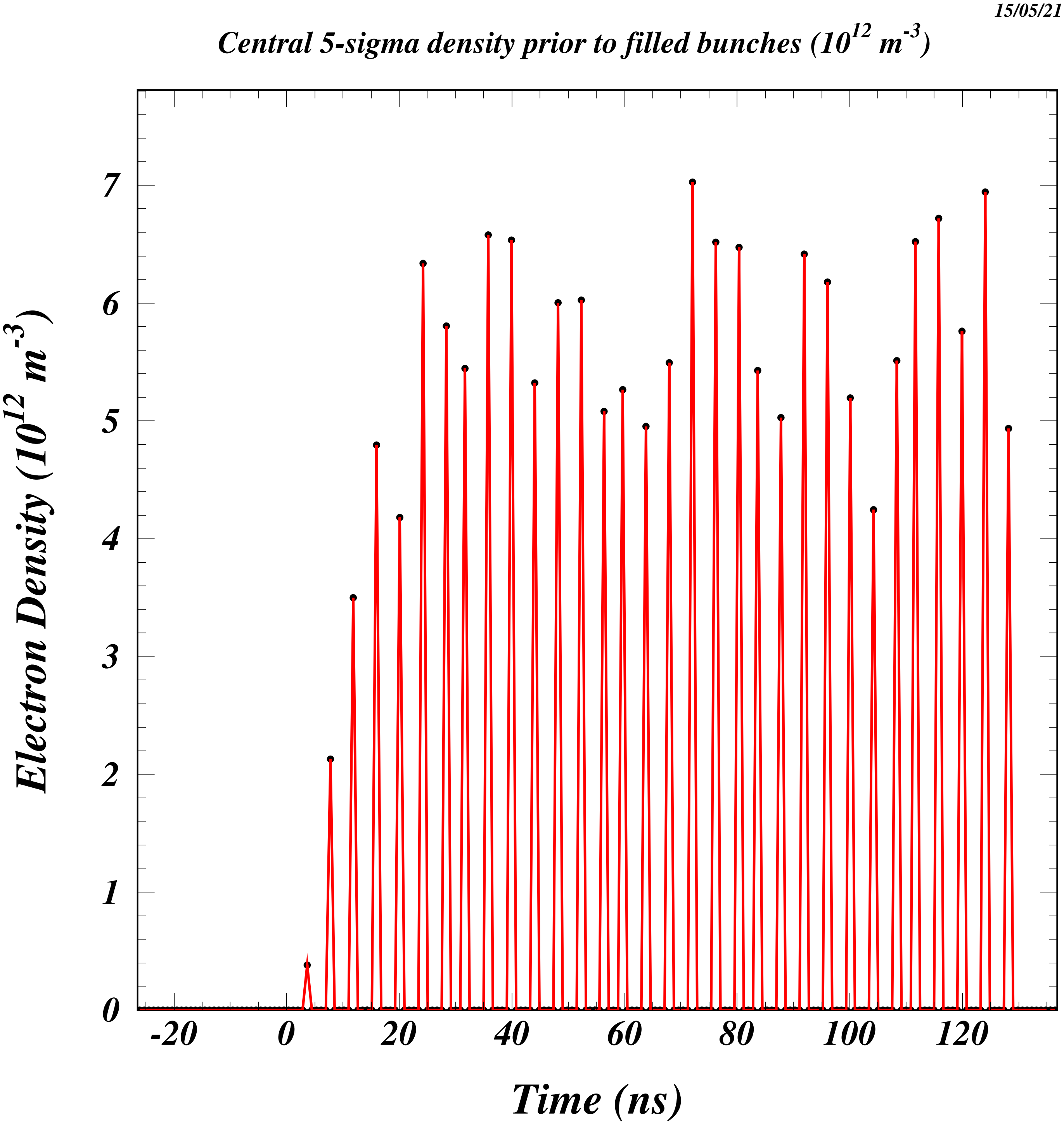
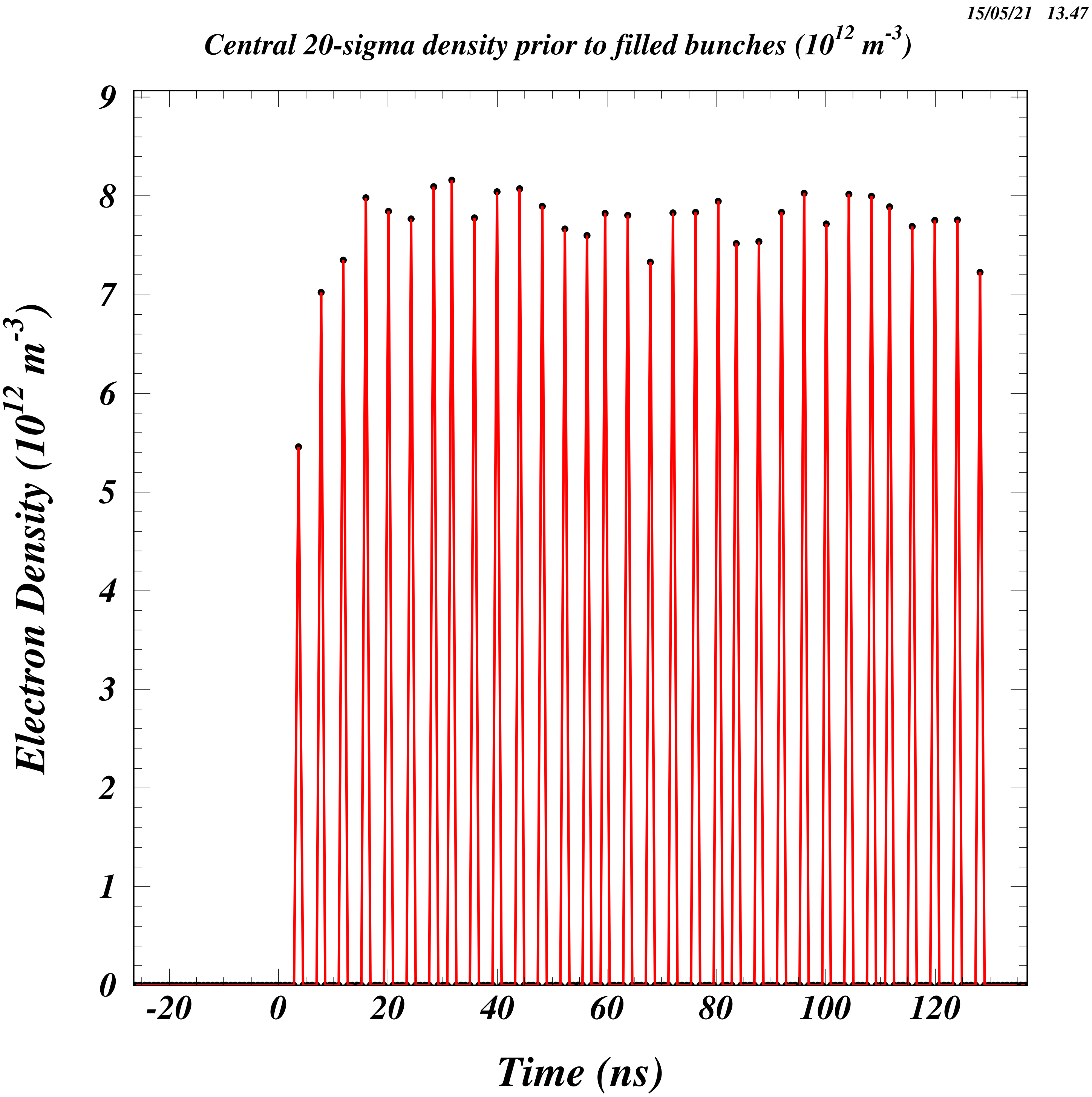


Central 5-sigma density prior to filled bunches (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
Time (ns)
0
1
2
3
4
5
6
7
-20
0
20
40
60
80
100
120



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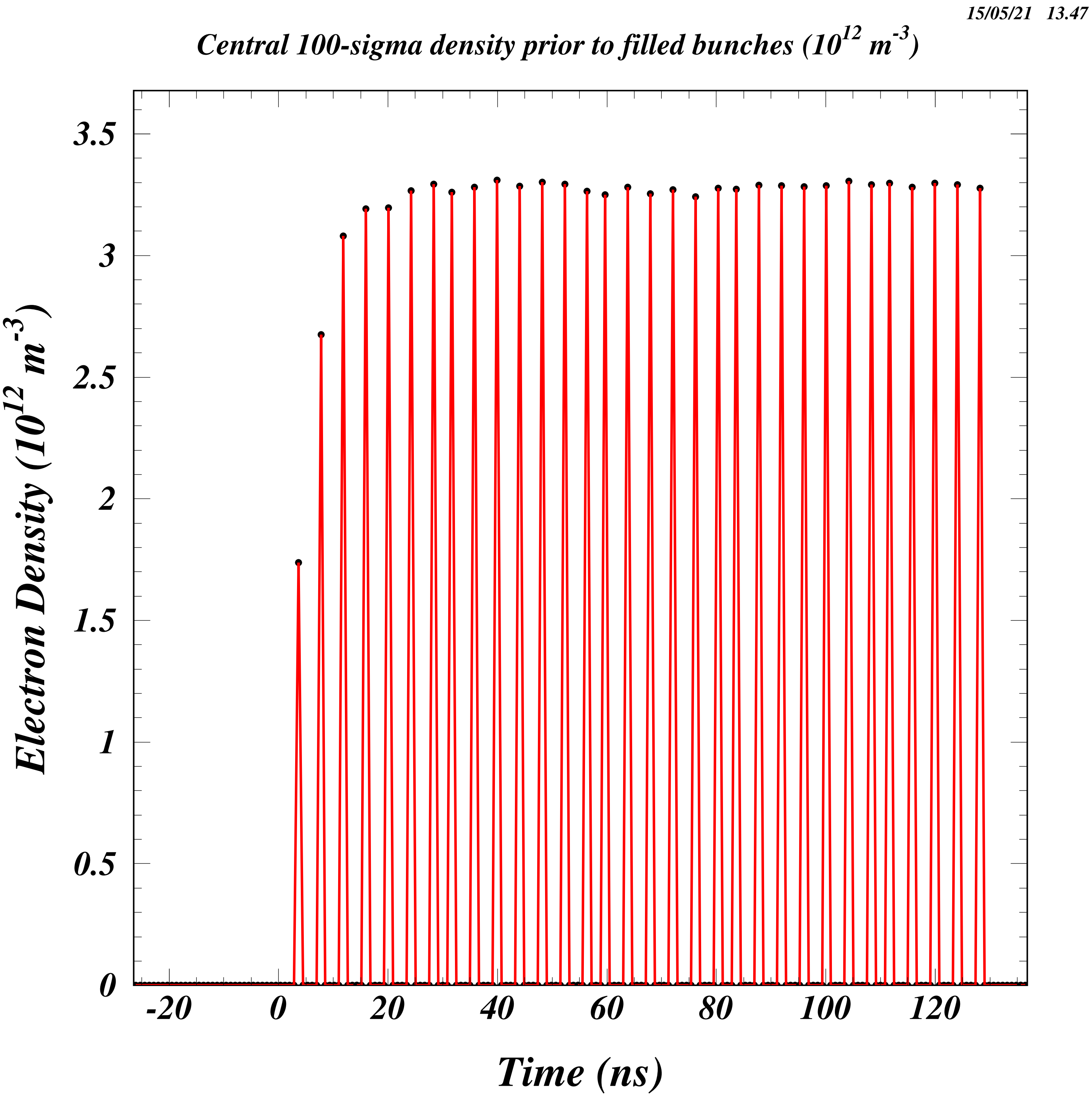
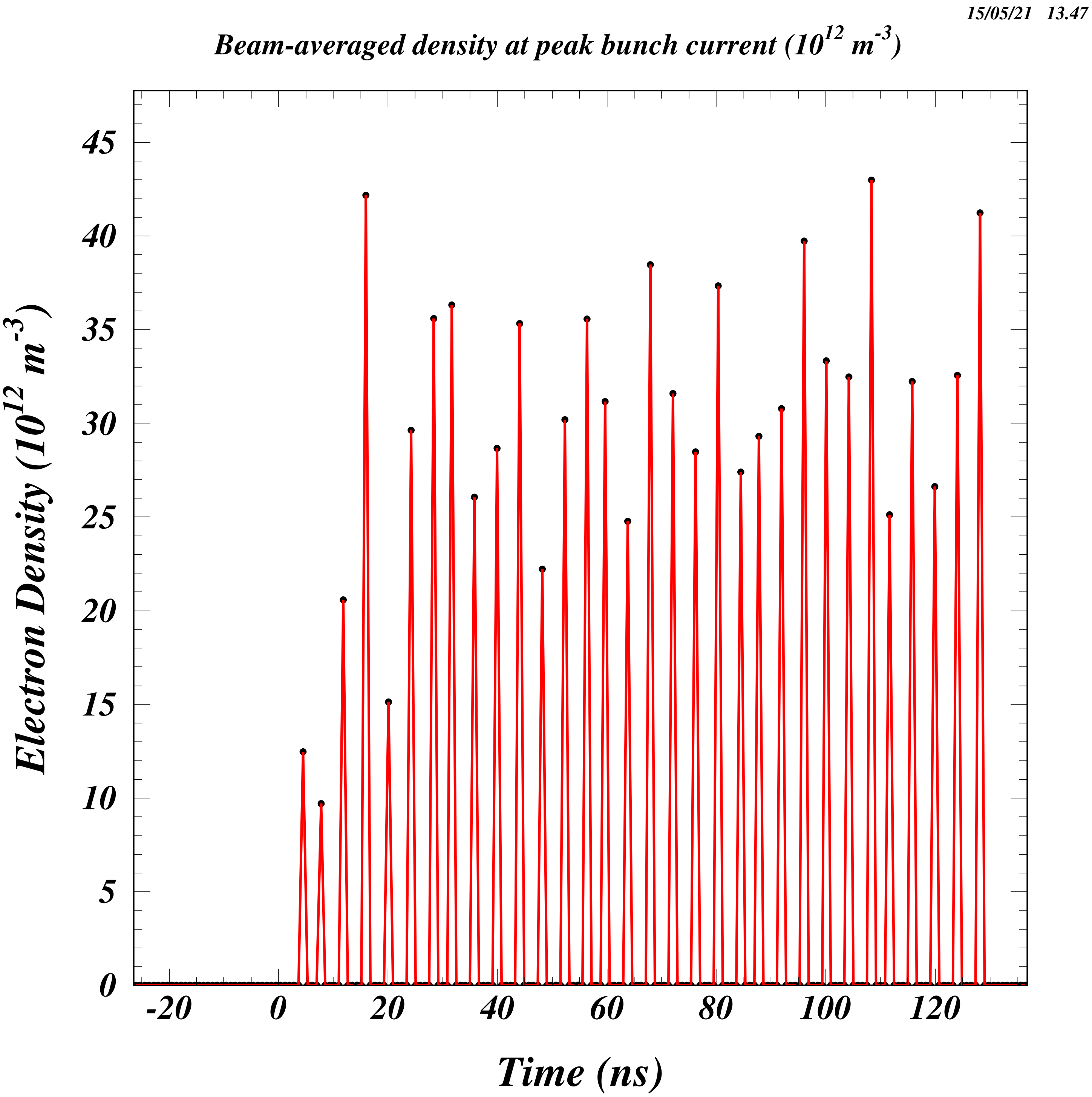
Central 20-sigma density prior to filled bunches (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
Time (ns)
0
1
2
3
4
5
6
7
8
9
-20
0
20
40
60
80
100
120


15/05/21 13.47
Central 100-sigma density prior to filled bunches (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
3.5
3
2.5
2
1.5
1
0.5
0
-20
0
20
40
60
80
100
120
Time (ns)



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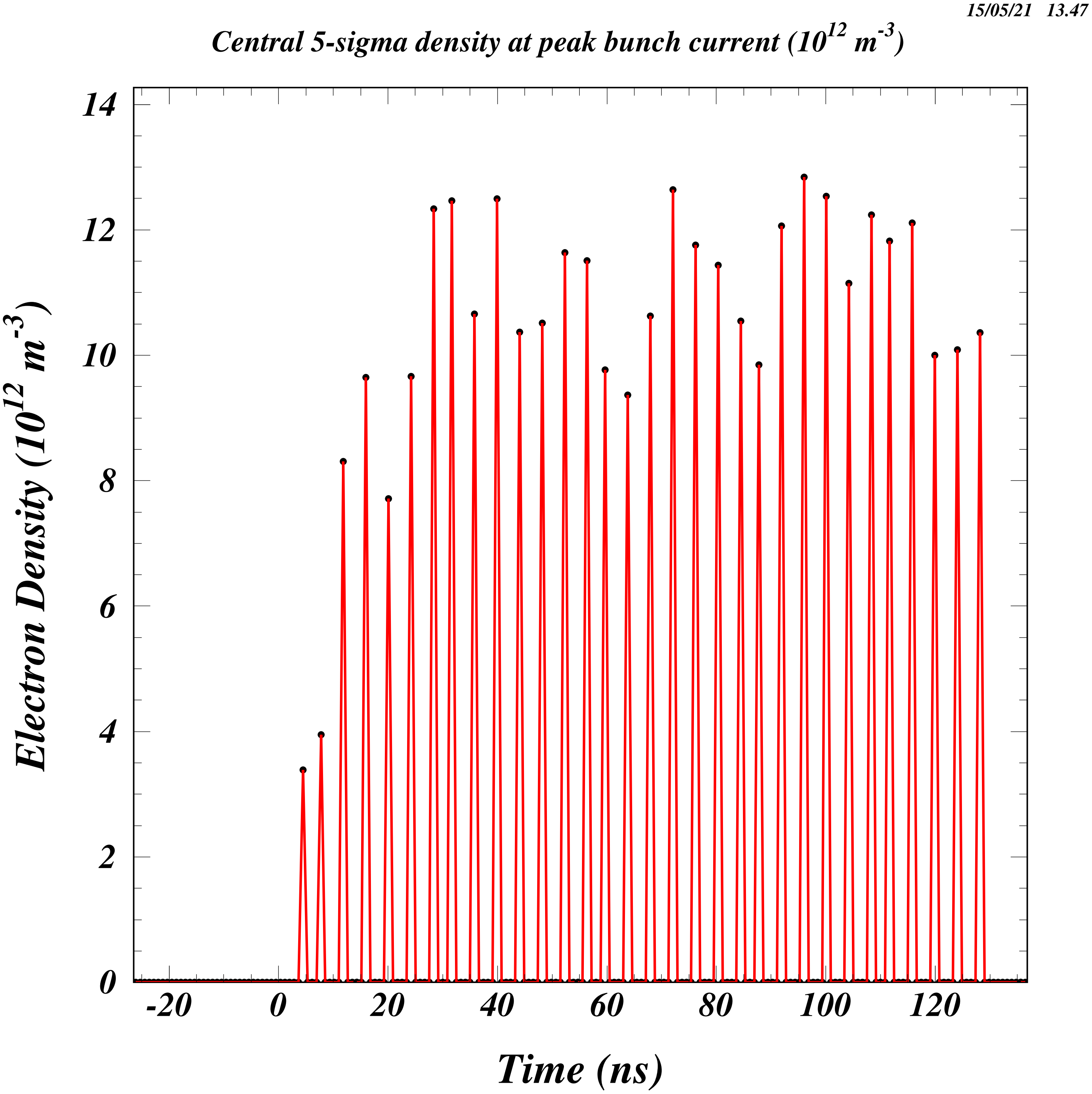
Beam-averaged density at peak bunch current (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
45
40
35
30
25
20
15
10
5
0
-20
0
20
40
60
80
100
120
Time (ns)


15/05/21 13.47
Central 5-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
-20
0
20
40
60
80
100
120

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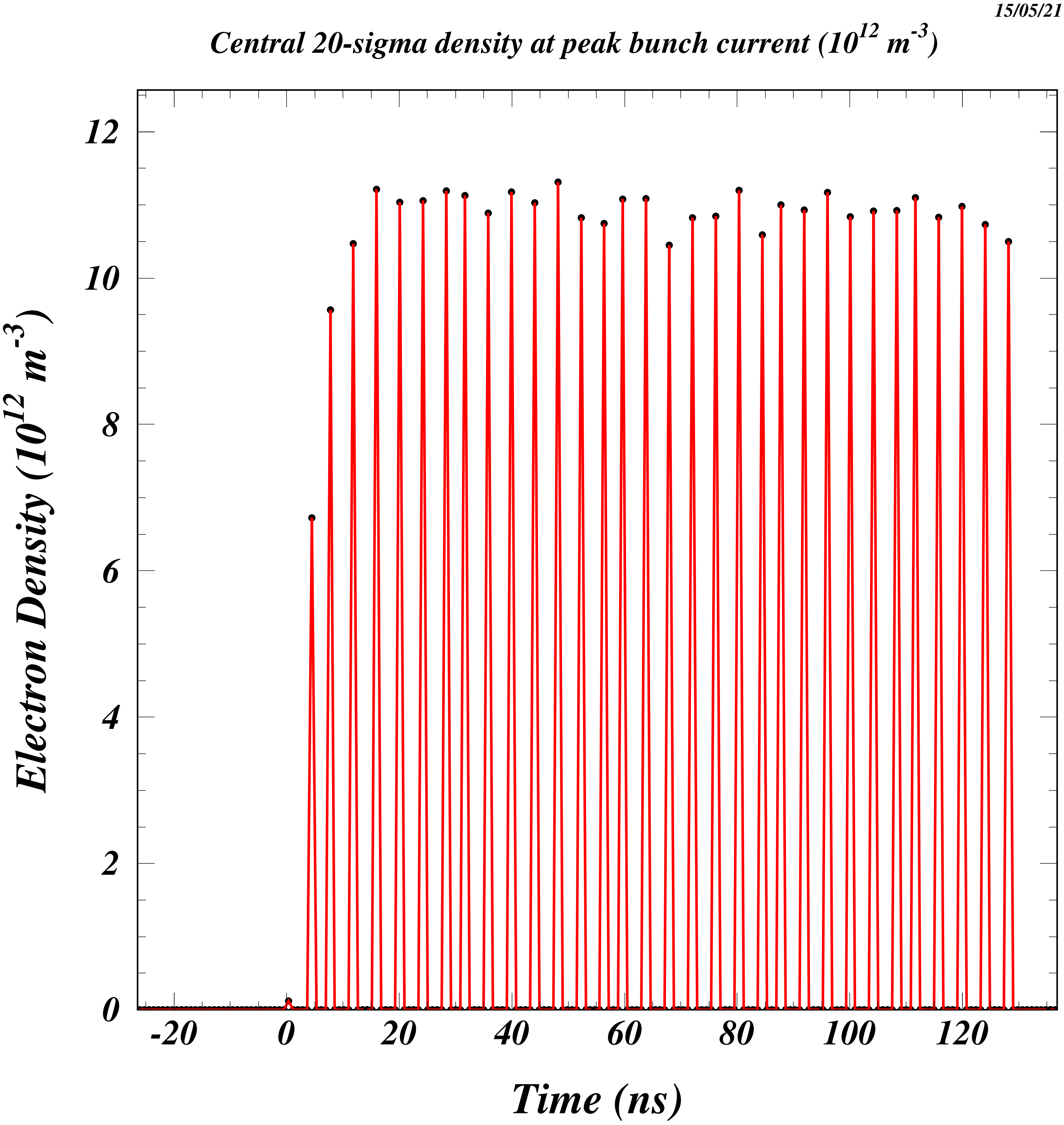
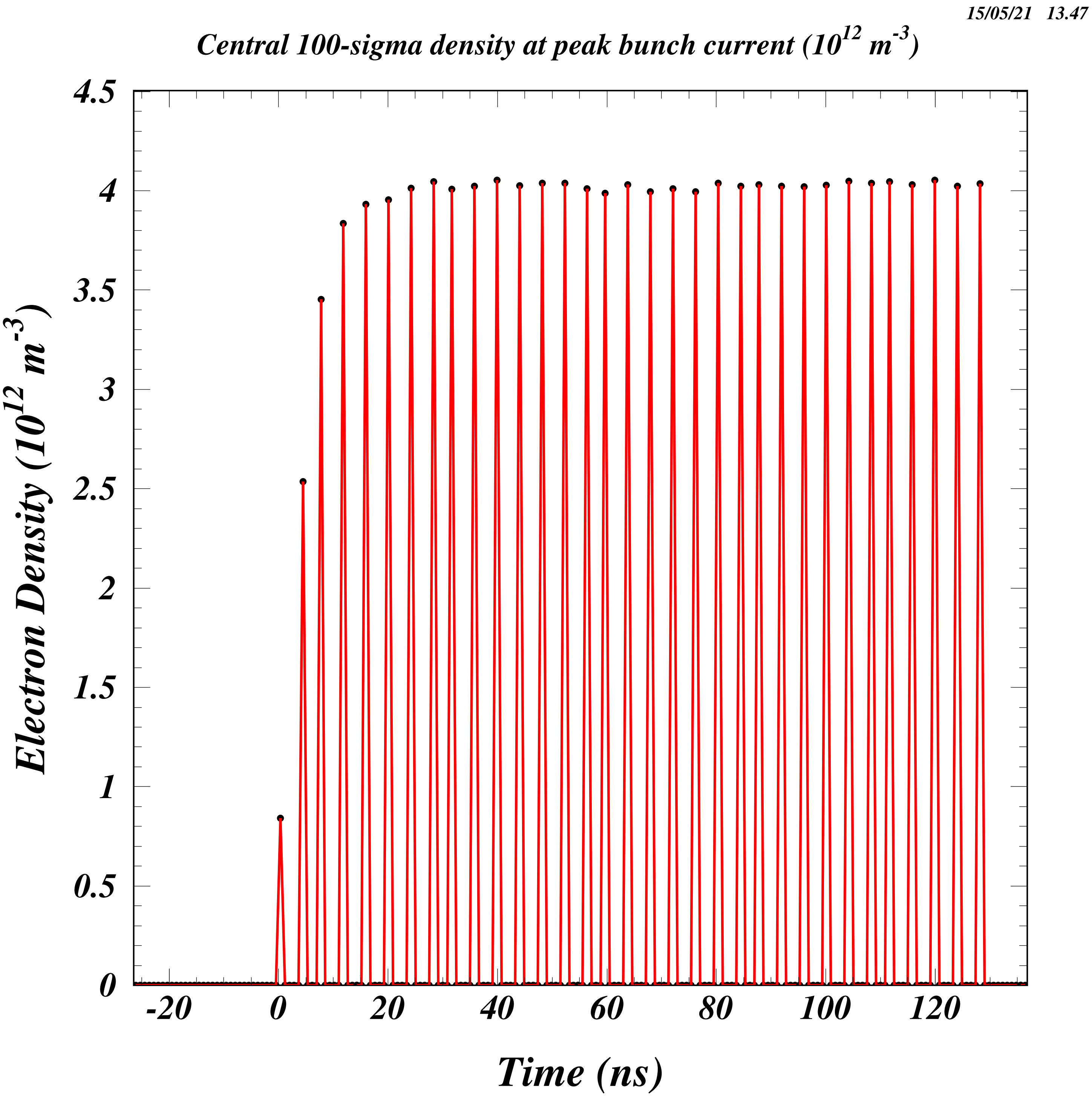


Central 20-sigma density at peak bunch current (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
Time (ns)
0
2
4
6
8
10
12
-20
0
20
40
60
80
100
120



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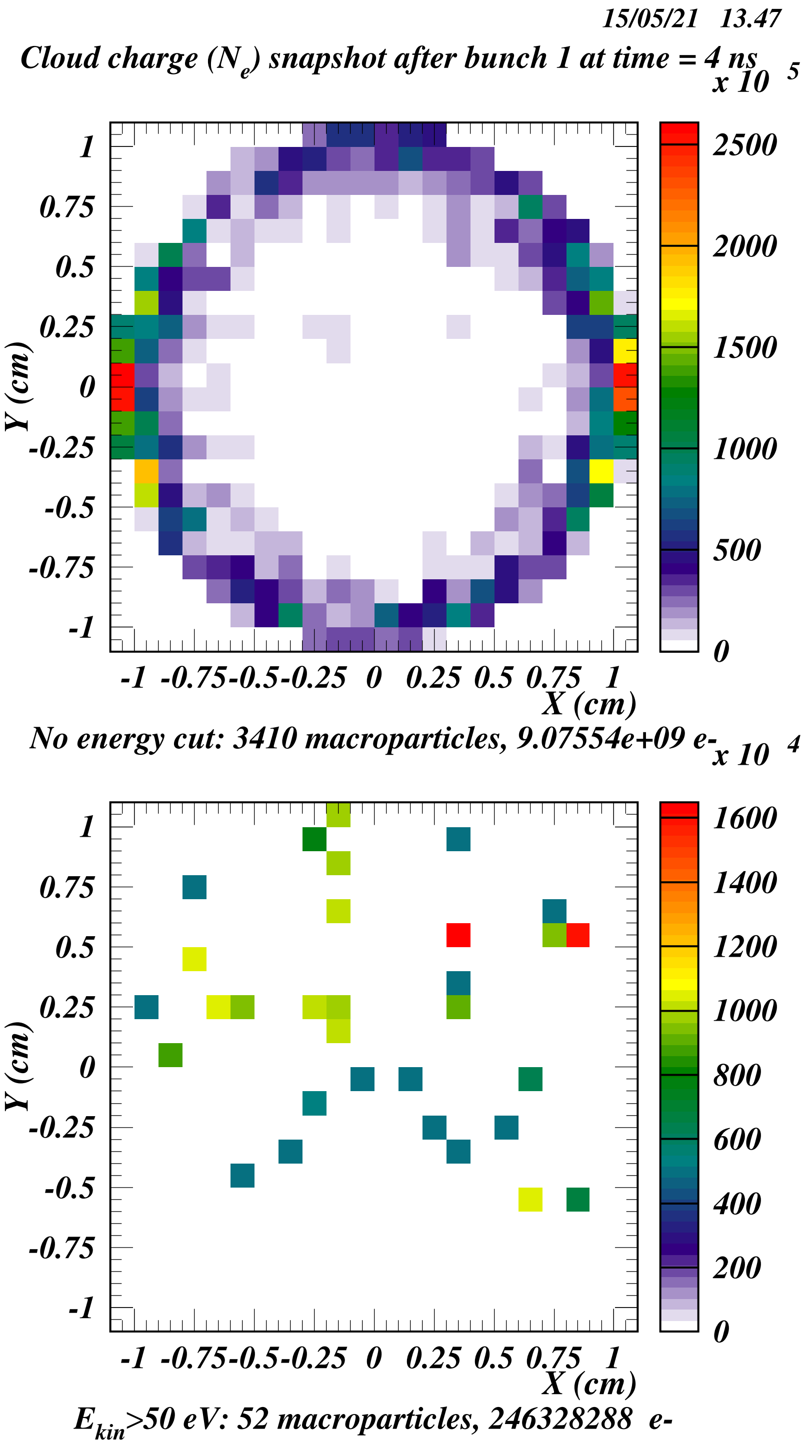
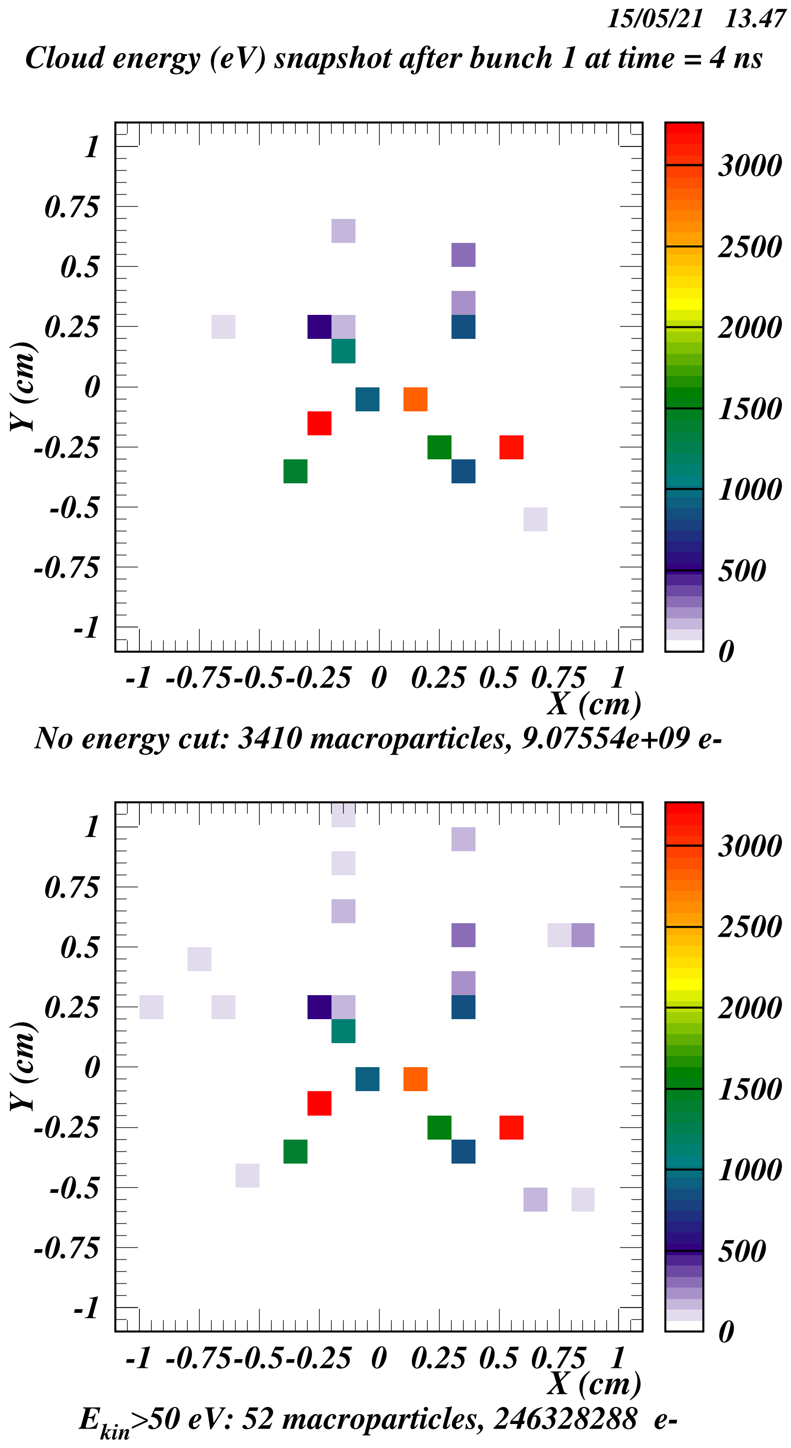
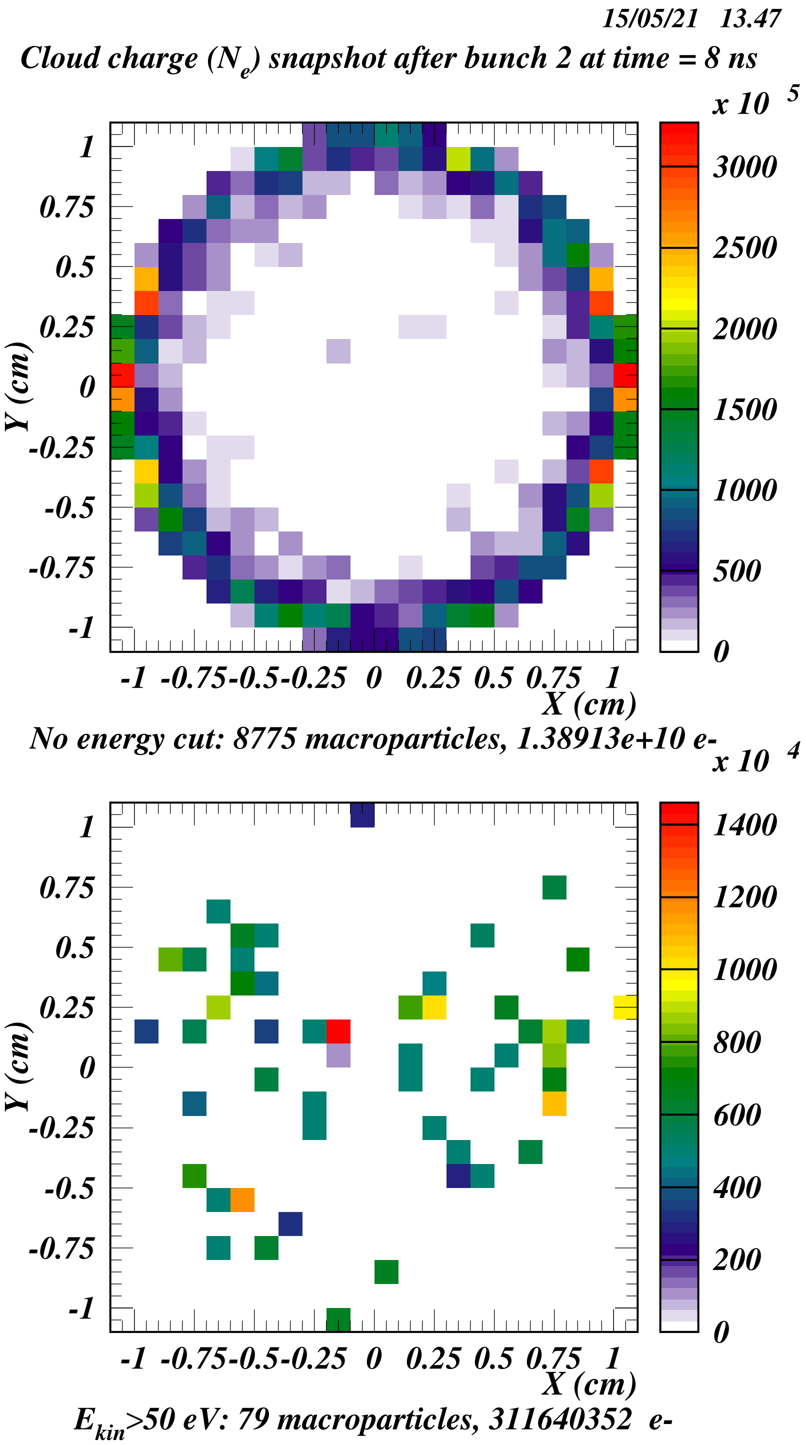
Central 100-sigma density at peak bunch current (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
Time (ns)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
-20
0
20
40
60
80
100
120



15/05/21 13.47
Cloud charge (N_e) snapshot after bunch 1 at time = 4 ns
x 10 5
2500
2000
1500
1000
500
0
Y (cm)
X (cm)
No energy cut: 3410 macroparticles, 9.07554e+09 e-
x 10 4
1600
1400
1200
1000
800
600
400
200
0
Y (cm)
X (cm)
E_{kin}>50 eV: 52 macroparticles, 246328288 e-



15/05/21 13.47
Cloud energy (eV) snapshot after bunch 1 at time = 4 ns
Y (cm)
X (cm)
No energy cut: 3410 macroparticles, 9.07554e+09 e-
Y (cm)
X (cm)
E_kin>50 eV: 52 macroparticles, 246328288 e-



15/05/21 13.47
Cloud charge (N_e) snapshot after bunch 2 at time = 8 ns
x 10 5
Y (cm)
X (cm)
No energy cut: 8775 macroparticles, 1.38913e+10 e-
x 10 4
Y (cm)
X (cm)
E_{kin}>50 eV: 79 macroparticles, 311640352 e-

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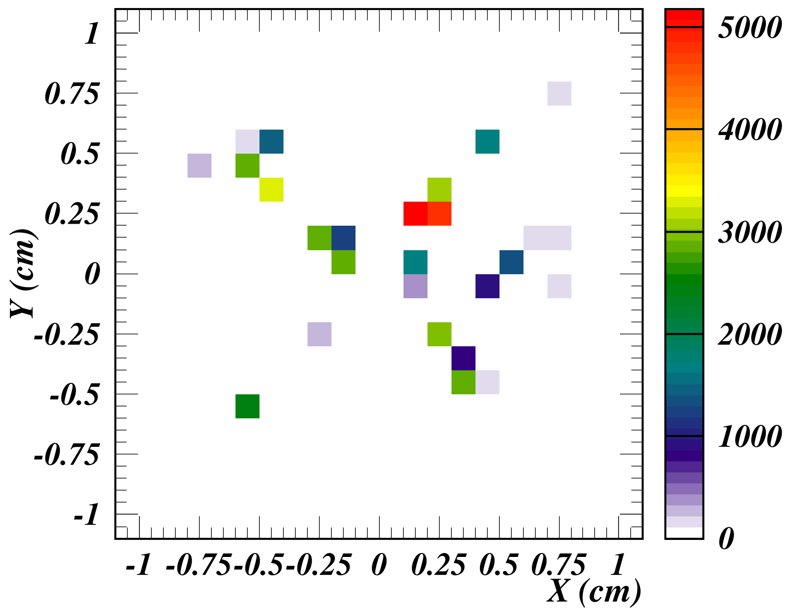
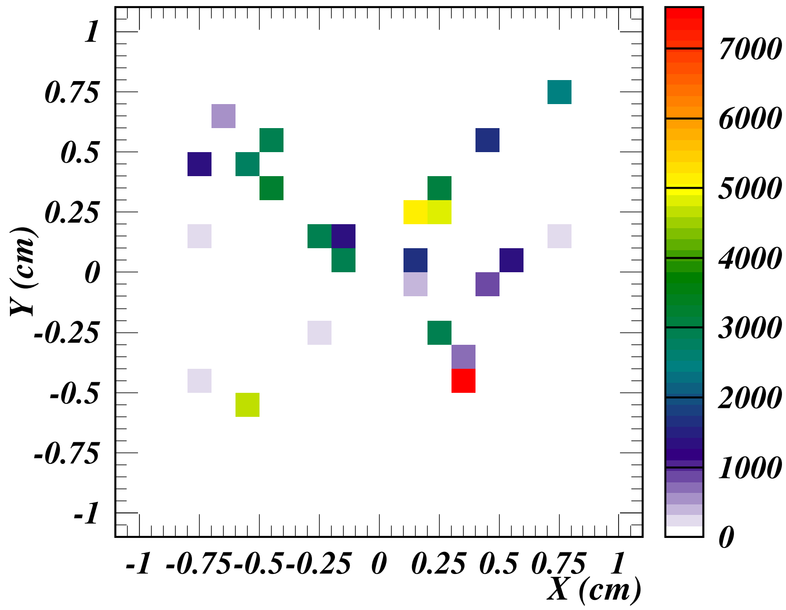
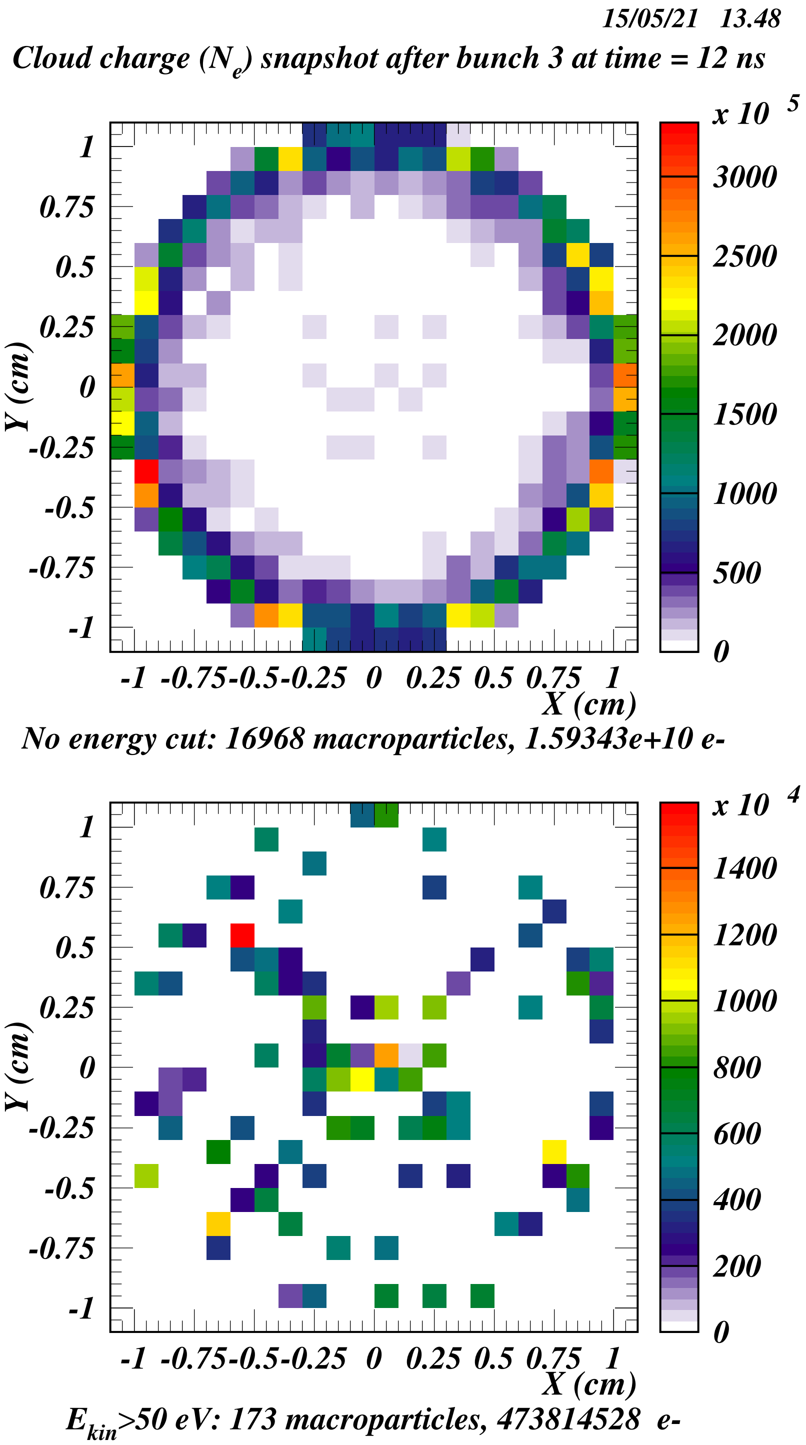
Cloud energy (eV) snapshot after bunch 2 at time = 8 ns



No energy cut: 8775 macroparticles, 1.38913e+10 e-



E_{kin}>50 eV: 79 macroparticles, 311640352 e-



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Cloud charge (N_e) snapshot after bunch 3 at time = 12 ns
x 10^5
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: 16968 macroparticles, 1.59343e+10 e-
x 10^4
1400
1200
1000
800
600
400
200
0
Y (cm)
X (cm)
E_kin>50 eV: 173 macroparticles, 473814528 e-

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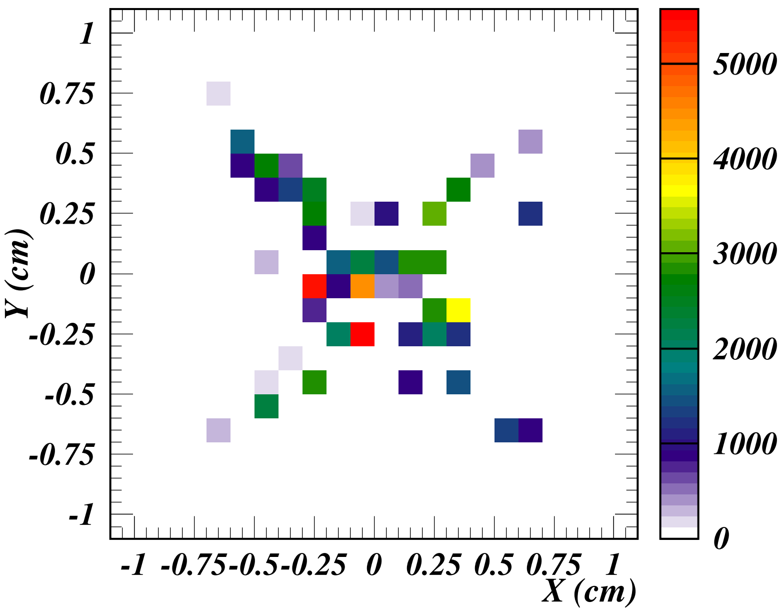
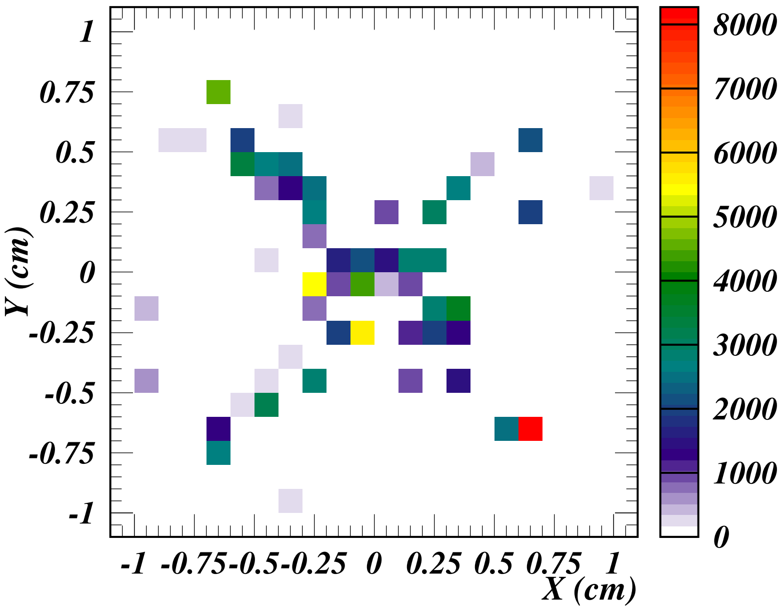
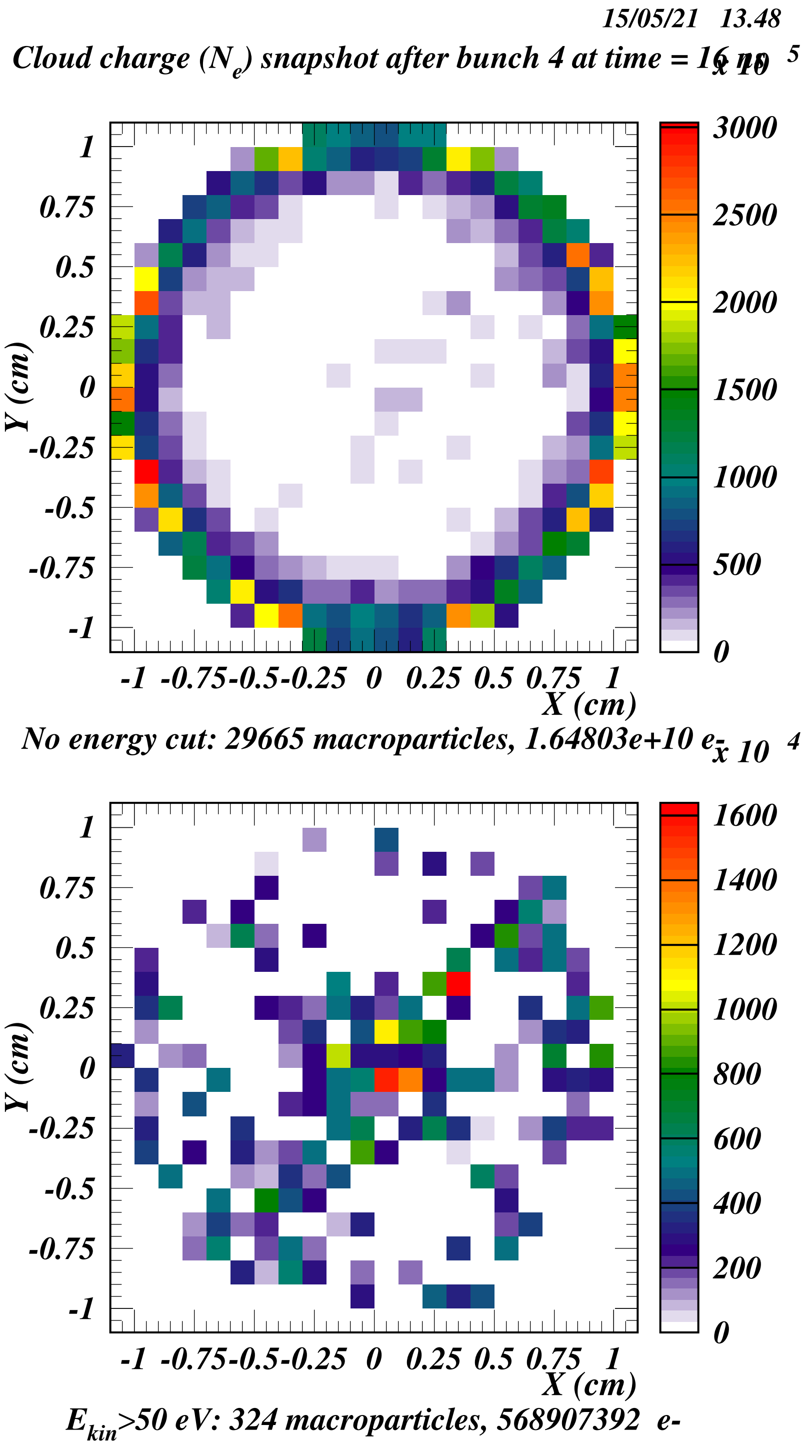
Cloud energy (eV) snapshot after bunch 3 at time = 12 ns



No energy cut: 16968 macroparticles, 1.59343e+10 e-



E_{kin}>50 eV: 173 macroparticles, 473814528 e-


15/05/21 13.48
Cloud charge (N_e) snapshot after bunch 4 at time = 16 ns
x 10 5
Y (cm)
X (cm)
1
0.75
0.5
0.25
0
-0.25
-0.5
-0.75
-1
3000
2500
2000
1500
1000
500
0
No energy cut: 29665 macroparticles, 1.64803e+10 e-
x 10 4
1600
1400
1200
1000
800
600
400
200
0
E_{kin}>50 eV: 324 macroparticles, 568907392 e-

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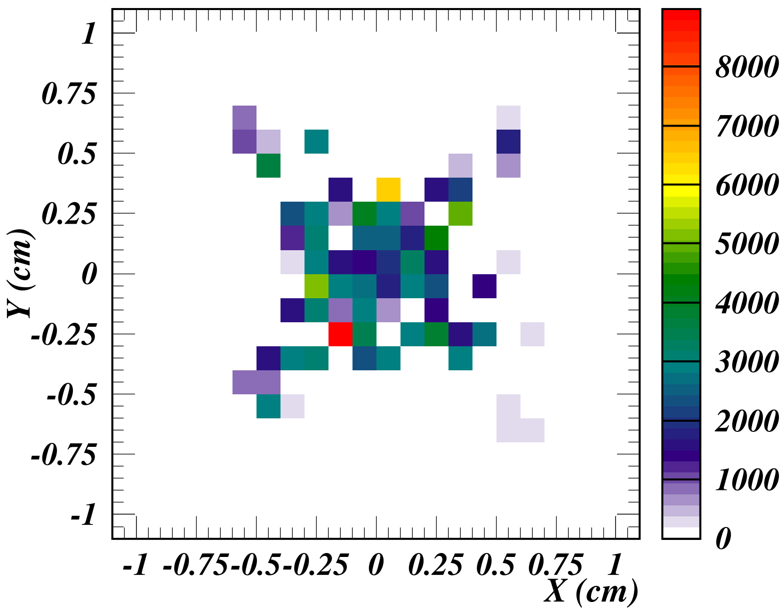
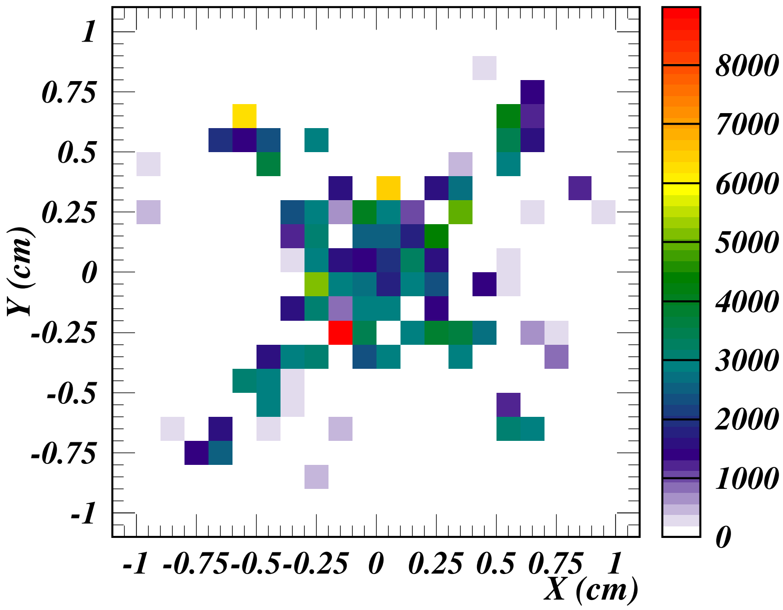
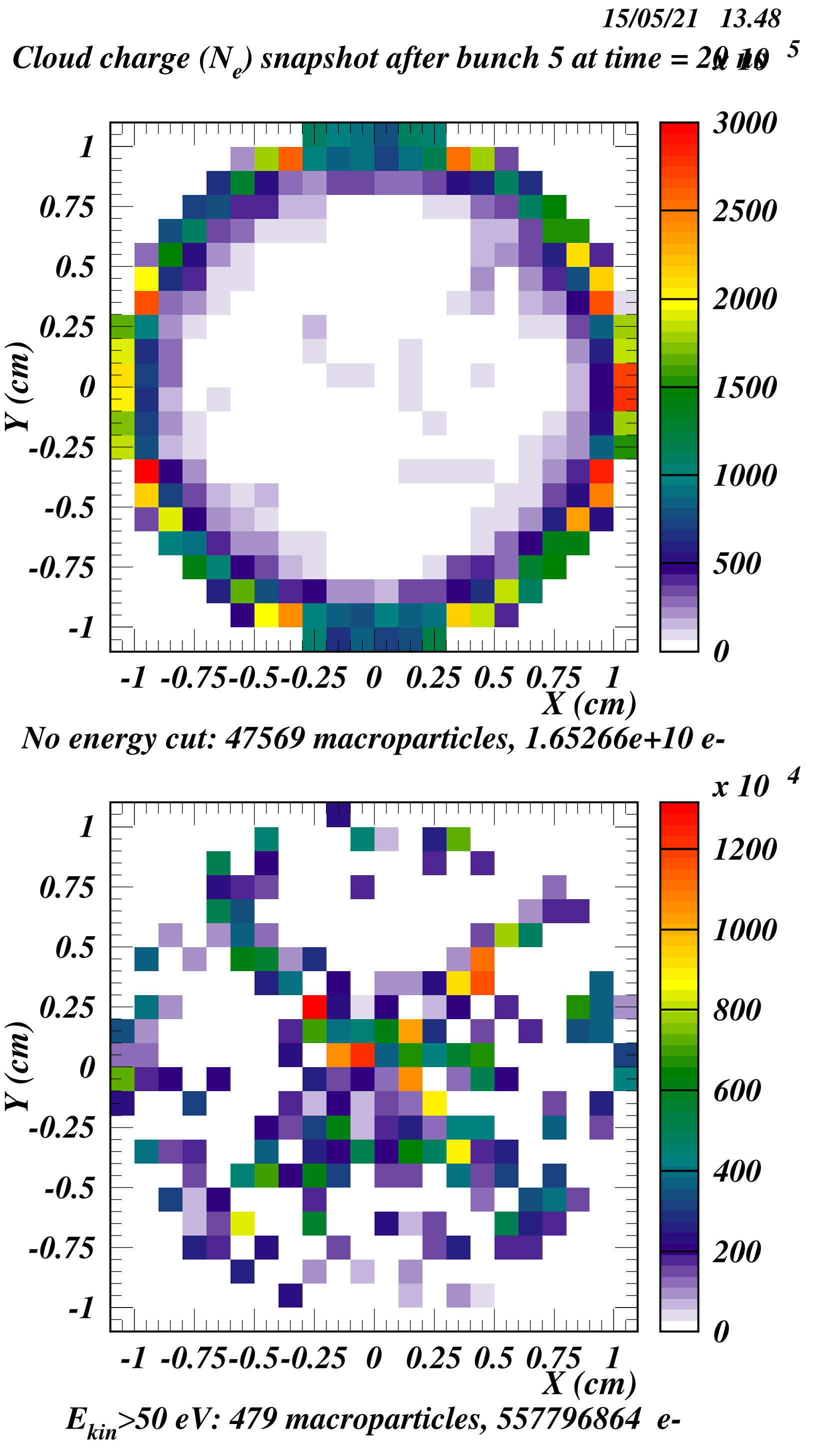
Cloud energy (eV) snapshot after bunch 4 at time = 16 ns



No energy cut: 29665 macroparticles, 1.64803e+10 e-



E_{kin}>50 eV: 324 macroparticles, 568907392 e-



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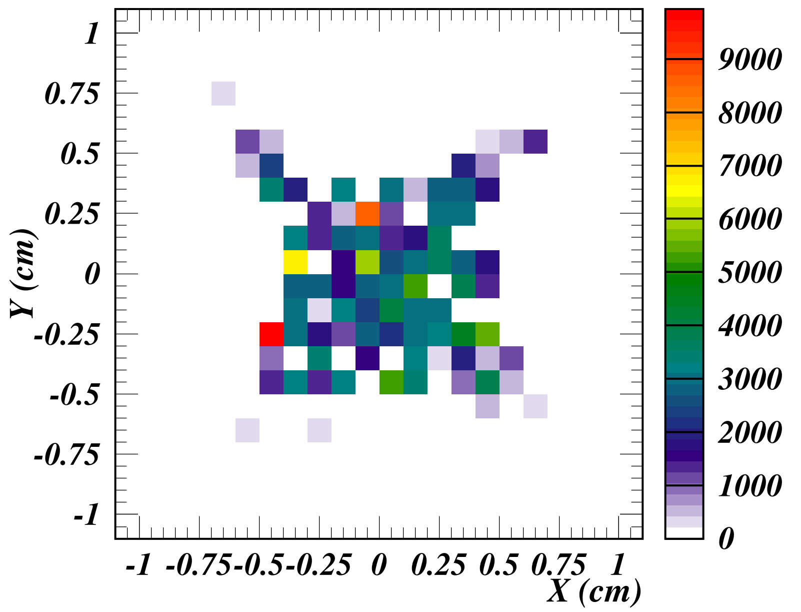
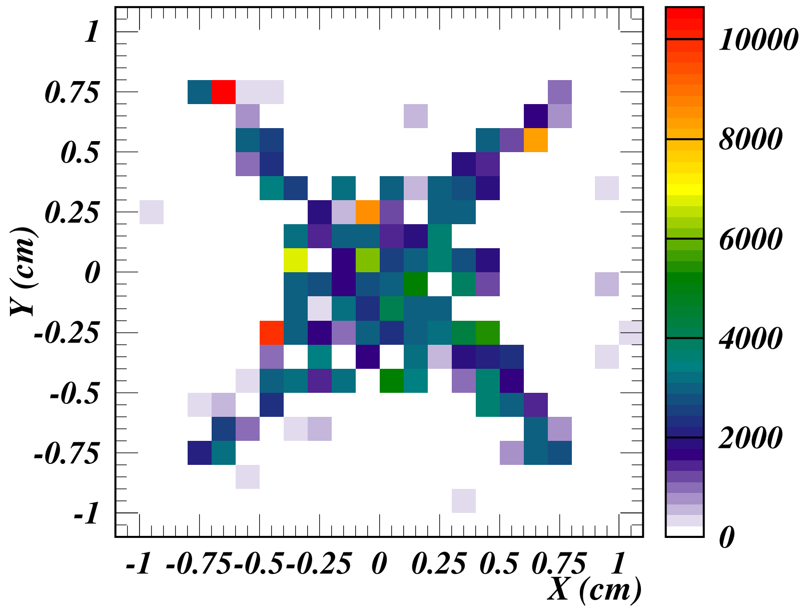
Cloud charge (N_e) snapshot after bunch 5 at time = 20 ns
x 10 5
3000
2500
2000
1500
1000
500
0
Y (cm)
X (cm)
1
0.75
0.5
0.25
0
-0.25
-0.5
-0.75
-1
No energy cut: 47569 macroparticles, 1.65266e+10 e-
x 10 4
1200
1000
800
600
400
200
0
E_kin>50 eV: 479 macroparticles, 557796864 e-

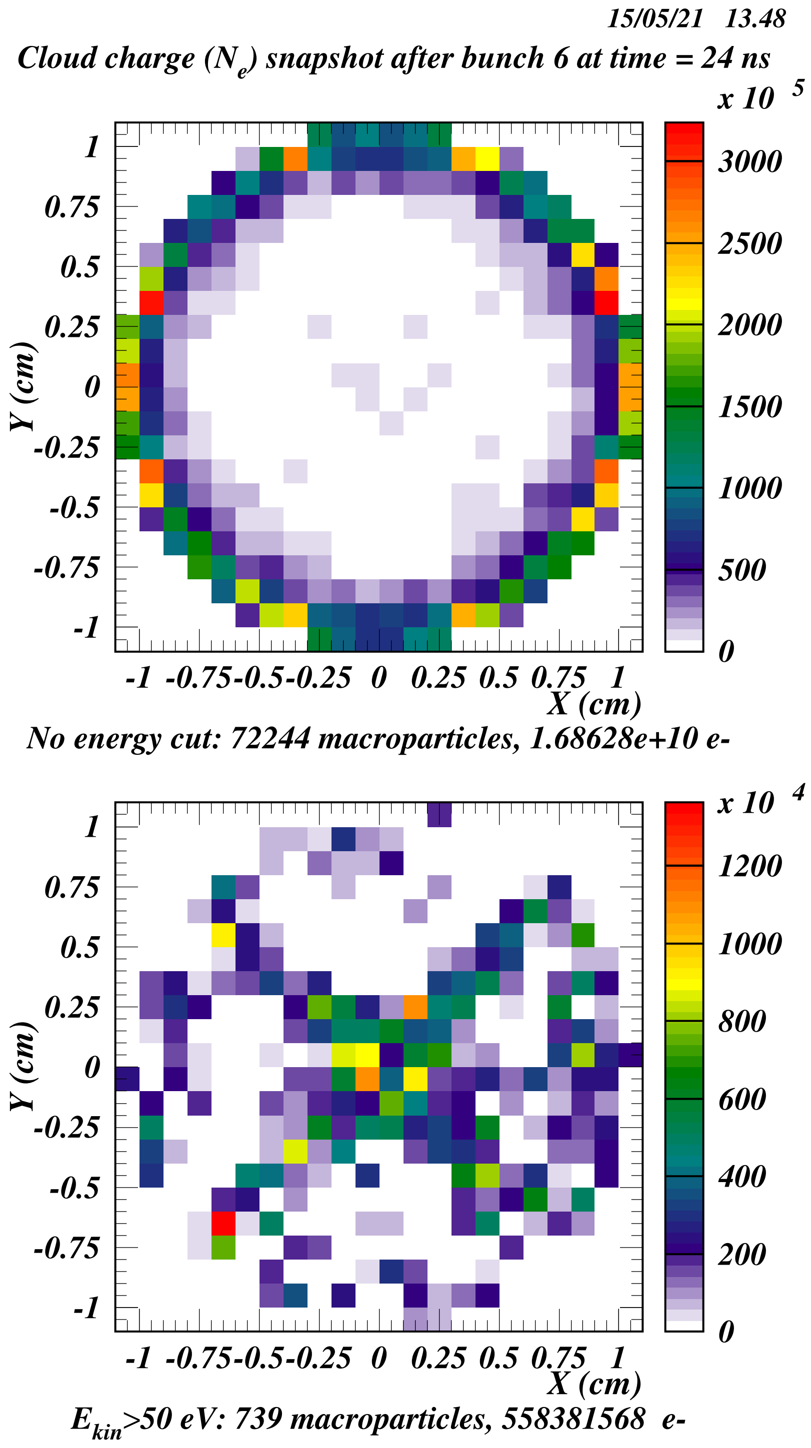
Cloud energy (eV) snapshot after bunch 5 at time = 20 ns



No energy cut: 47569 macroparticles, 1.65266e+10 e-



E_{kin}>50 eV: 479 macroparticles, 557796864 e-



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Cloud charge (N_e) snapshot after bunch 6 at time = 24 ns
x 10 5
Y (cm)
X (cm)
No energy cut: 72244 macroparticles, 1.68628e+10 e-
x 10 4
Y (cm)
X (cm)
E_{kin}>50 eV: 739 macroparticles, 558381568 e-

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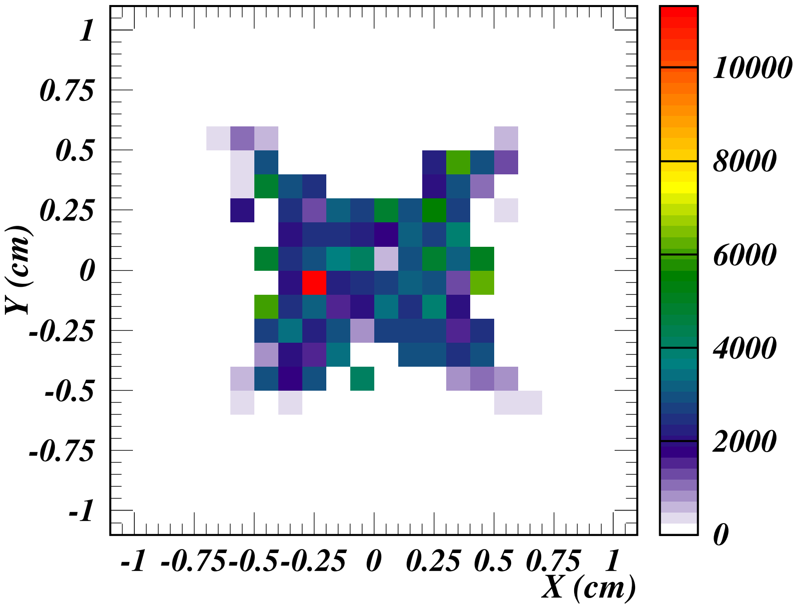
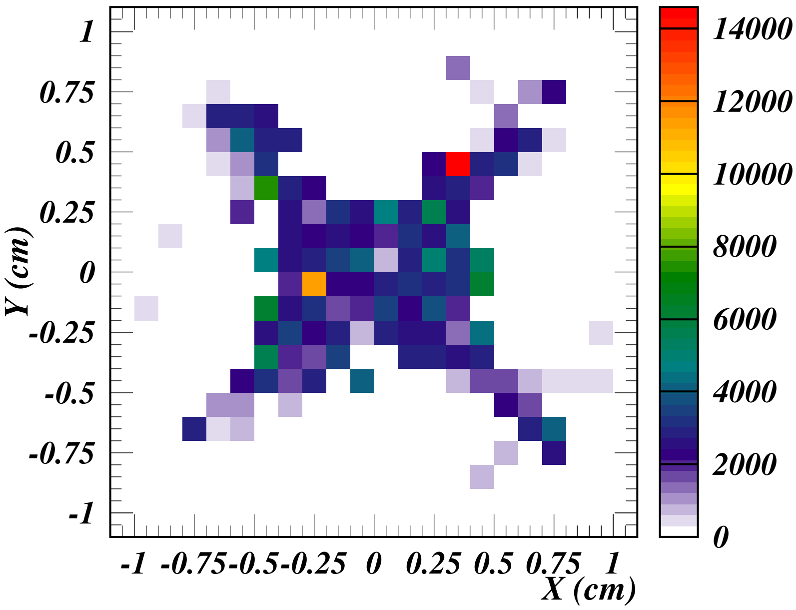
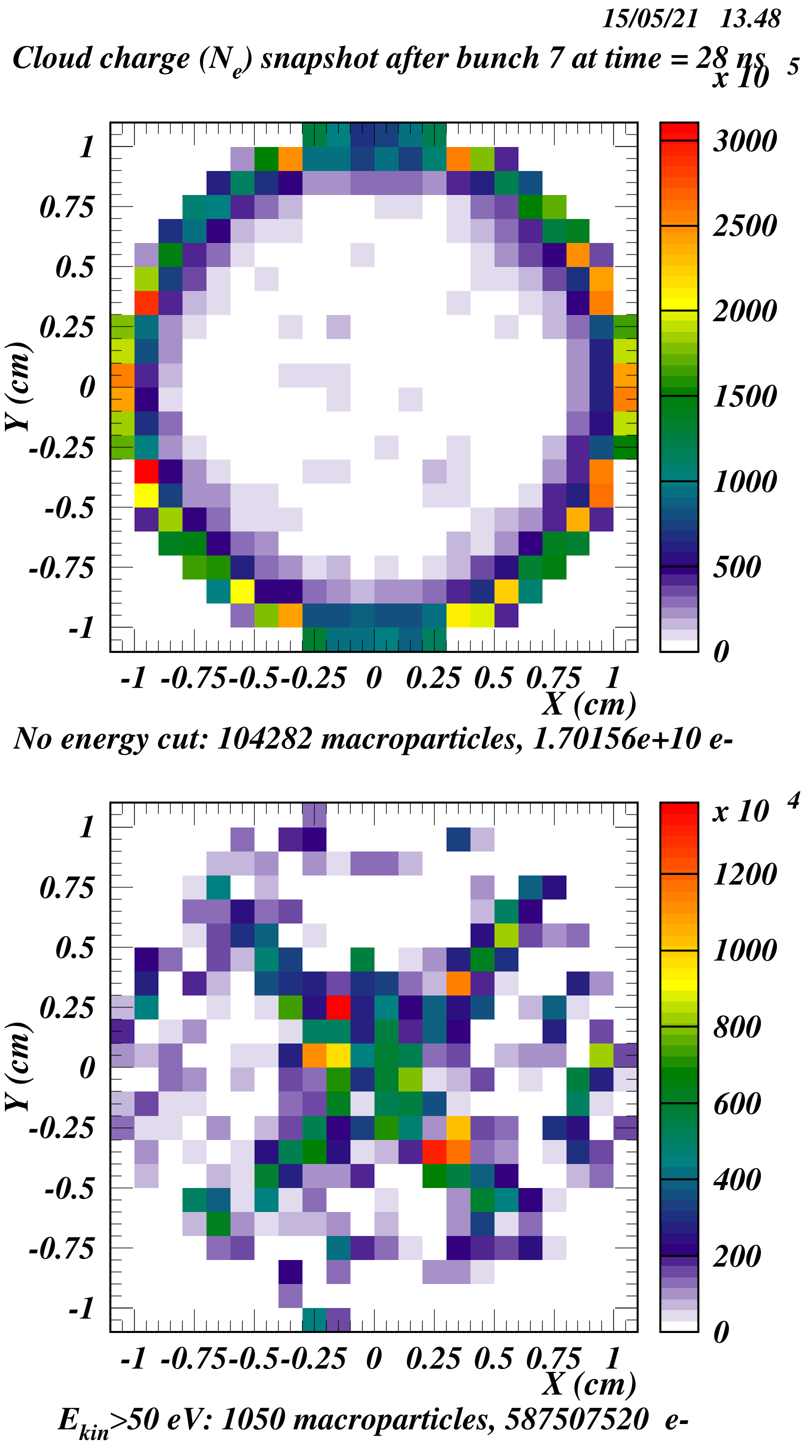
Cloud energy (eV) snapshot after bunch 6 at time = 24 ns



No energy cut: 72244 macroparticles, 1.68628e+10 e-



E_{kin}>50 eV: 739 macroparticles, 558381568 e-


15/05/21 13.48
Cloud charge (N_e) snapshot after bunch 7 at time = 28 ns
x 10^5
Y (cm)
X (cm)
1
0.75
0.5
0.25
0
-0.25
-0.5
-0.75
-1
3000
2500
2000
1500
1000
500
0
No energy cut: 104282 macroparticles, 1.70156e+10 e-
x 10^4
1200
1000
800
600
400
200
0
Y (cm)
X (cm)
E_kin>50 eV: 1050 macroparticles, 587507520 e-

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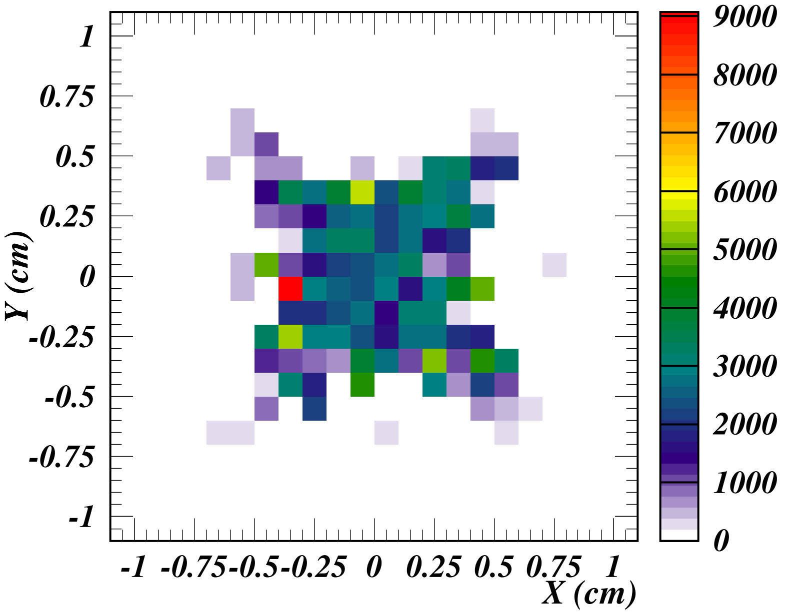
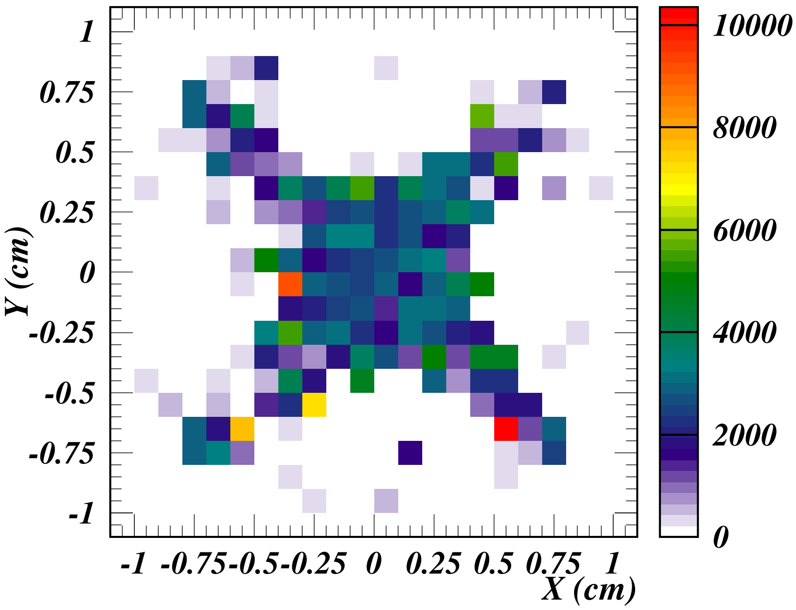
Cloud energy (eV) snapshot after bunch 7 at time = 28 ns



No energy cut: 104282 macroparticles, 1.70156e+10 e-



E_{kin}>50 eV: 1050 macroparticles, 587507520 e-

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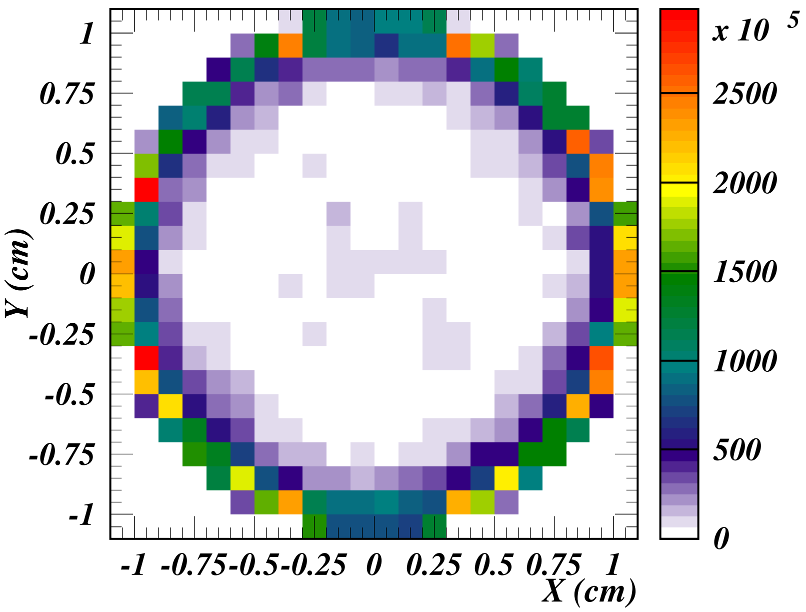
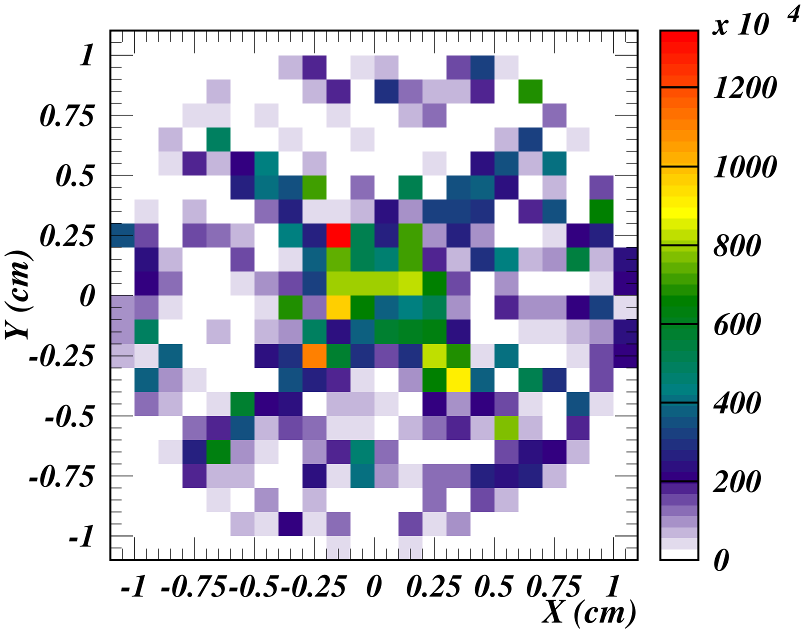
Cloud charge (N_e) snapshot after bunch 8 at time = 32 ns



No energy cut: 144053 macroparticles, 1.68526e+10 e-



E_{kin}>50 eV: 1532 macroparticles, 608763008 e-

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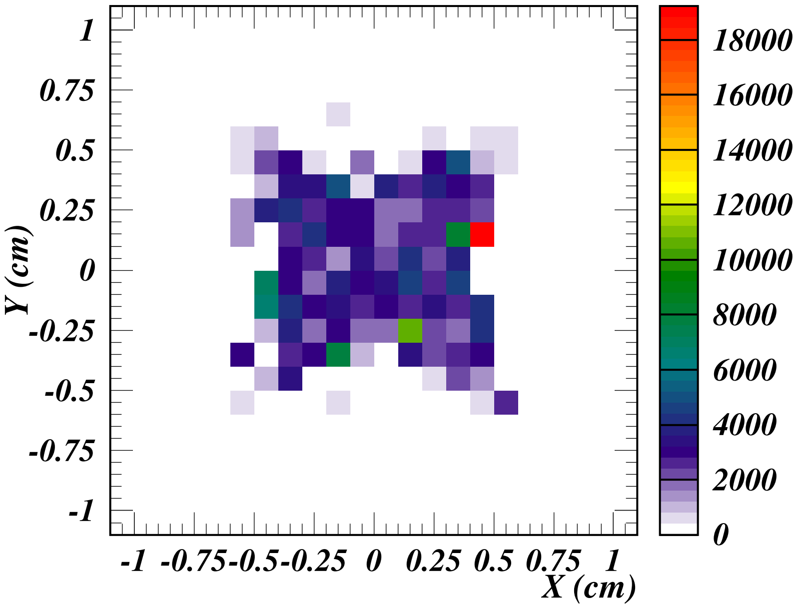
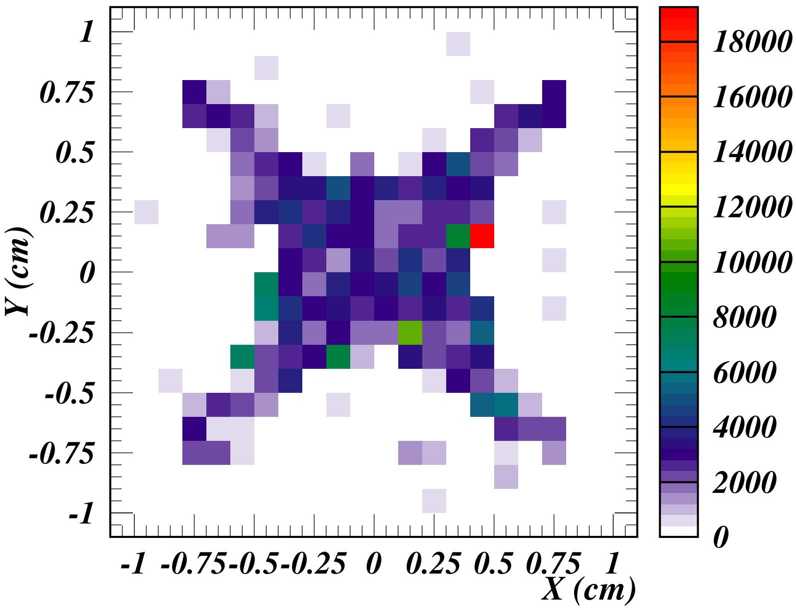
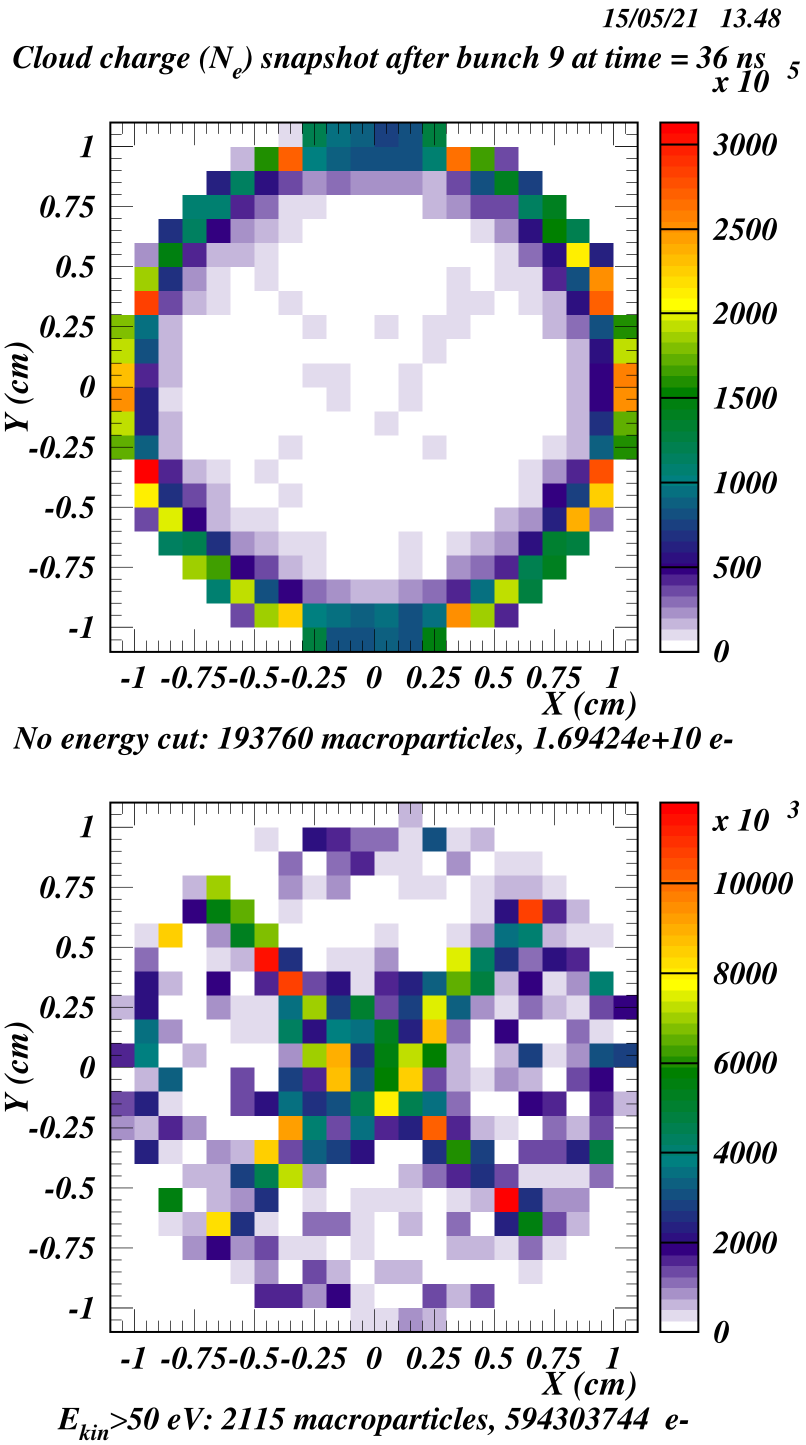
Cloud energy (eV) snapshot after bunch 8 at time = 32 ns



No energy cut: 144053 macroparticles, 1.68526e+10 e-



E_{kin}>50 eV: 1532 macroparticles, 608763008 e-



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Cloud charge (N_e) snapshot after bunch 9 at time = 36 ns
x 10 5
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: 193760 macroparticles, 1.69424e+10 e-
x 10 3
10000
8000
6000
4000
2000
0
Y (cm)
X (cm)
E_{kin}>50 eV: 2115 macroparticles, 594303744 e-

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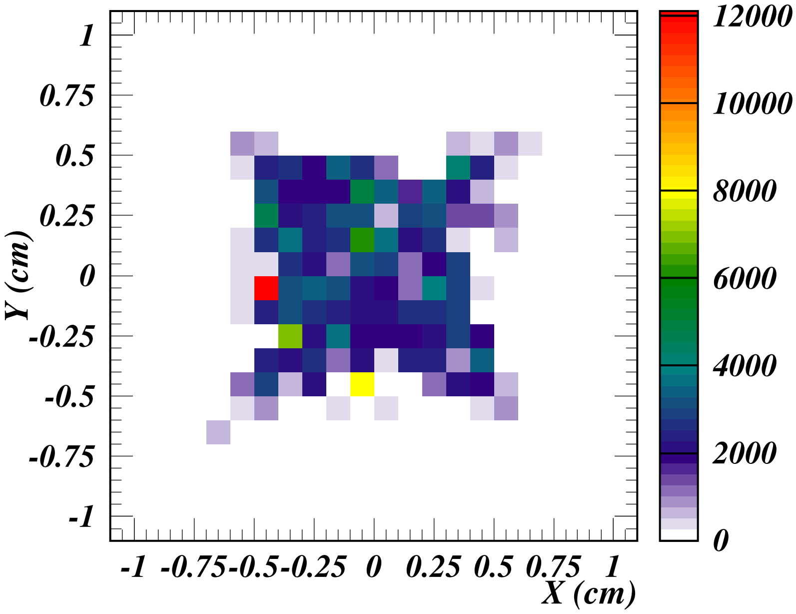
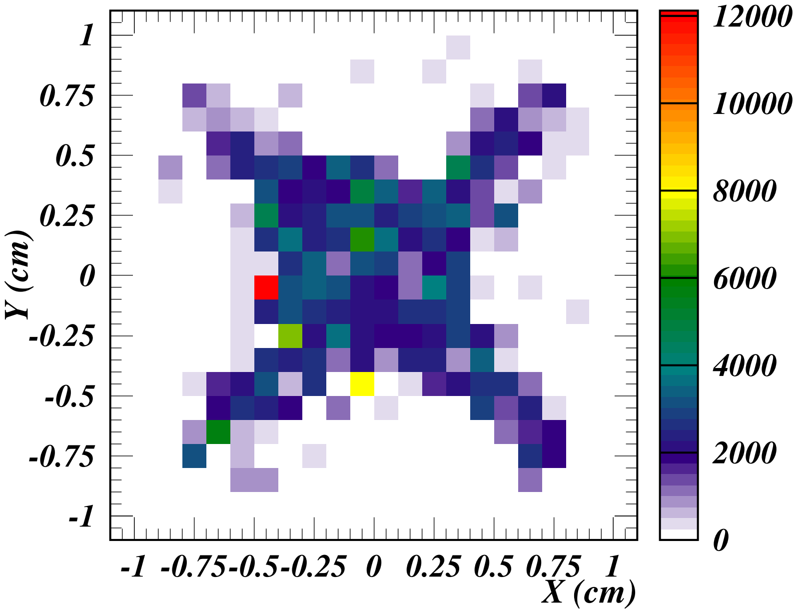
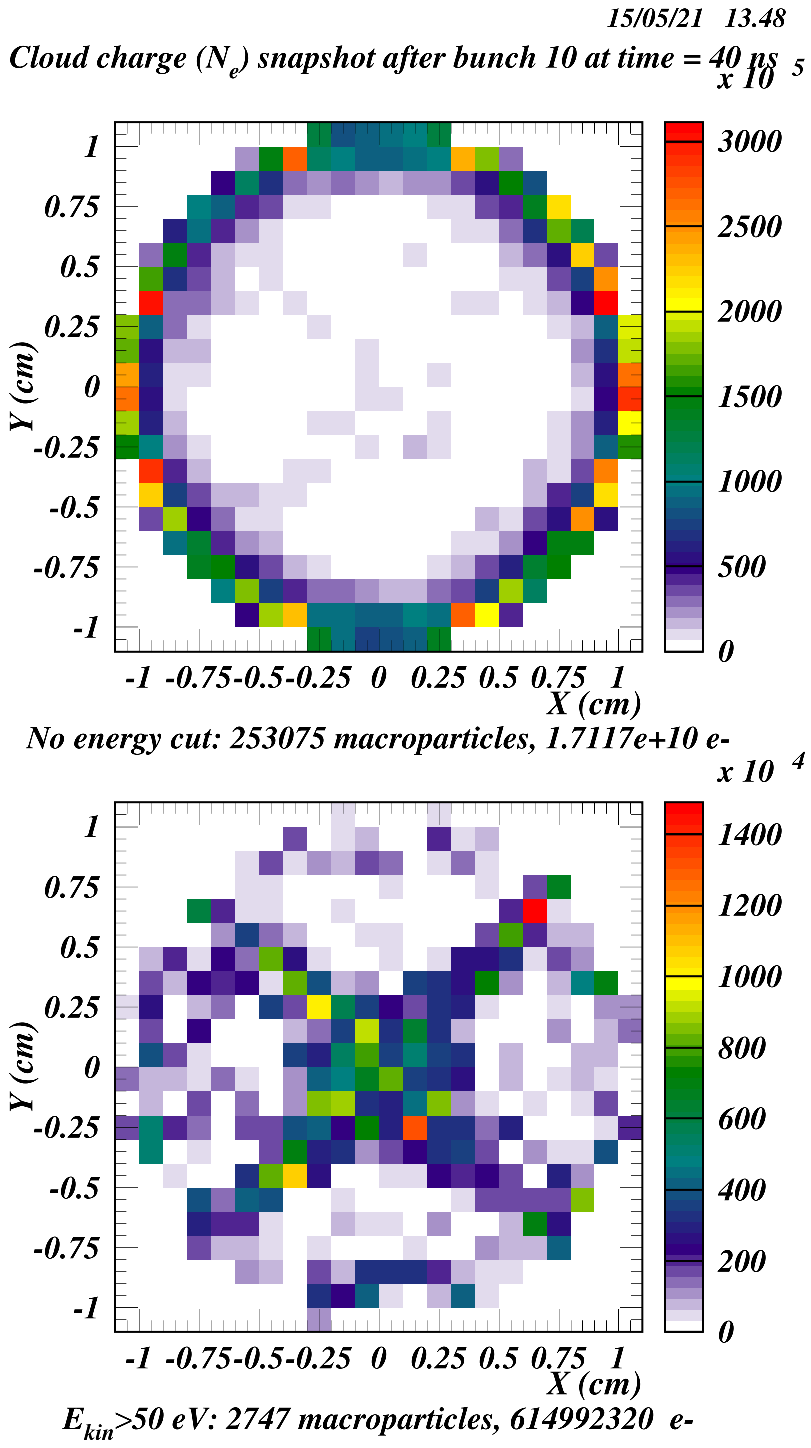
Cloud energy (eV) snapshot after bunch 9 at time = 36 ns



No energy cut: 193760 macroparticles, 1.69424e+10 e-



E_{kin}>50 eV: 2115 macroparticles, 594303744 e-



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Cloud charge (N_e) snapshot after bunch 10 at time = 40 ns
x 10 5
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: 253075 macroparticles, 1.7117e+10 e-
x 10 4
1400
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)
E_{kin}>50 eV: 2747 macroparticles, 614992320 e-

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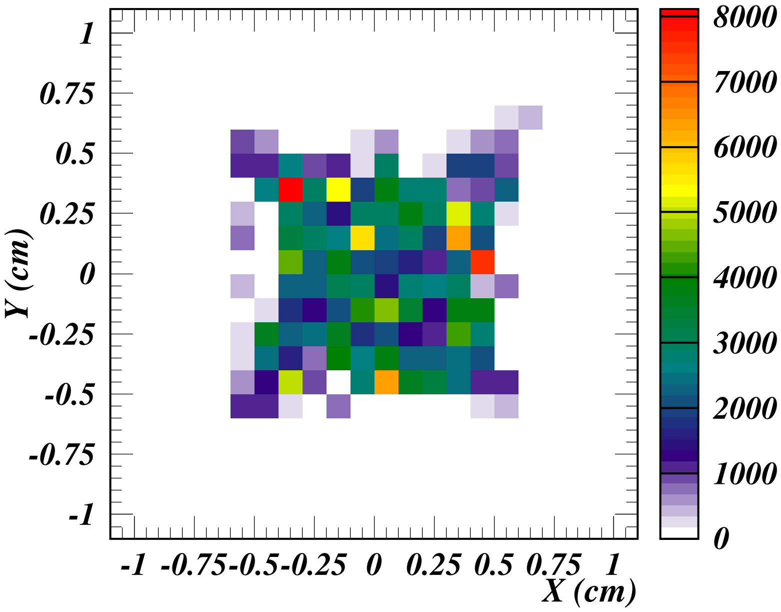
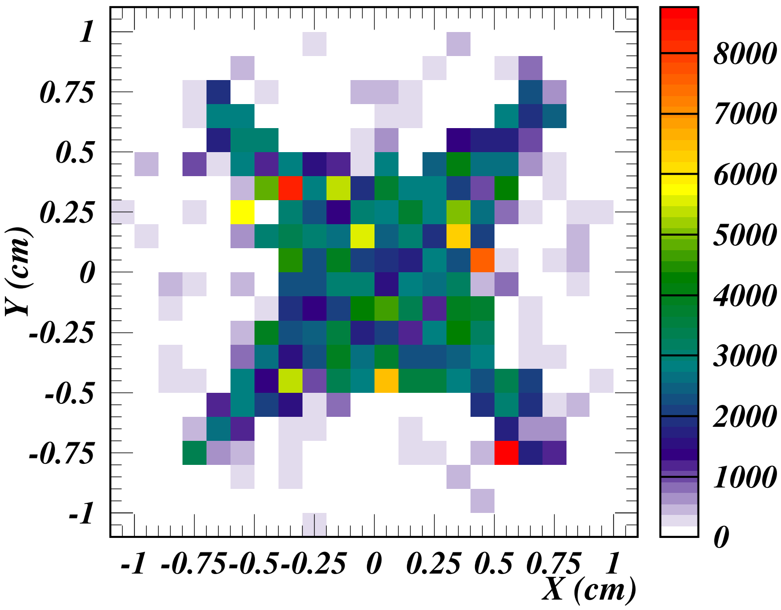
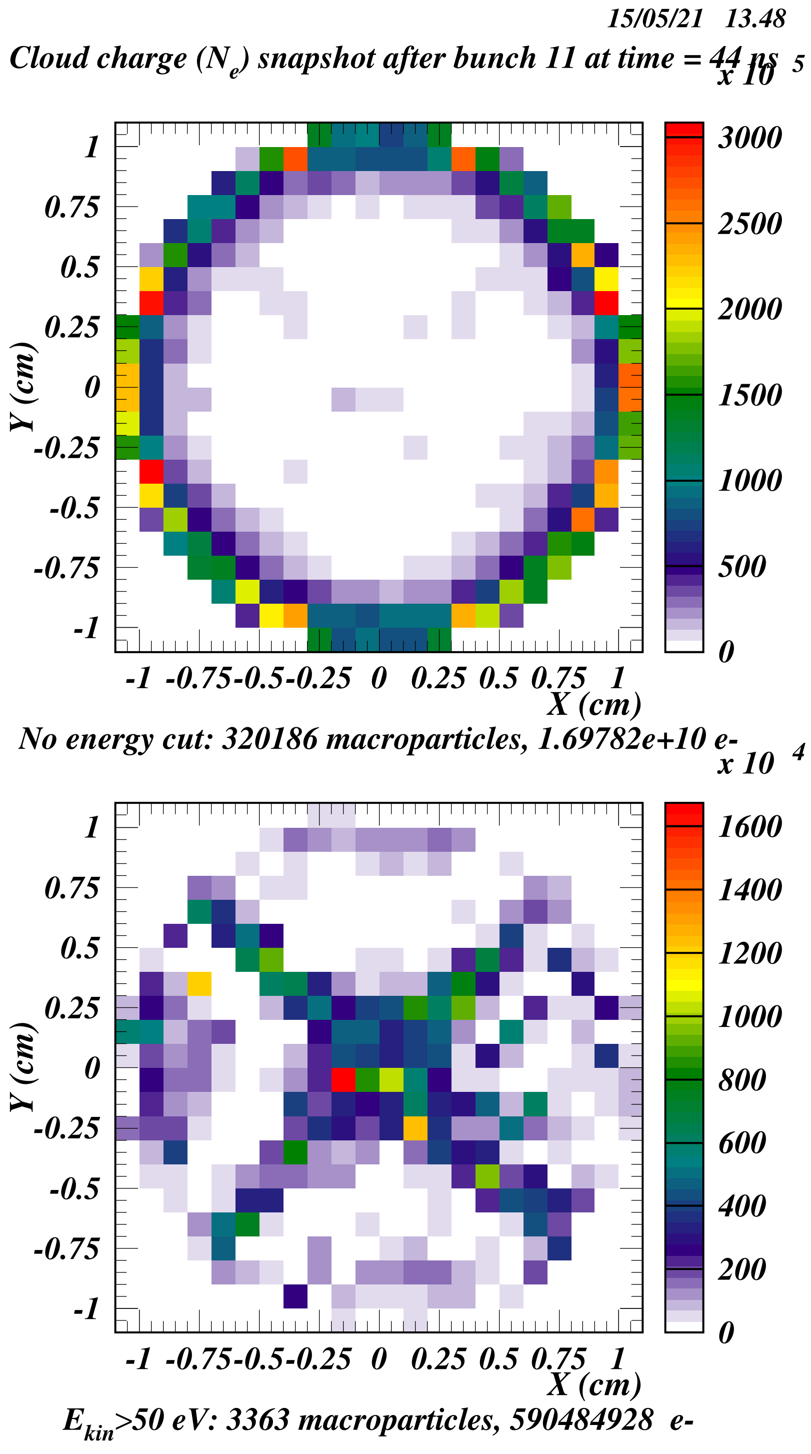
Cloud energy (eV) snapshot after bunch 10 at time = 40 ns



No energy cut: 253075 macroparticles, 1.7117e+10 e-



E_{kin}>50 eV: 2747 macroparticles, 614992320 e-



15/05/21 13.48
Cloud charge (N_e) snapshot after bunch 11 at time = 44 ns
x 10^5
3000
2500
2000
1500
1000
500
0
Y (cm)
X (cm)
No energy cut: 320186 macroparticles, 1.69782e+10 e-
x 10^4
1600
1400
1200
1000
800
600
400
200
0
Y (cm)
X (cm)
E_{kin}>50 eV: 3363 macroparticles, 590484928 e-

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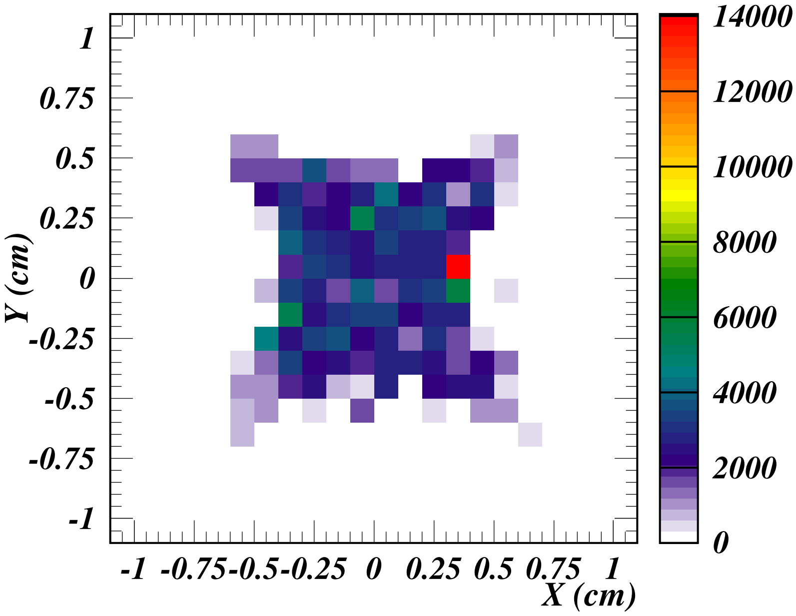
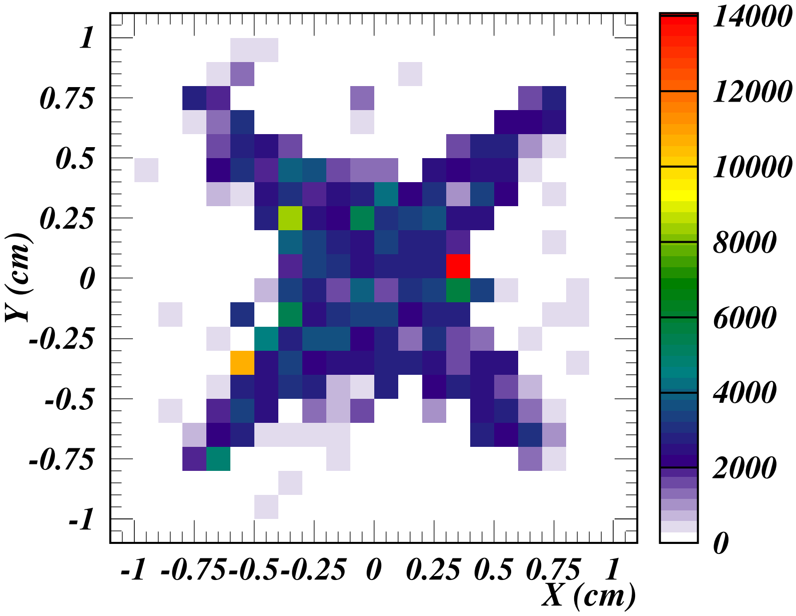
Cloud energy (eV) snapshot after bunch 11 at time = 44 ns



No energy cut: 320186 macroparticles, 1.69782e+10 e-



E_{kin}>50 eV: 3363 macroparticles, 590484928 e-

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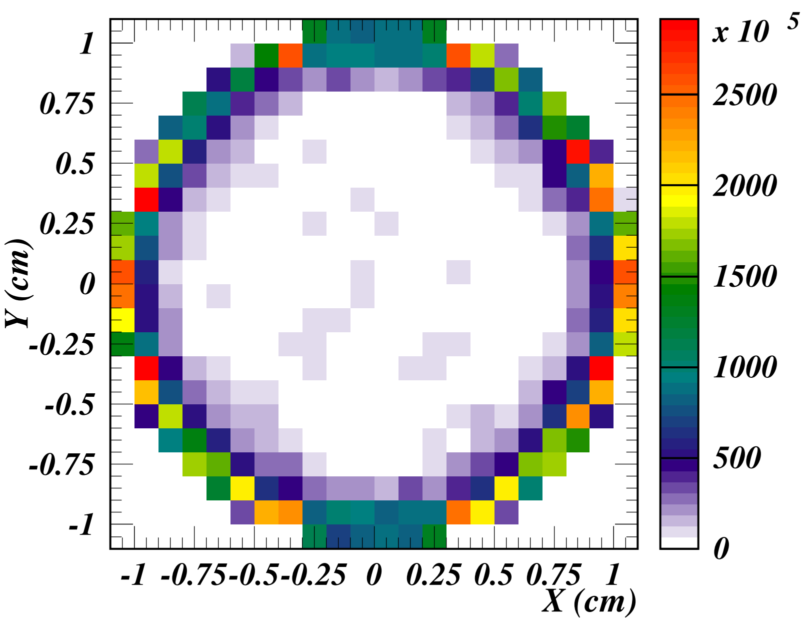
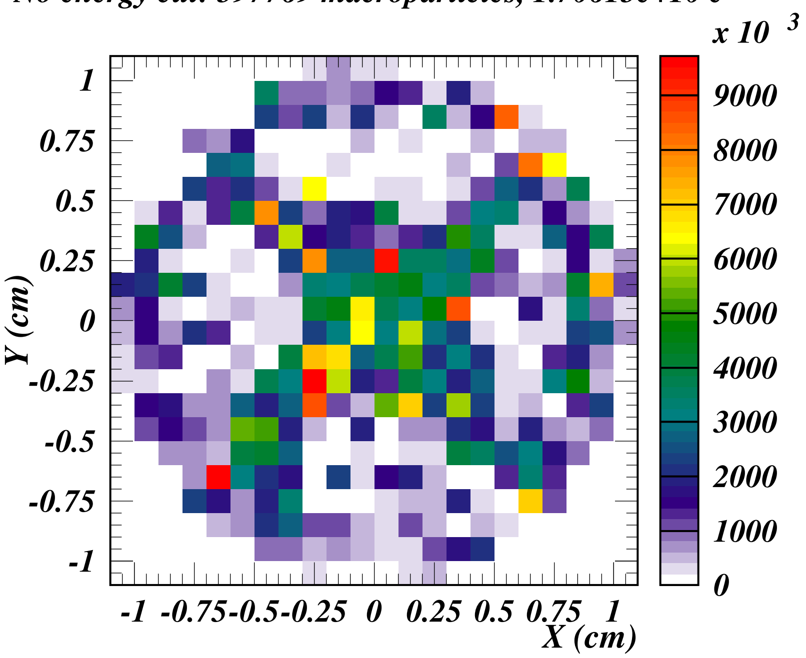
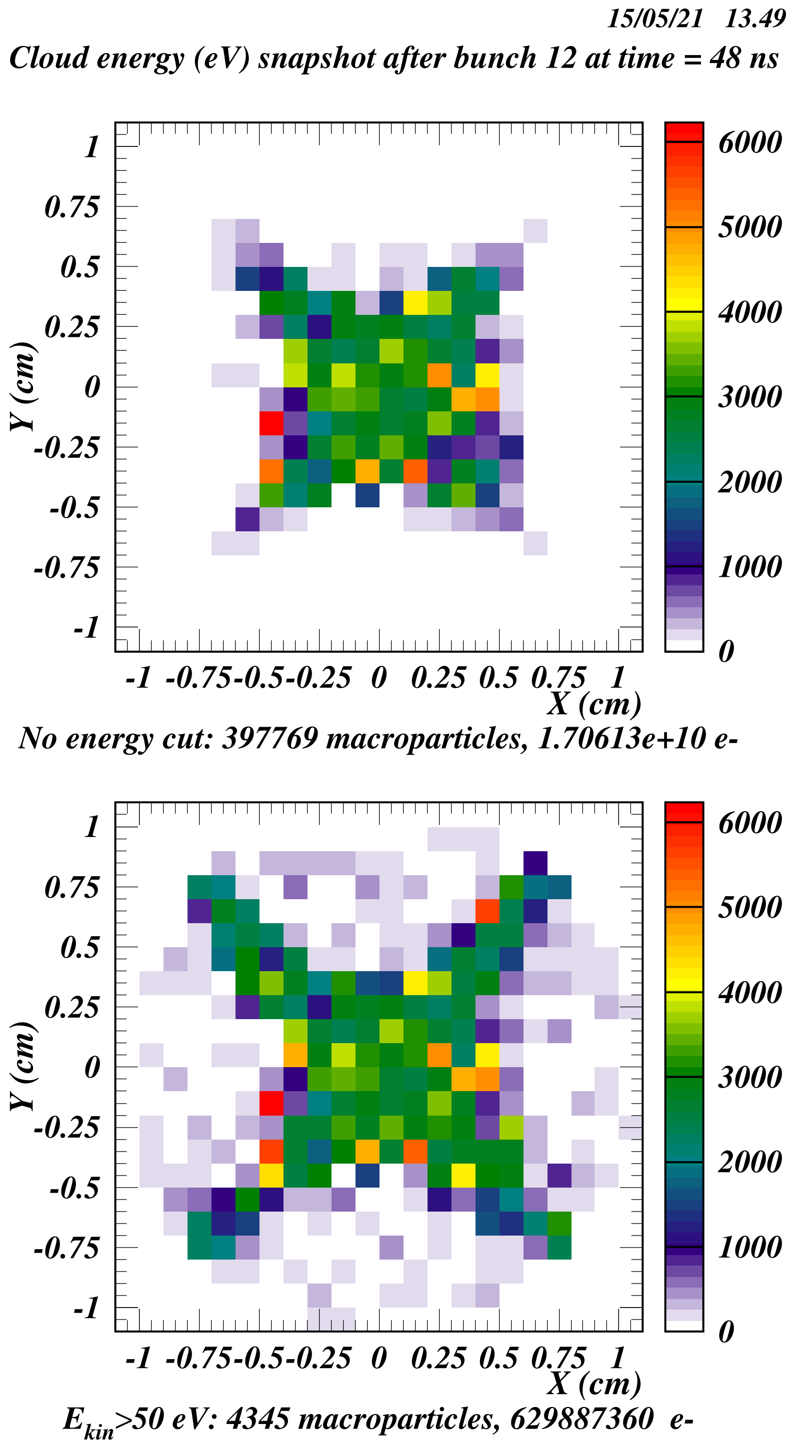
Cloud charge (N_e) snapshot after bunch 12 at time = 48 ns

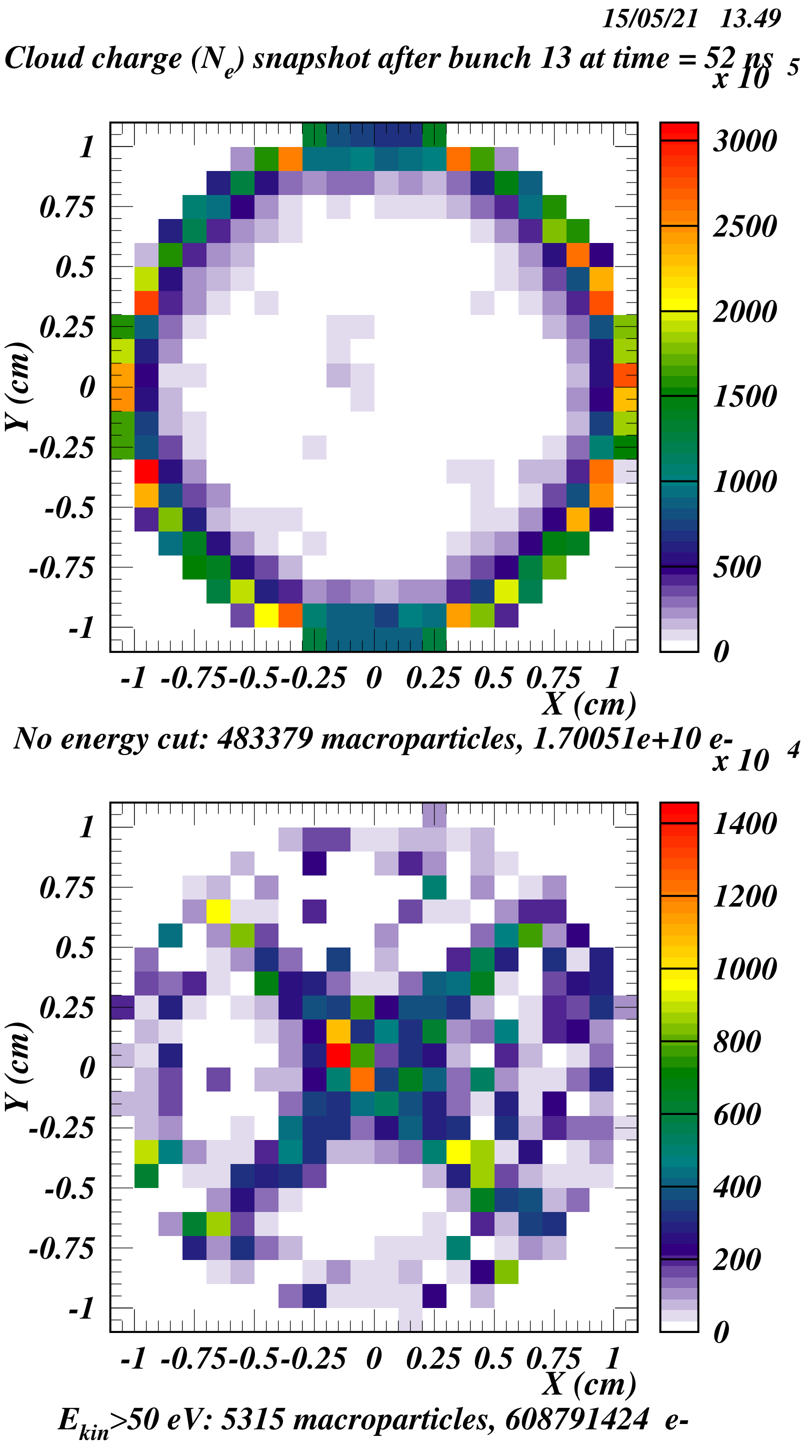


No energy cut: 397769 macroparticles, 1.70613e+10 e-



E_{kin}>50 eV: 4345 macroparticles, 629887360 e-


15/05/21 13.49
Cloud energy (eV) snapshot after bunch 12 at time = 48 ns
Y (cm)
X (cm)
No energy cut: 397769 macroparticles, 1.70613e+10 e-
Y (cm)
X (cm)
E_kin>50 eV: 4345 macroparticles, 629887360 e-


15/05/21 13.49
Cloud charge (N_e) snapshot after bunch 13 at time = 52 ns
x 10 5
3000
2500
2000
1500
1000
500
0
Y (cm)
X (cm)
No energy cut: 483379 macroparticles, 1.70051e+10 e-
x 10 4
1400
1200
1000
800
600
400
200
0
Y (cm)
X (cm)
E_{kin}>50 eV: 5315 macroparticles, 608791424 e-

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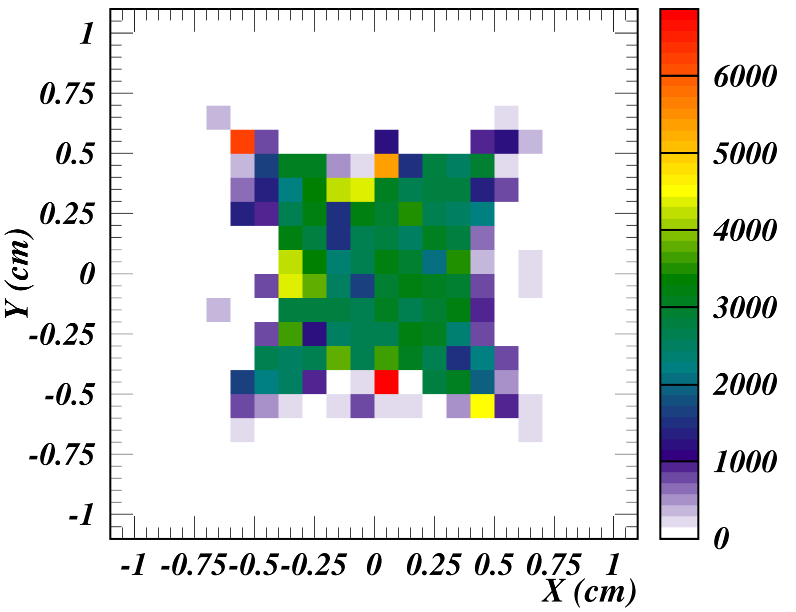
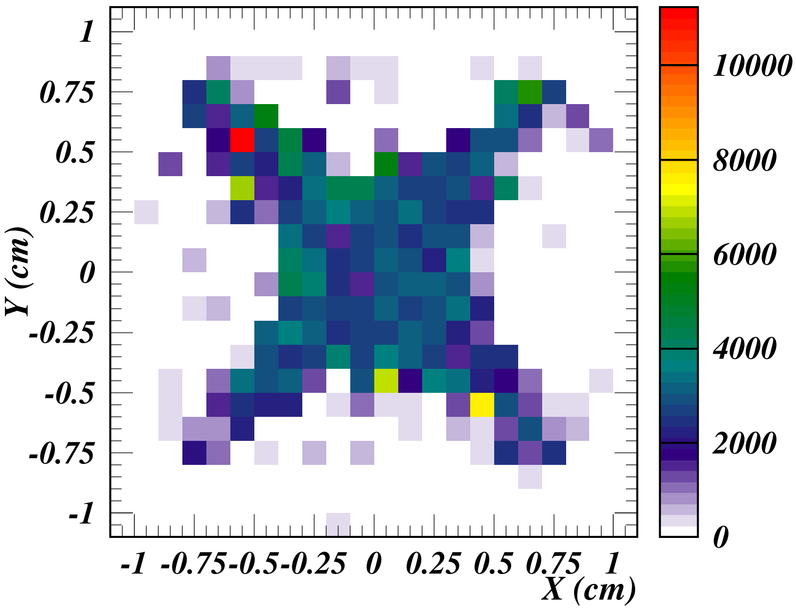
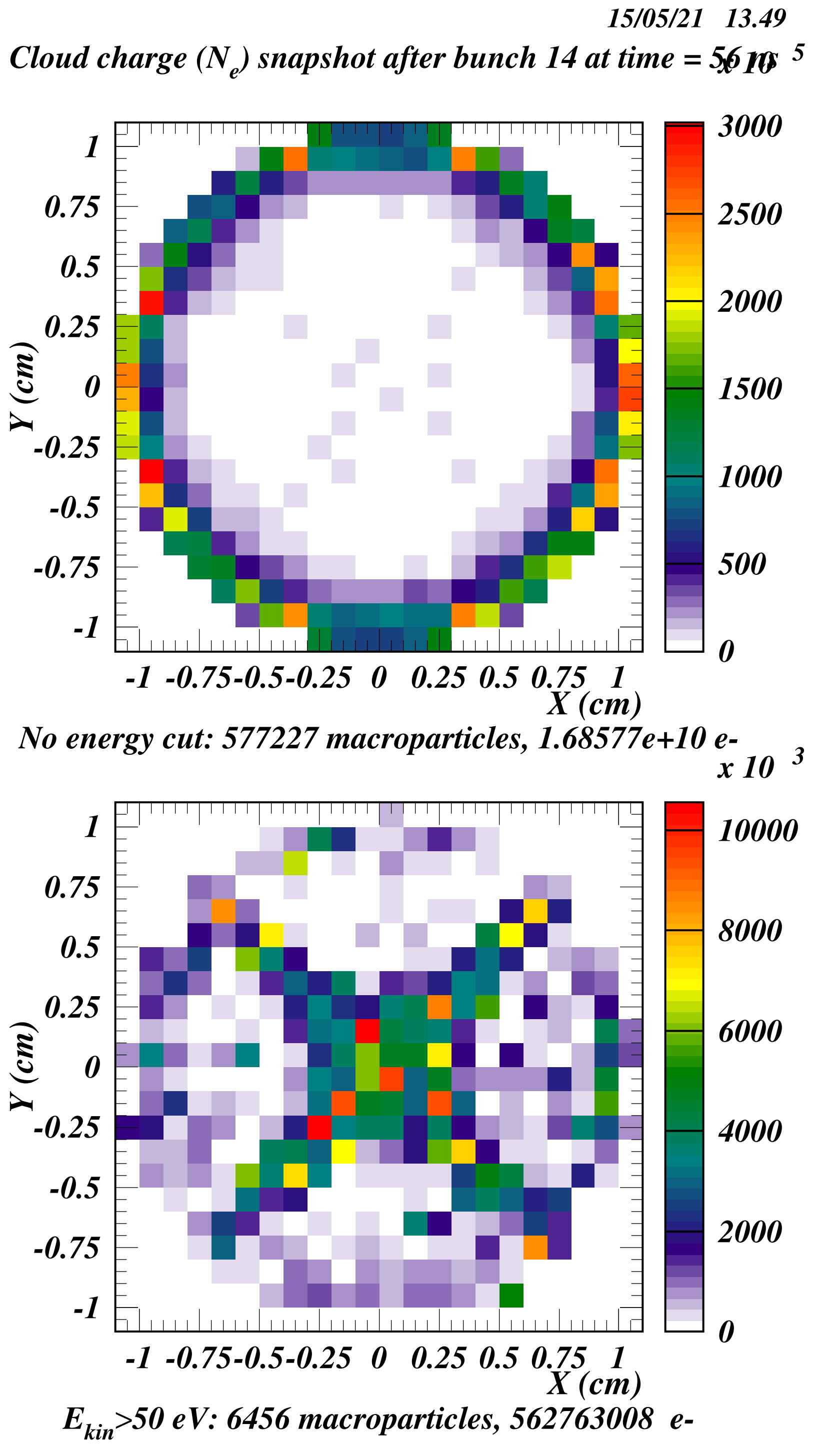
Cloud energy (eV) snapshot after bunch 13 at time = 52 ns



No energy cut: 483379 macroparticles, 1.70051e+10 e-

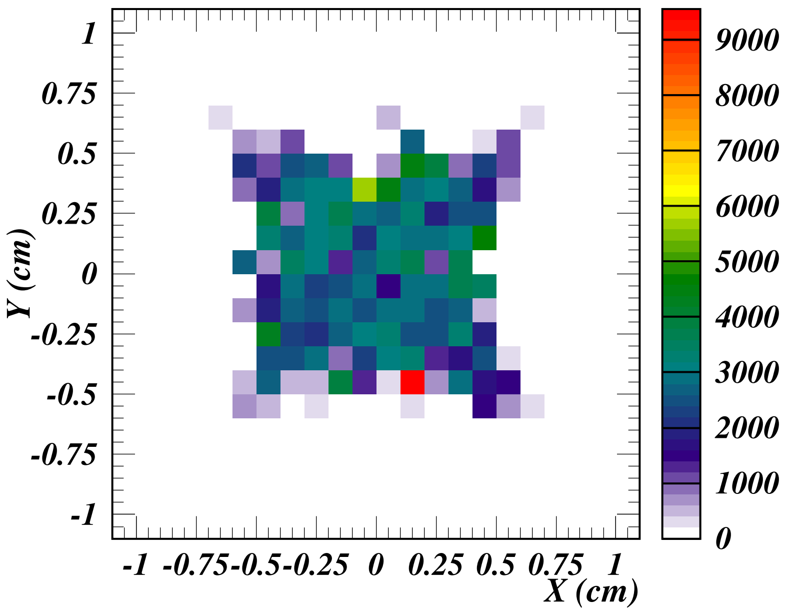


E_{kin}>50 eV: 5315 macroparticles, 608791424 e-

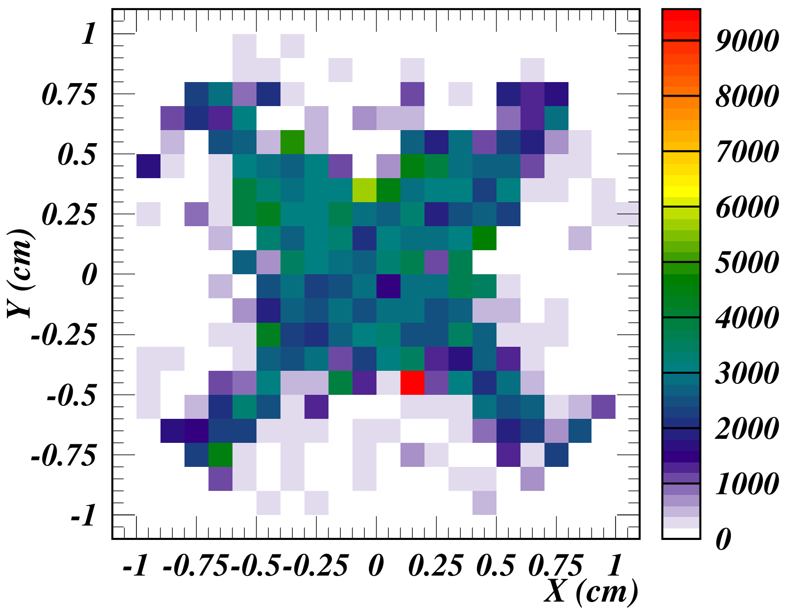

15/05/21 13.49
Cloud charge (N_e) snapshot after bunch 14 at time = 56 ns
x 10^5
3000
2500
2000
1500
1000
500
0
1
0.75
0.5
0.25
0
-0.25
-0.5
-0.75
-1
Y (cm)
-1 -0.75 -0.5 -0.25 0 0.25 0.5 0.75 1
X (cm)
No energy cut: 577227 macroparticles, 1.68577e+10 e-
x 10^3
10000
8000
6000
4000
2000
0
Y (cm)
X (cm)
E_kin>50 eV: 6456 macroparticles, 562763008 e-

15/05/21 13.49

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



No energy cut: 577227 macroparticles, 1.68577e+10 e-



E_{kin}>50 eV: 6456 macroparticles, 562763008 e-

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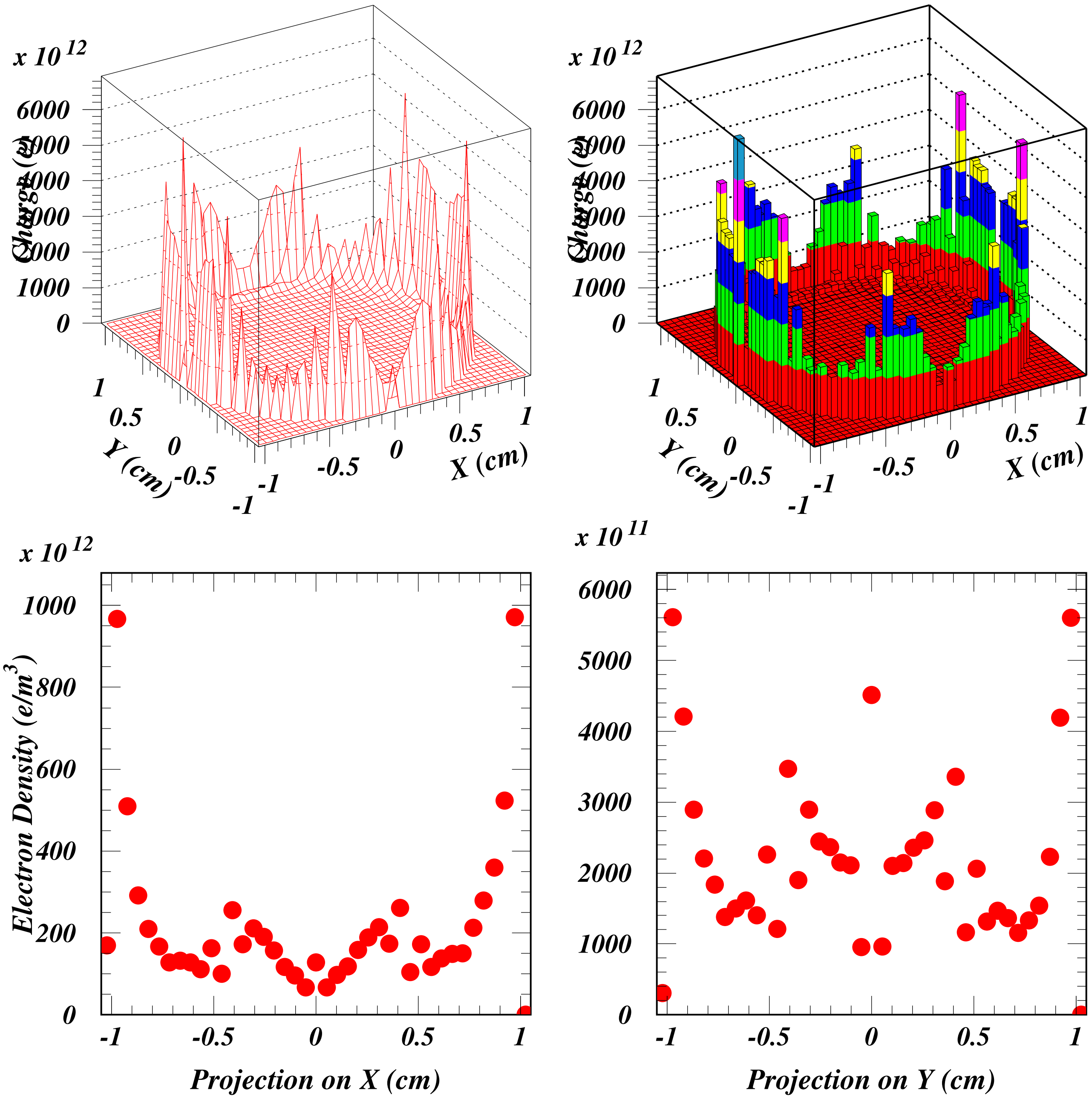
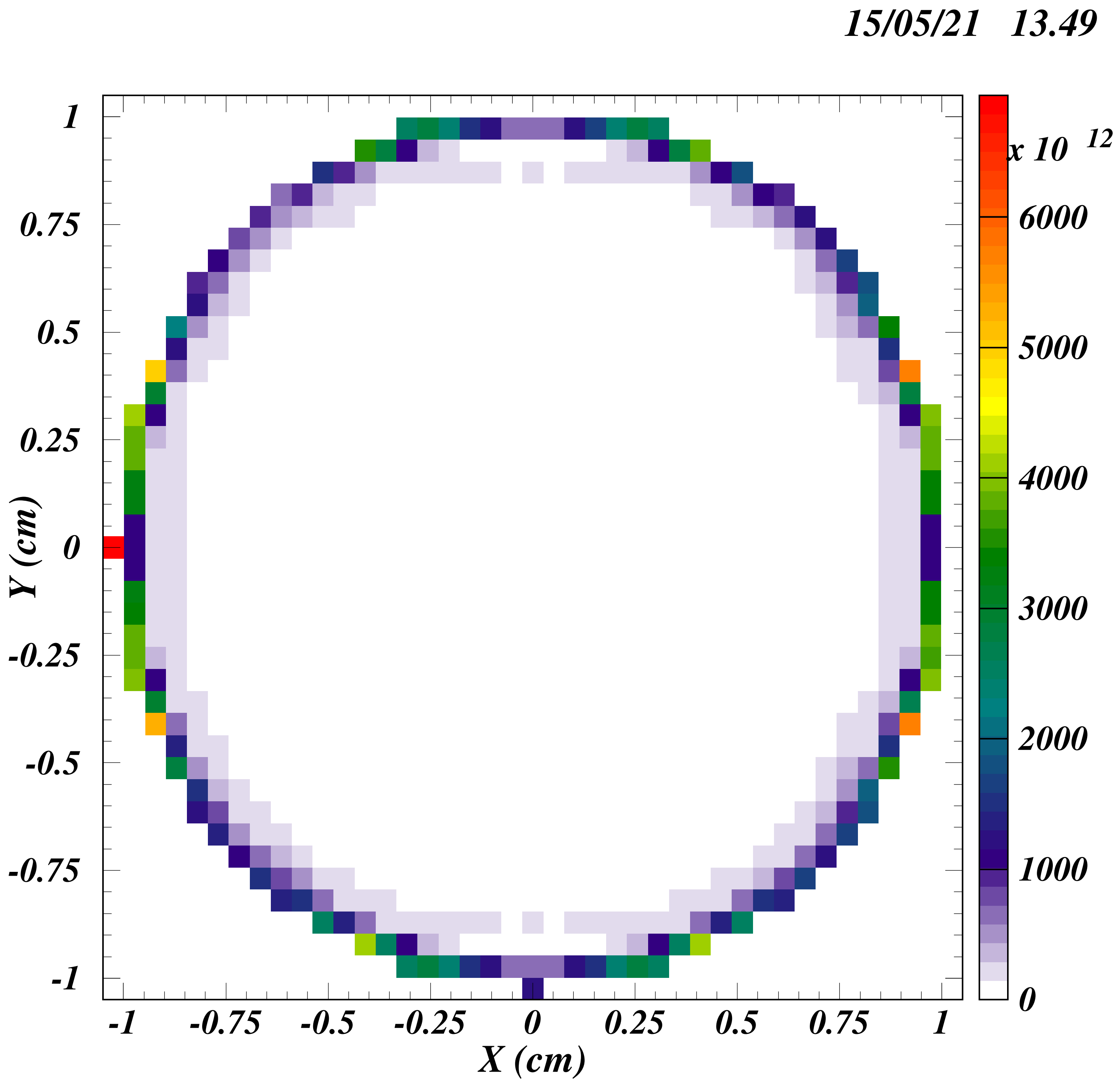
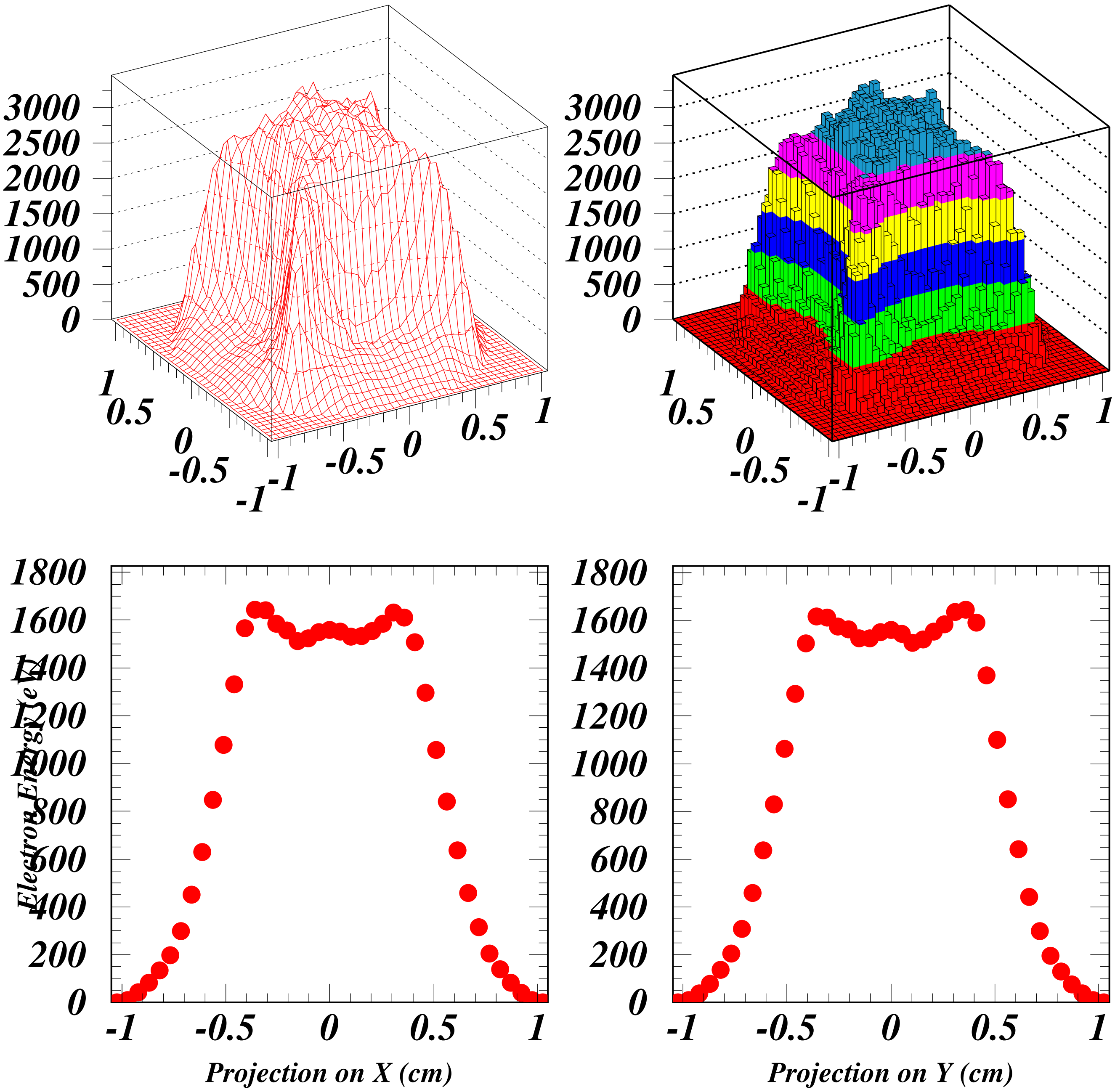
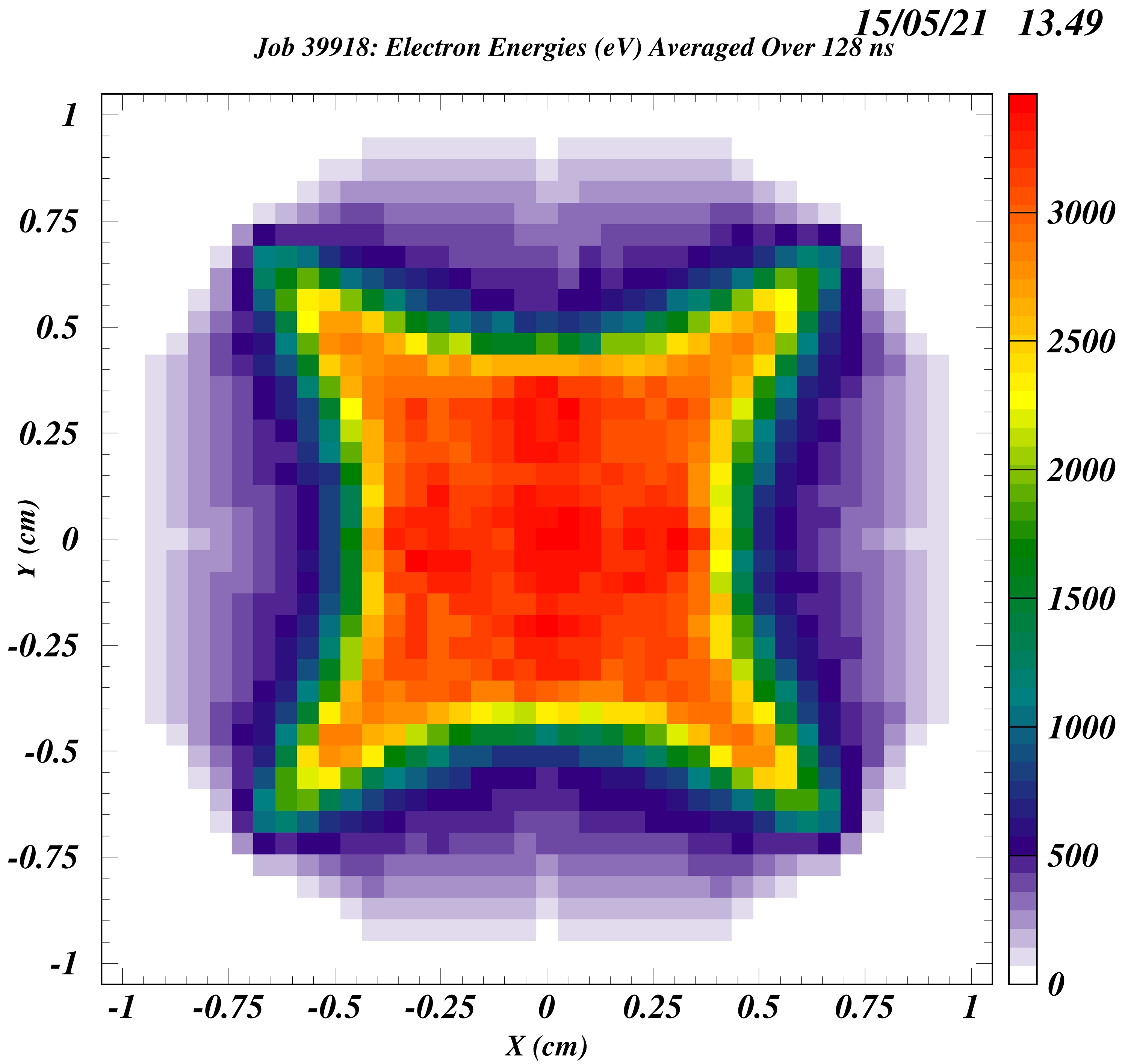

x 10^12
6000
5000
4000
3000
2000
1000
0
Charge (e)
Y (cm)
X (cm)
x 10^12
Electron Density (e/m^3)
Projection on X (cm)
x 10^11
Projection on Y (cm)

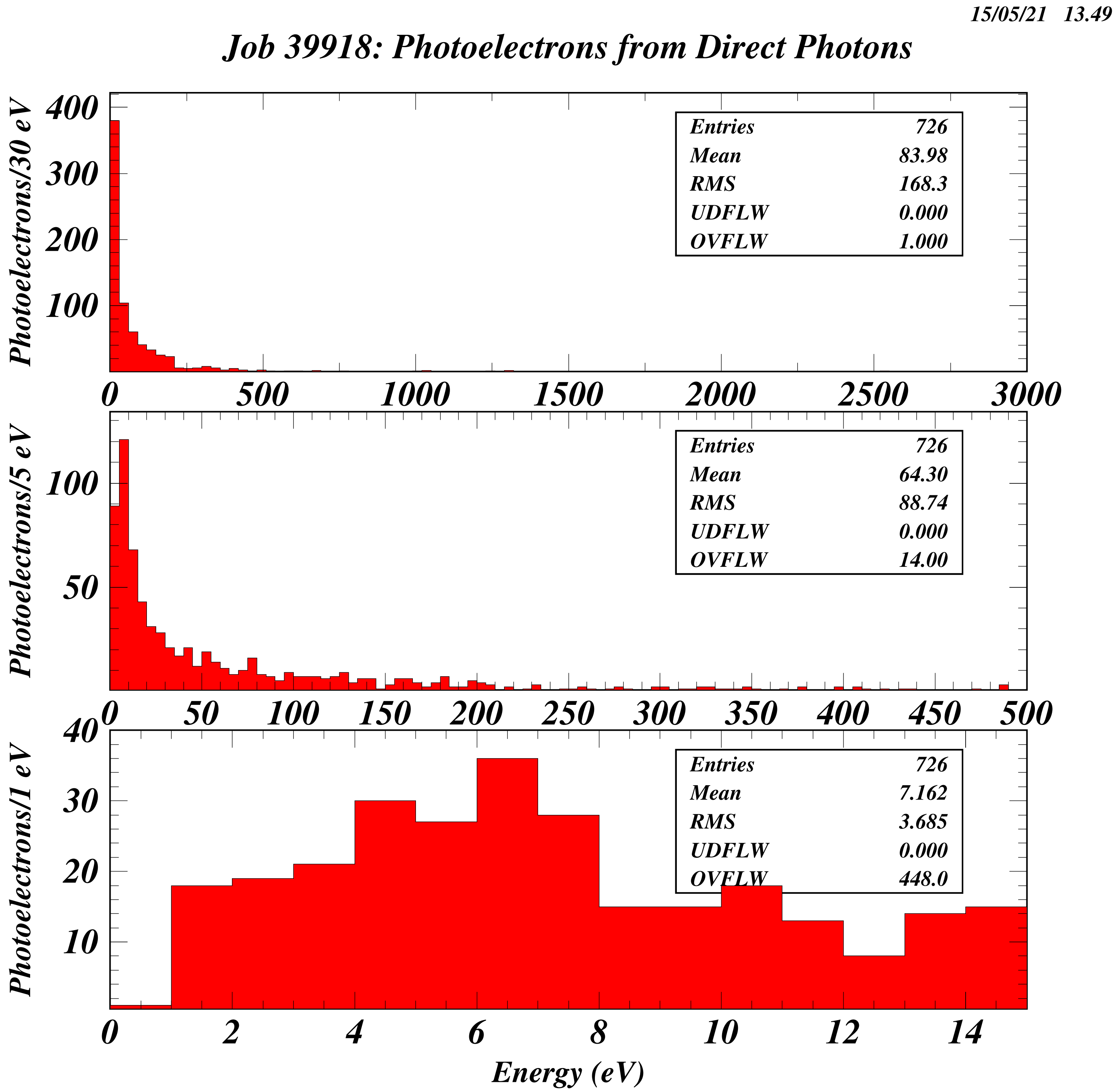

15/05/21 13.49
x 10 12
6000
5000
4000
3000
2000
1000
0
1
0.75
0.5
0.25
0
-0.25
-0.5
-0.75
-1
Y (cm)
-1
-0.75
-0.5
-0.25
0
0.25
0.5
0.75
1
X (cm)

15/05/21 13.49

Job 39918: Electron Energies (eV) Averaged Over 128 ns

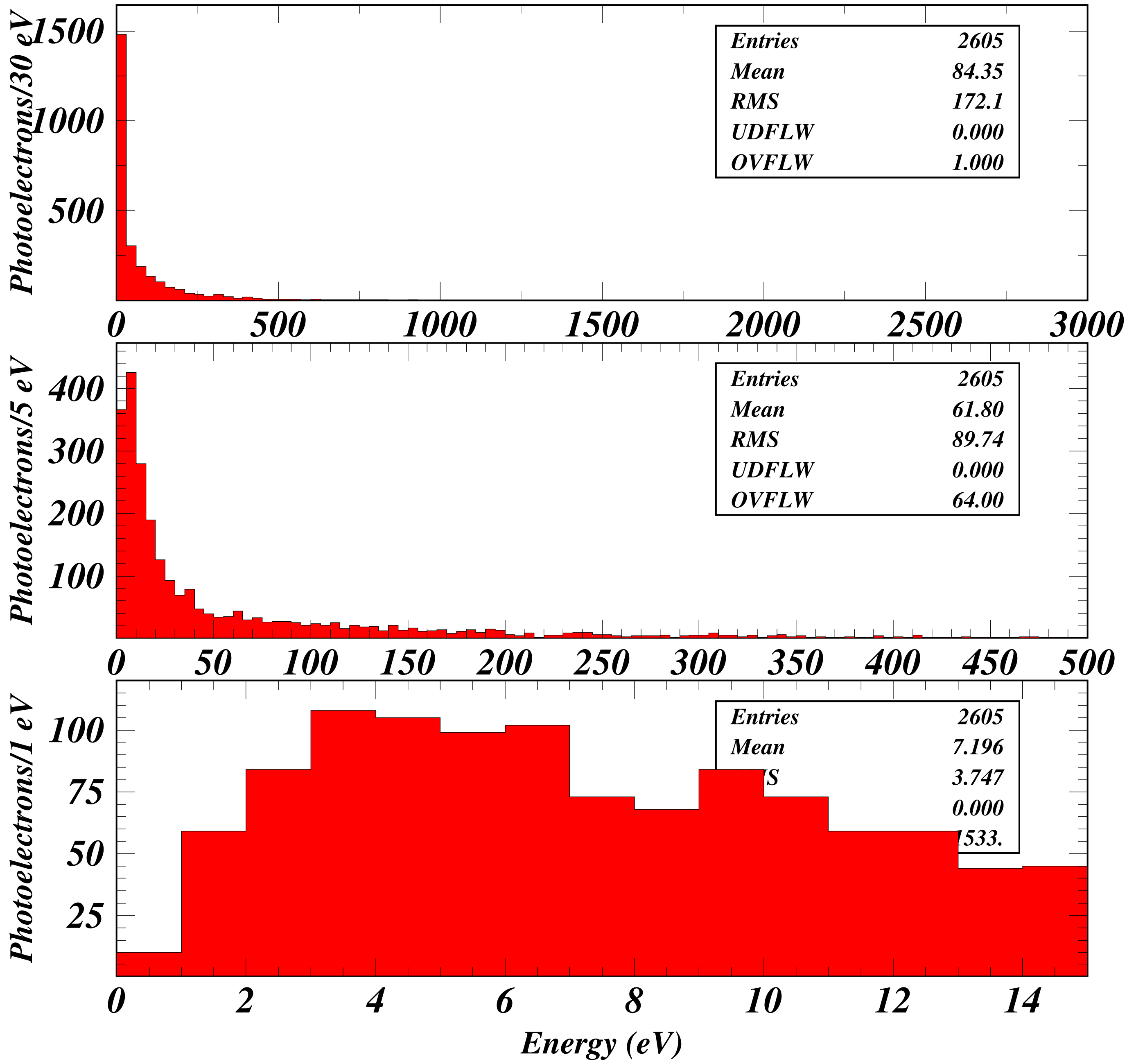



15/05/21 13.49
Job 39918: Electron Energies (eV) Averaged Over 128 ns
1
0.75
0.5
0.25
0
-0.25
-0.5
-0.75
-1
Y (cm)
-1
-0.75
-0.5
-0.25
0
0.25
0.5
0.75
1
X (cm)
3000
2500
2000
1500
1000
500
0


15/05/21 13.49
Job 39918: Photoelectrons from Direct Photons
Photoelectrons/30 eV
Entries 726
Mean 83.98
RMS 168.3
UDFLW 0.000
OVFLW 1.000
0 500 1000 1500 2000 2500 3000
100 200 300 400
Photoelectrons/5 eV
Entries 726
Mean 64.30
RMS 88.74
UDFLW 0.000
OVFLW 14.00
0 50 100 150 200 250 300 350 400 450 500
50 100
Photoelectrons/1 eV
Entries 726
Mean 7.162
RMS 3.685
UDFLW 0.000
OVFLW 448.0
0 2 4 6 8 10 12 14
10 20 30 40
Energy (eV)

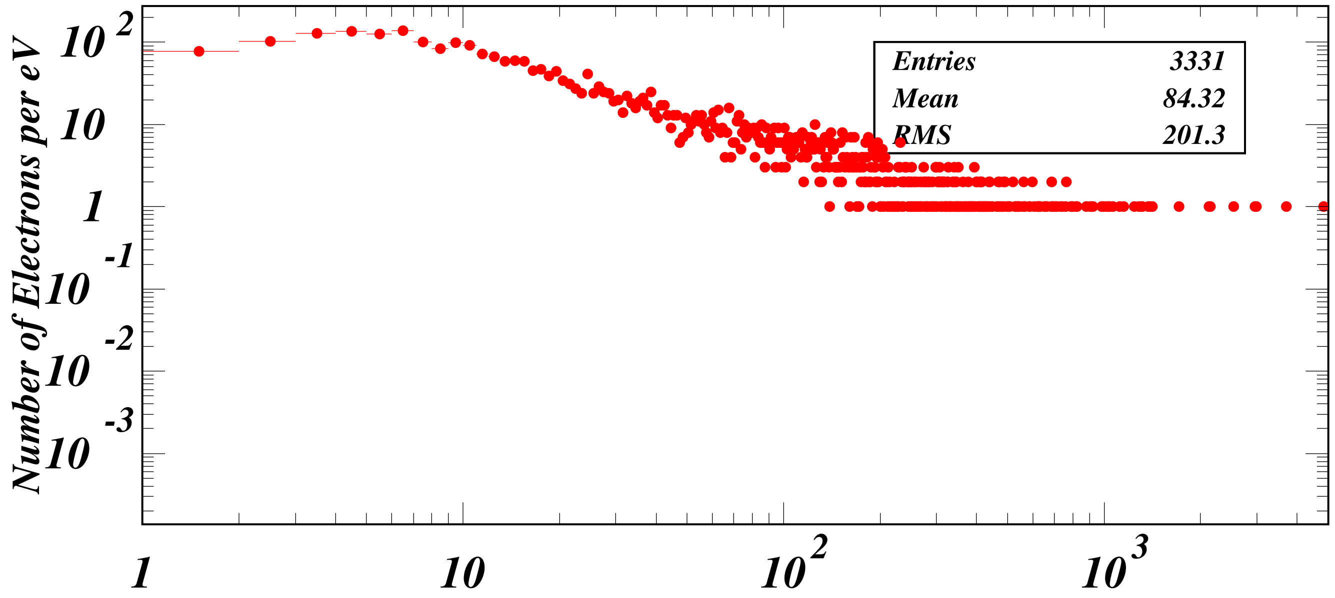
15/05/21 13.49

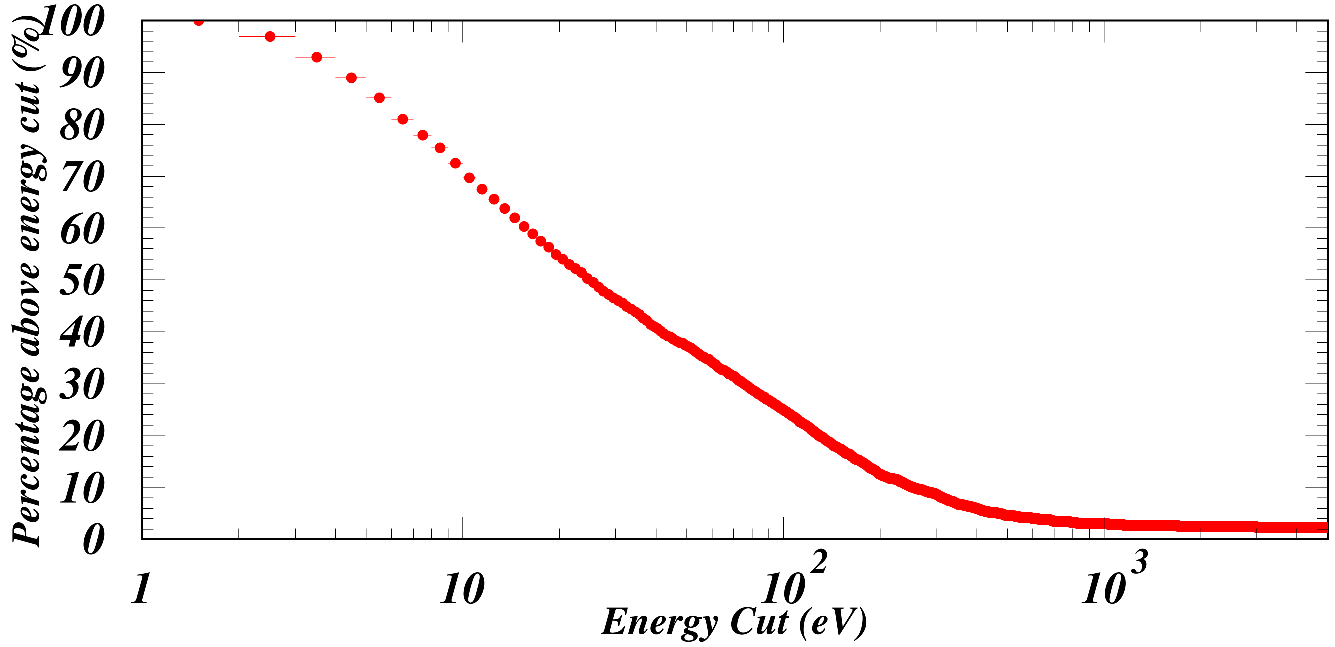
Job 39918: Photoelectrons from Reflected Photons



15/05/21 13.49

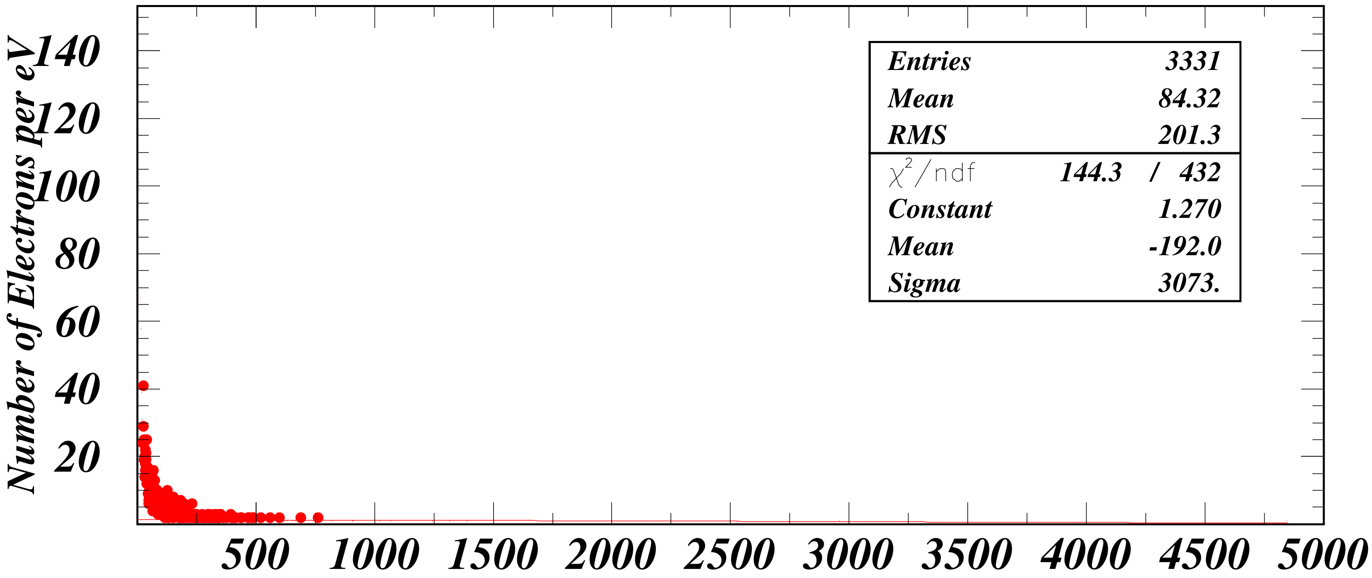
Job 39918: Photoelectron Energies

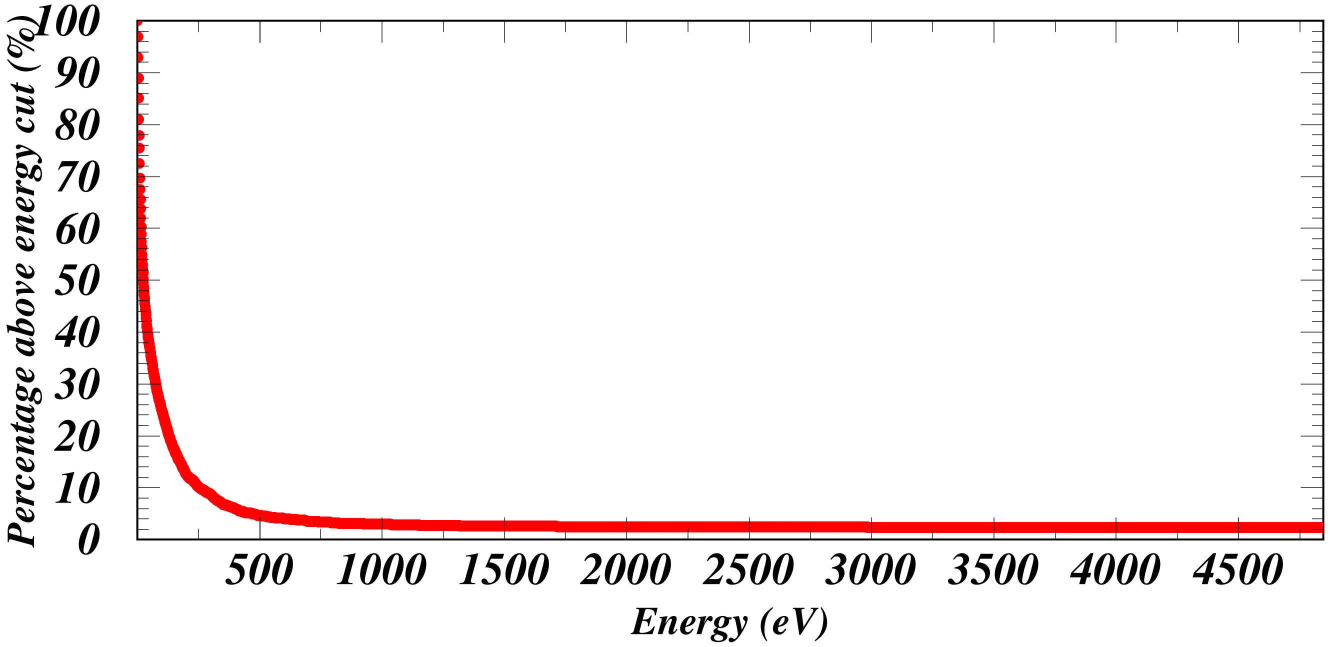




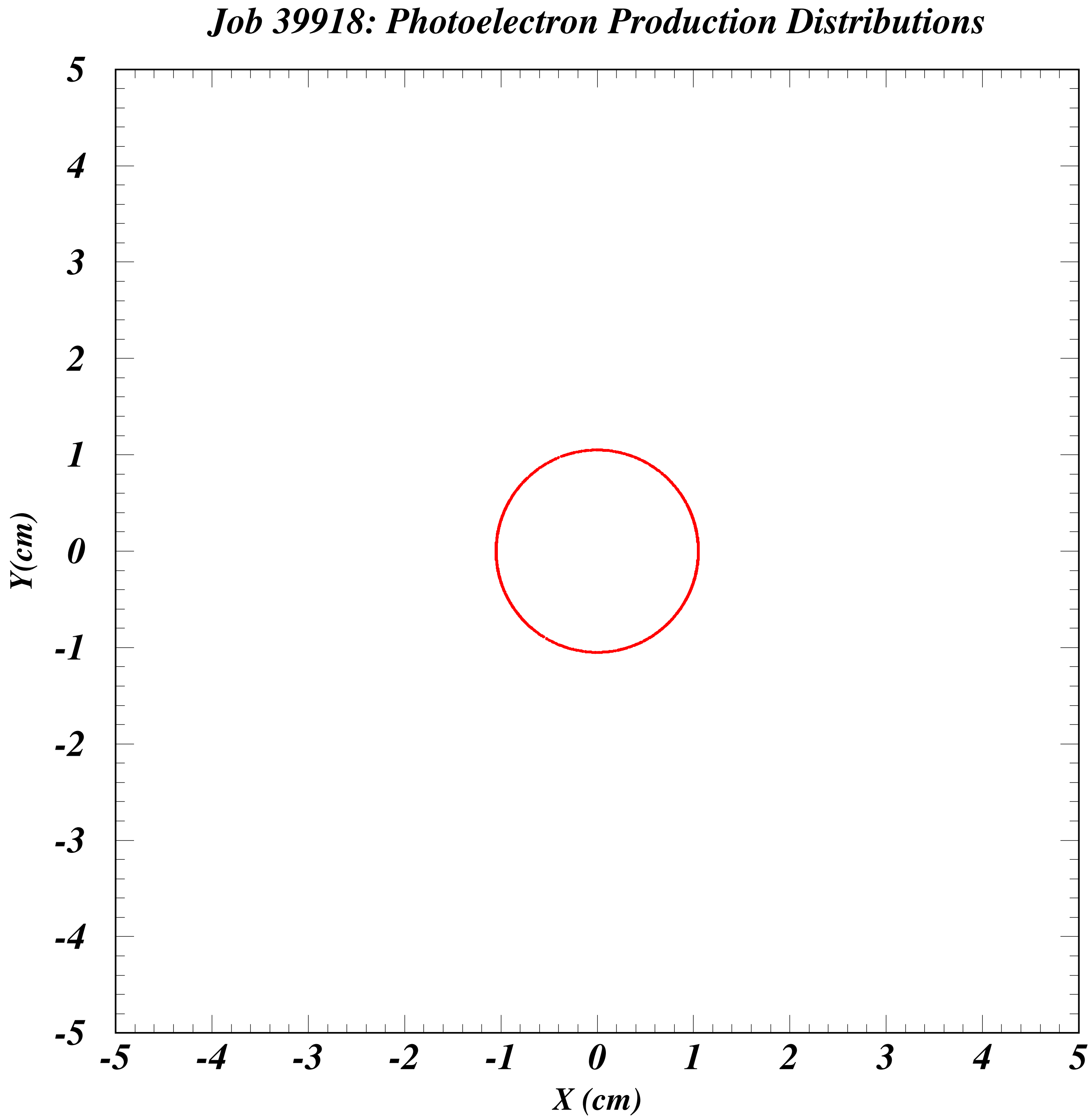
15/05/21 13.49

Job 39918: Photoelectron Energies



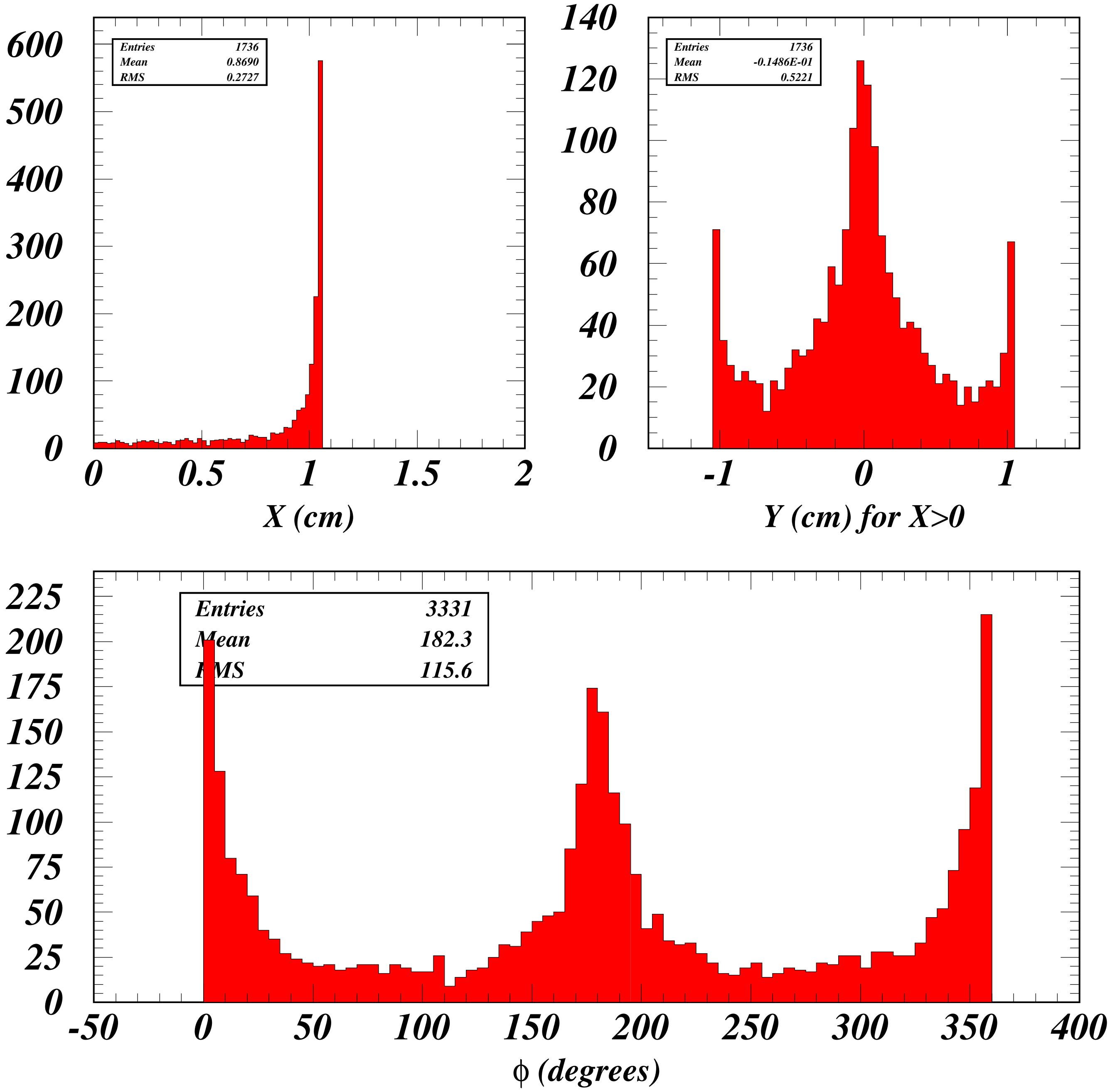


15/05/21 13.49


Job 39918: Photoelectron Production Distributions
5
4
3
2
1
0
-1
-2
-3
-4
-5
Y(cm)
-5 -4 -3 -2 -1 0 1 2 3 4 5
X (cm)

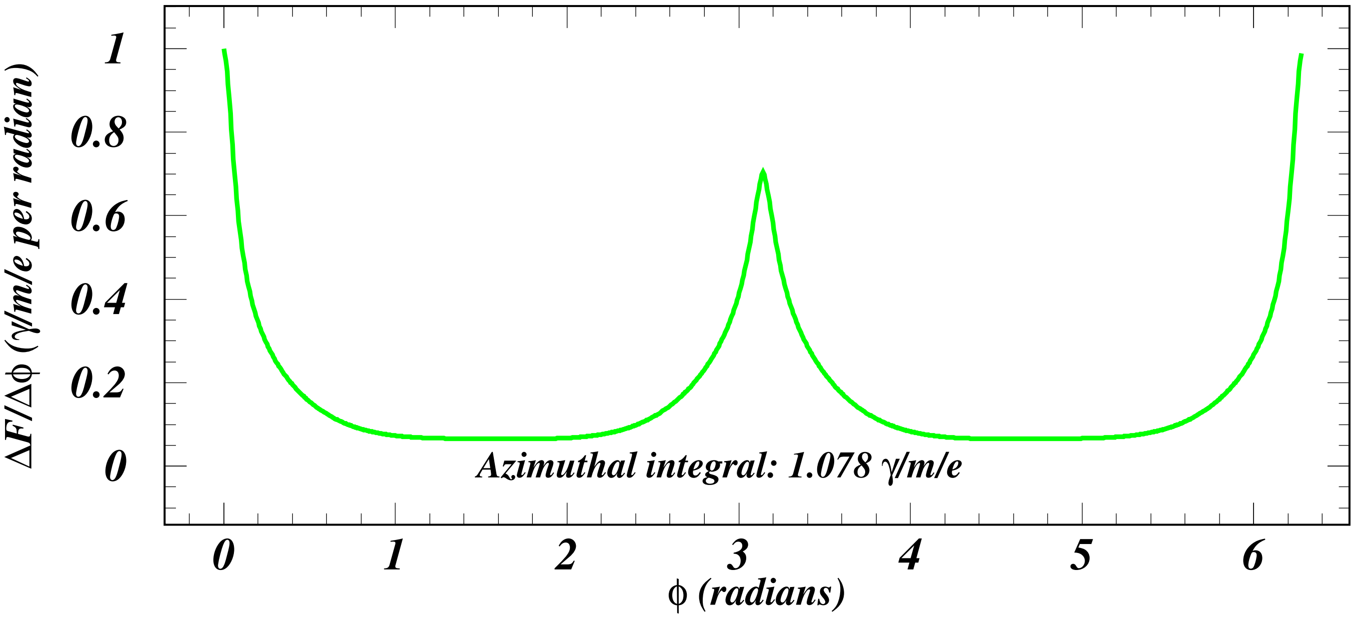
15/05/21 13.49

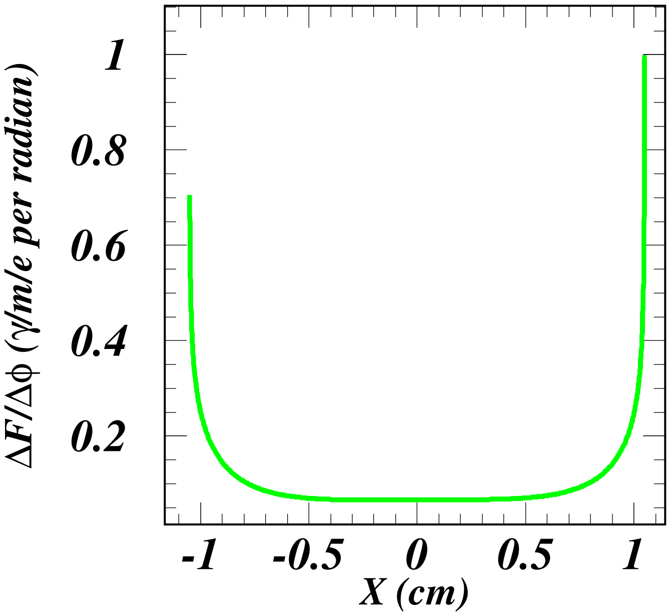
Job 39918: Photoelectron Production Distributions

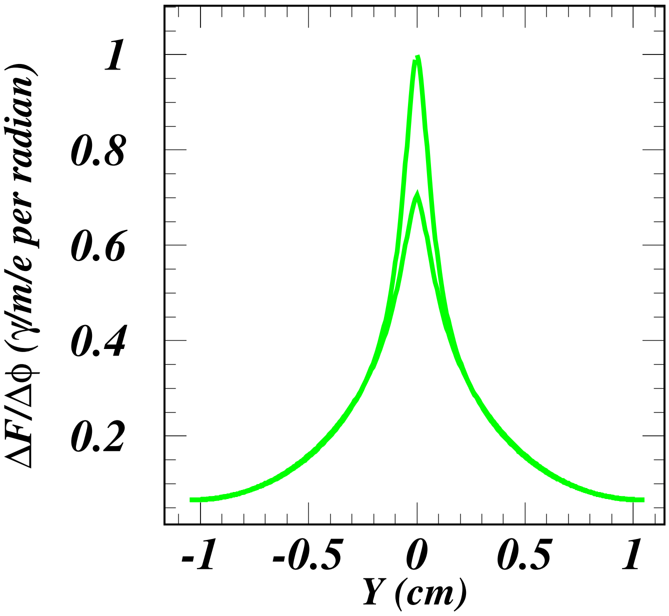


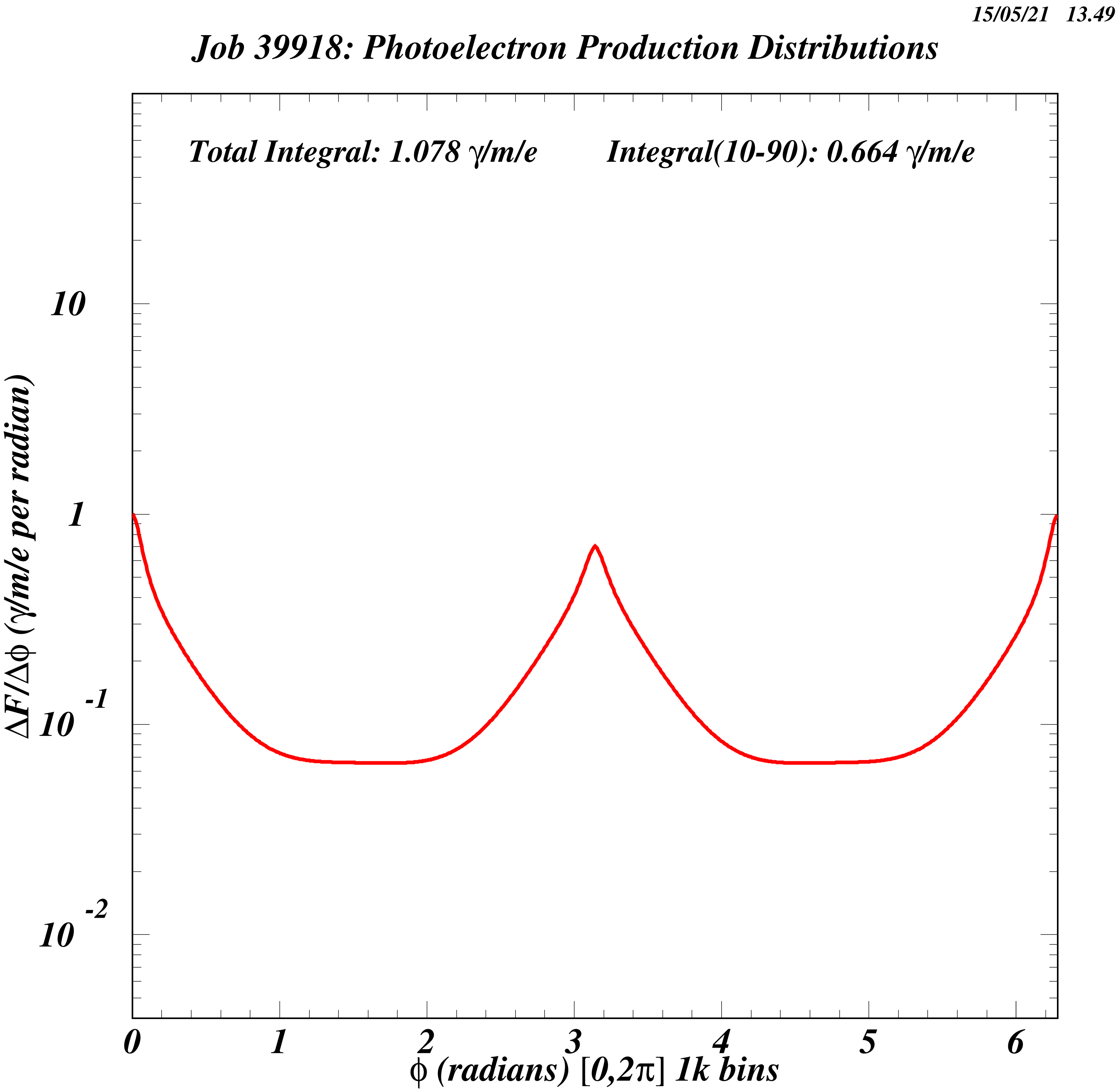
15/05/21 13.49

Job 39918: Photoelectron Production Distributions








15/05/21 13.49
Job 39918: 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