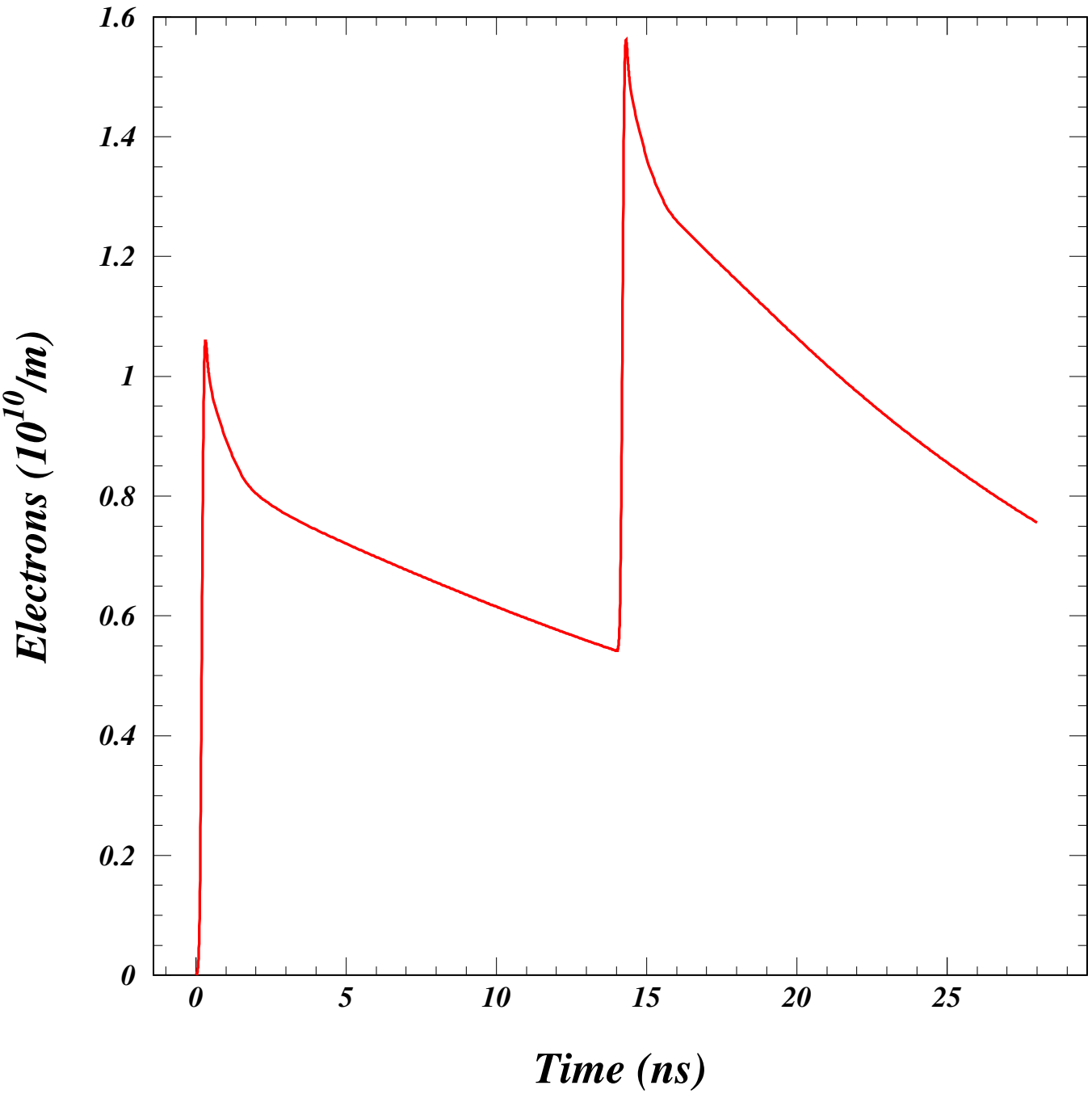
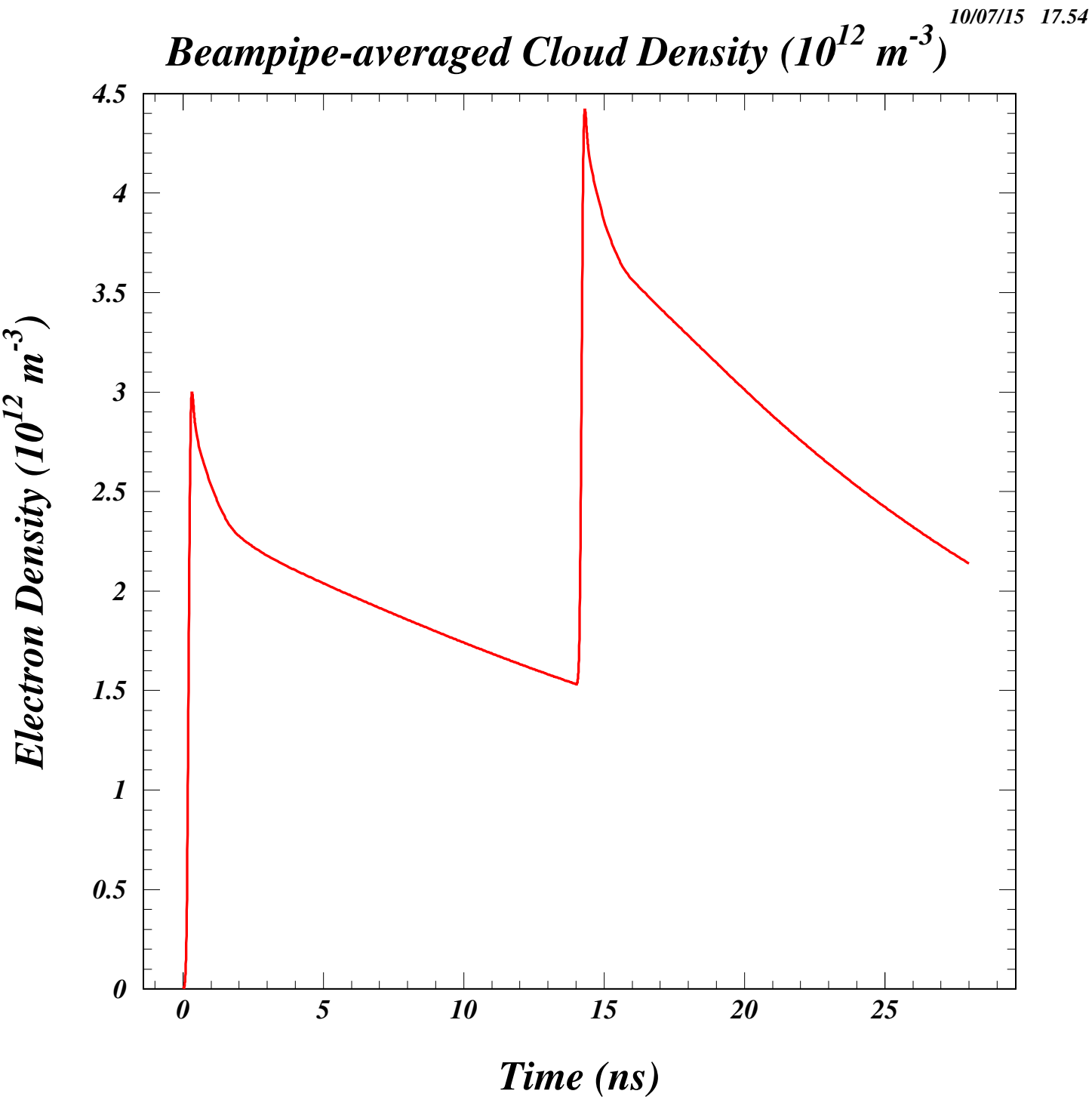
10/07/15 17.54

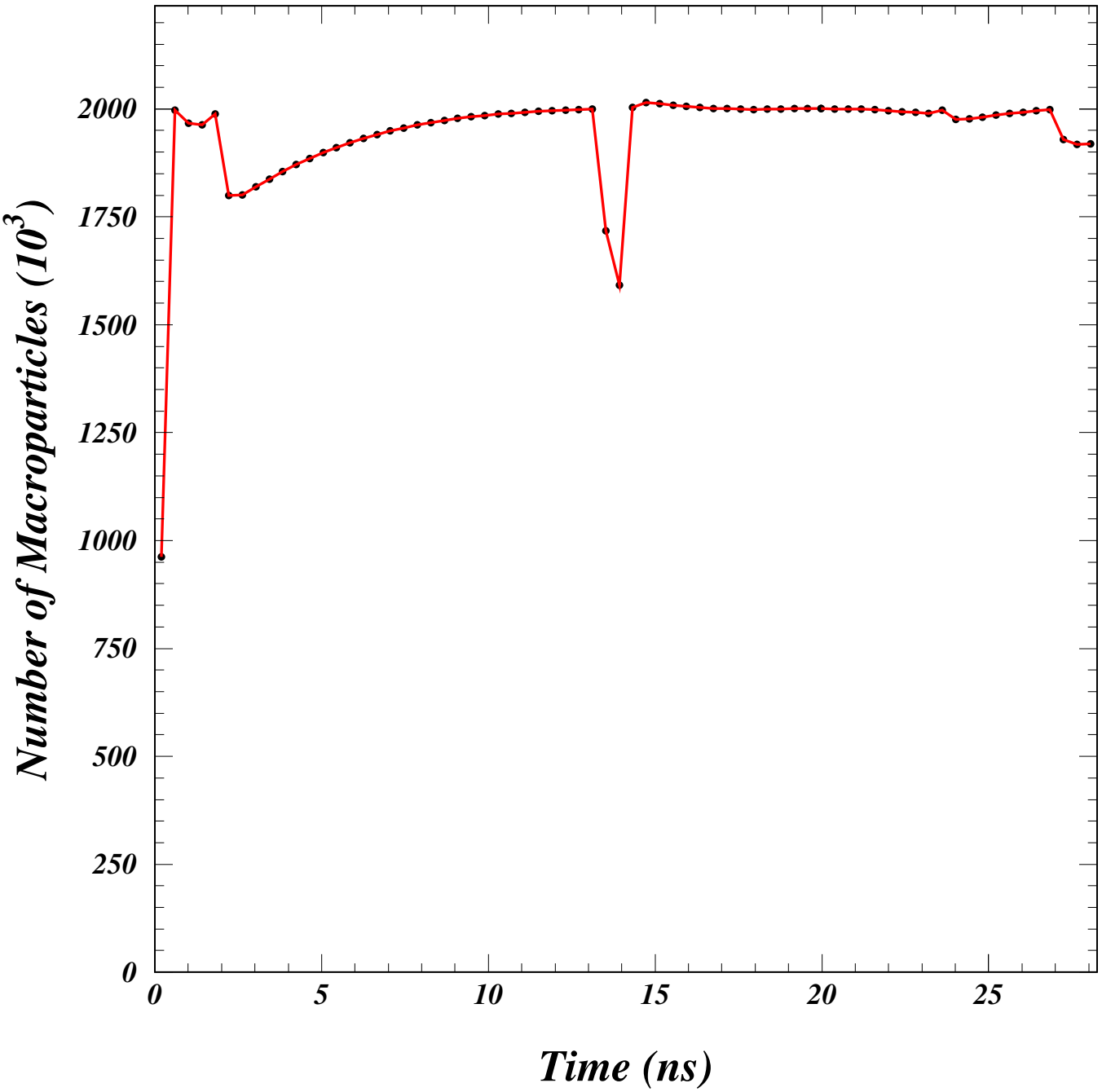
Job 16626: Number of Cloud Electrons

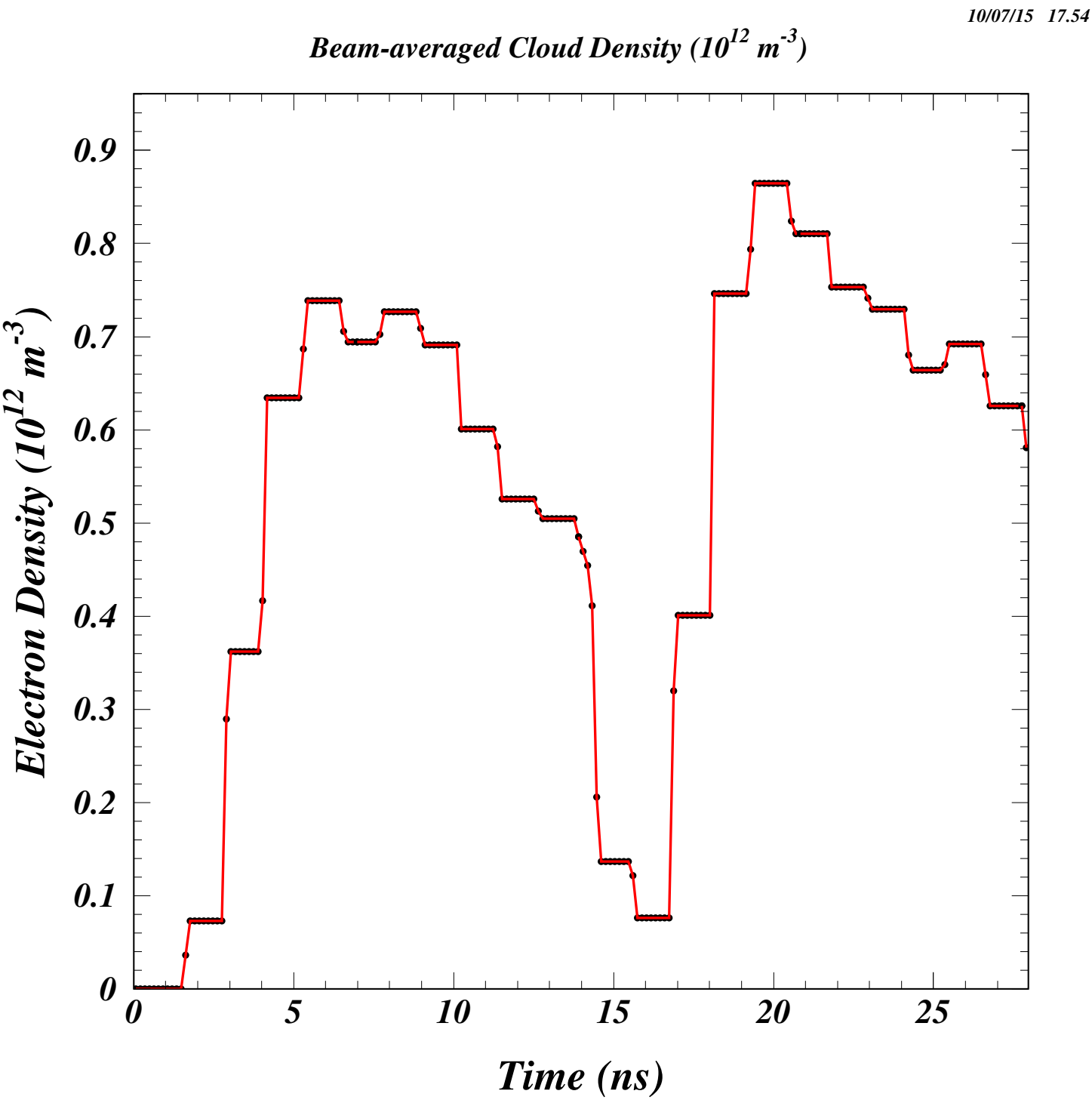


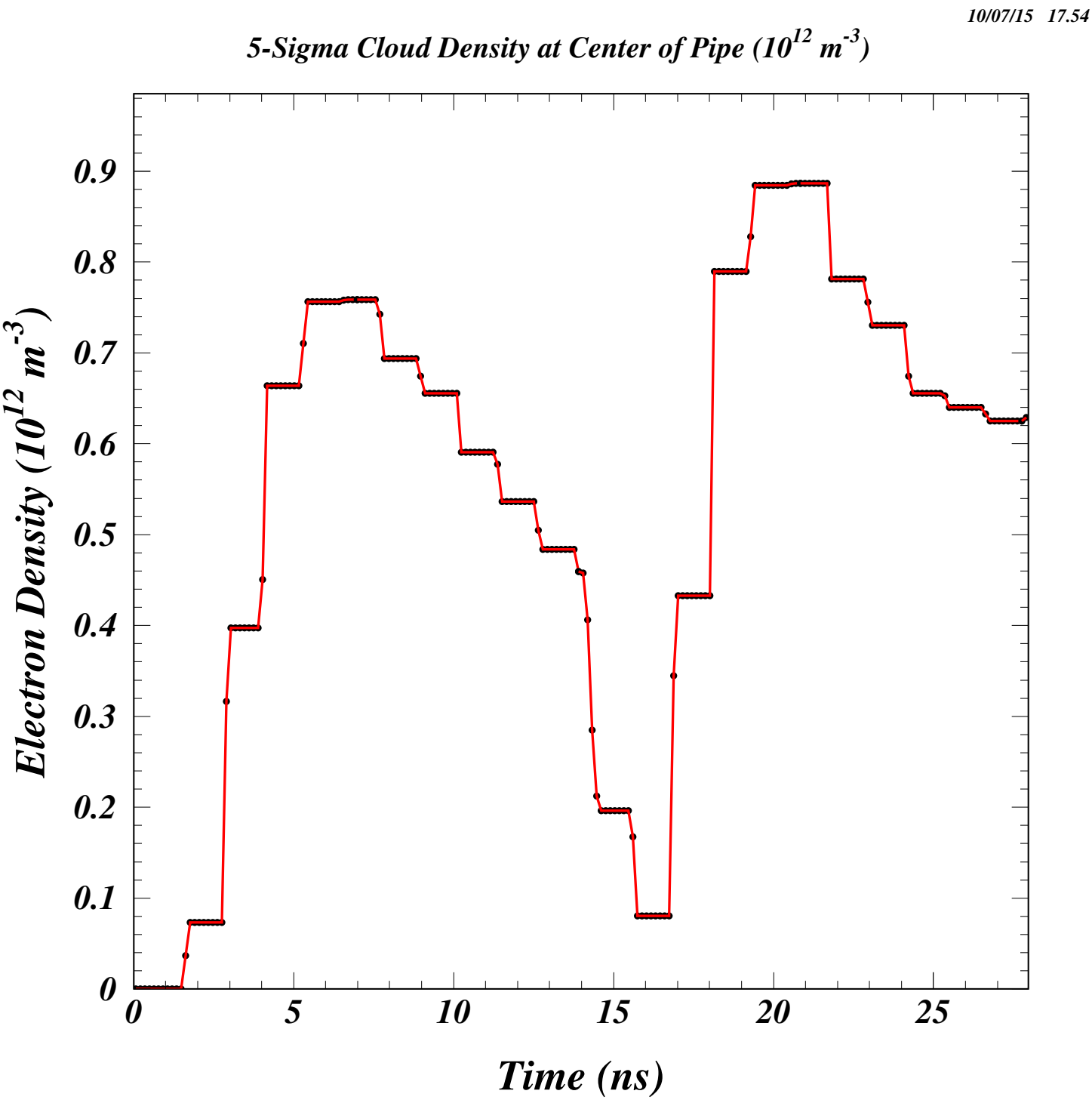

10/07/15 17.54
Beampipe-averaged Cloud Density (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
Time (ns)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
0
5
10
15
20
25

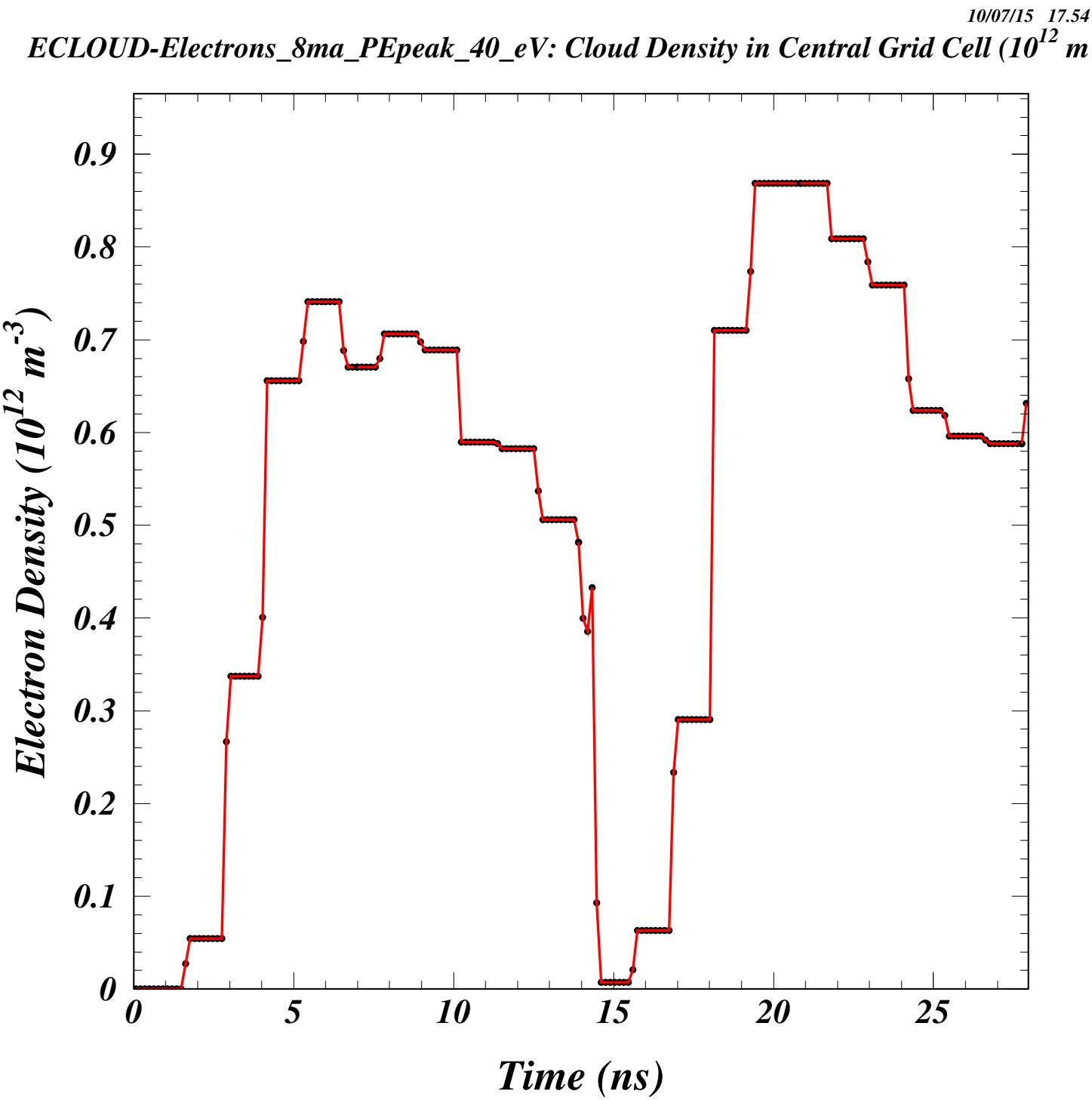
10/07/15 17.54

Macroparticle Statistics

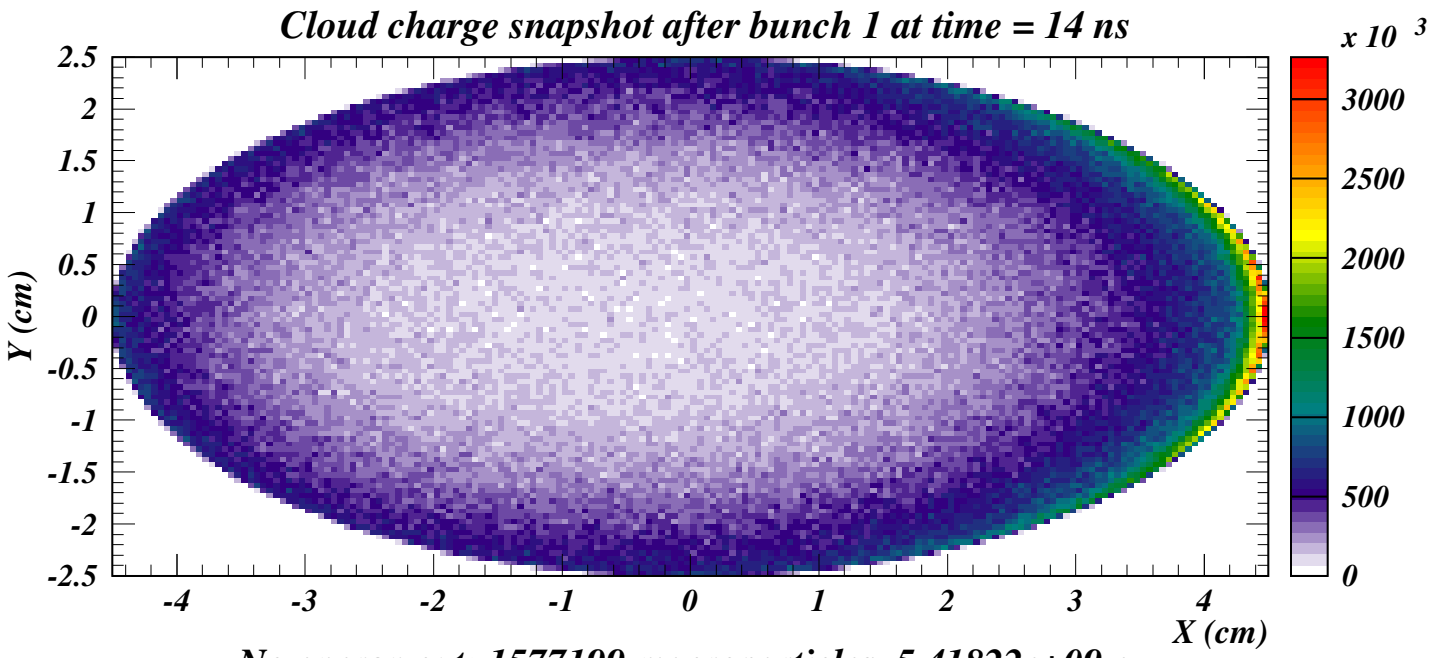



10/07/15 17.54
Beam-averaged Cloud Density (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
5
10
15
20
25
Time (ns)

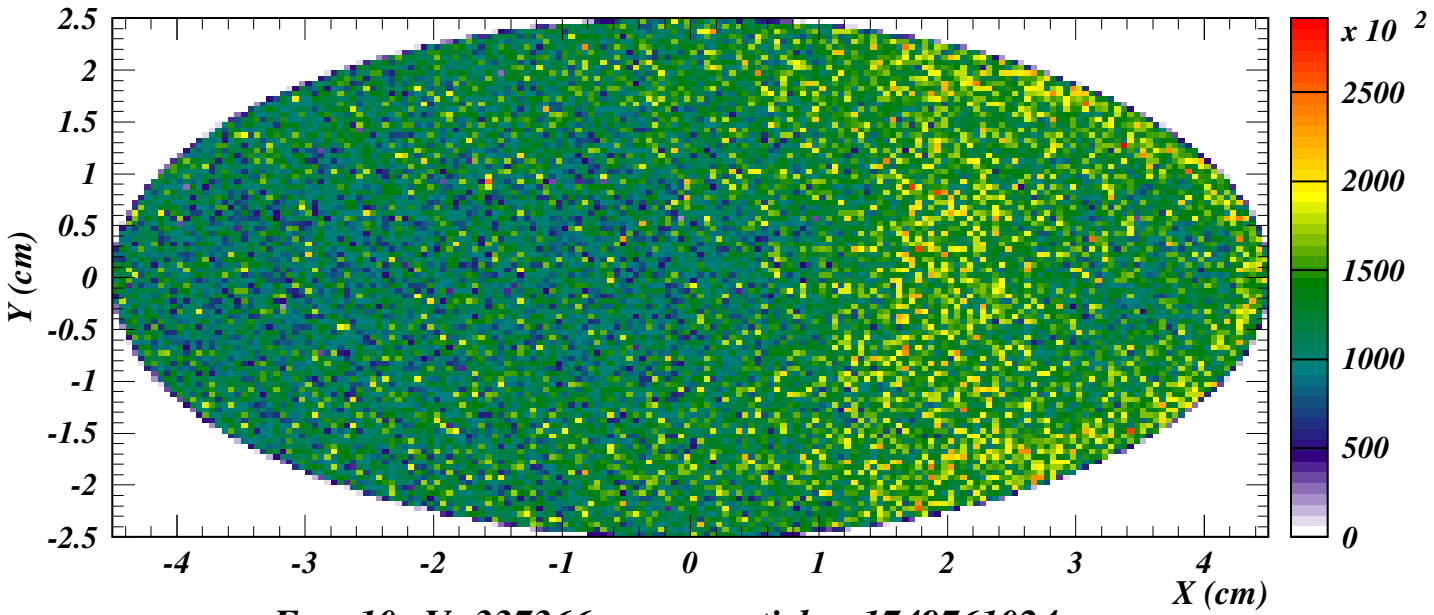

10/07/15 17.54
5-Sigma Cloud Density at Center of Pipe (10^{12} m^{-3})
Electron Density (10^{12} m^{-3})
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
0
5
10
15
20
25
Time (ns)


10/07/15 17.54
ECLOUD-Electrons_8ma_PEpeak_40_eV: Cloud Density in Central Grid Cell (10^{12} m
Electron Density (10^{12} m^{-3})
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
5
10
15
20
25
Time (ns)

10/07/15 17.55

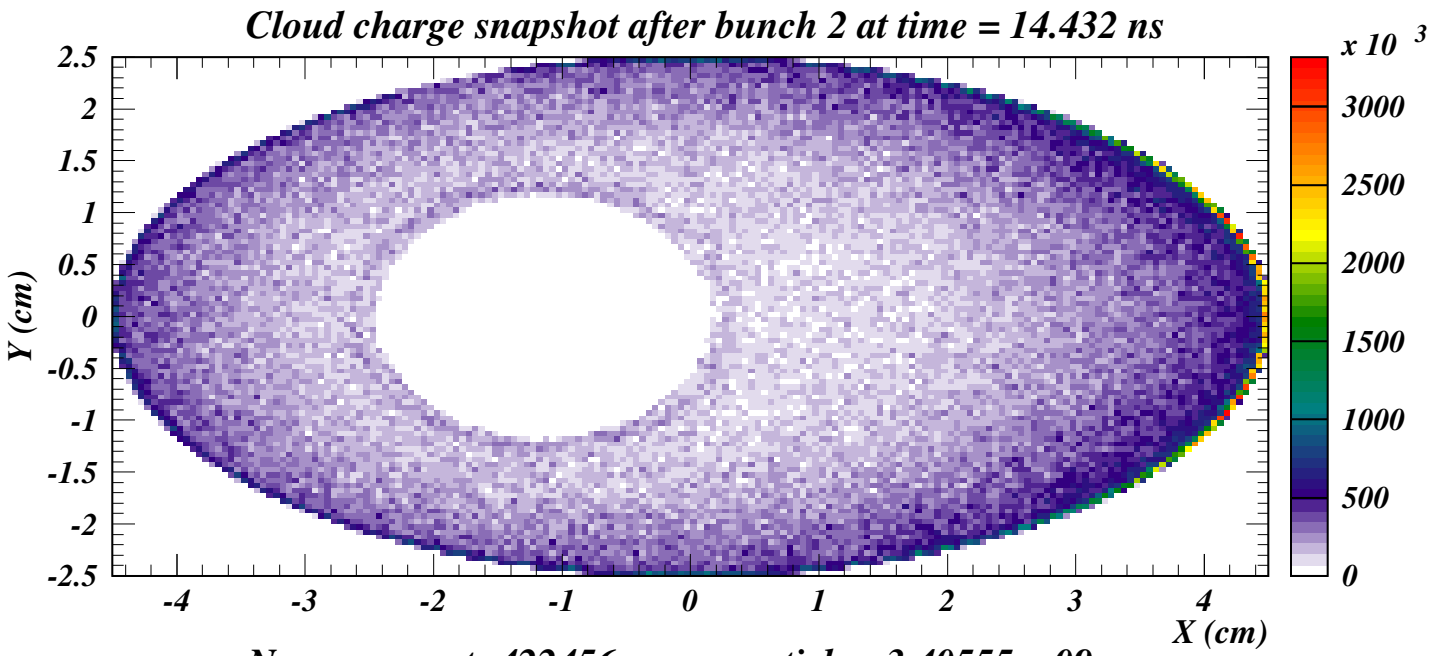


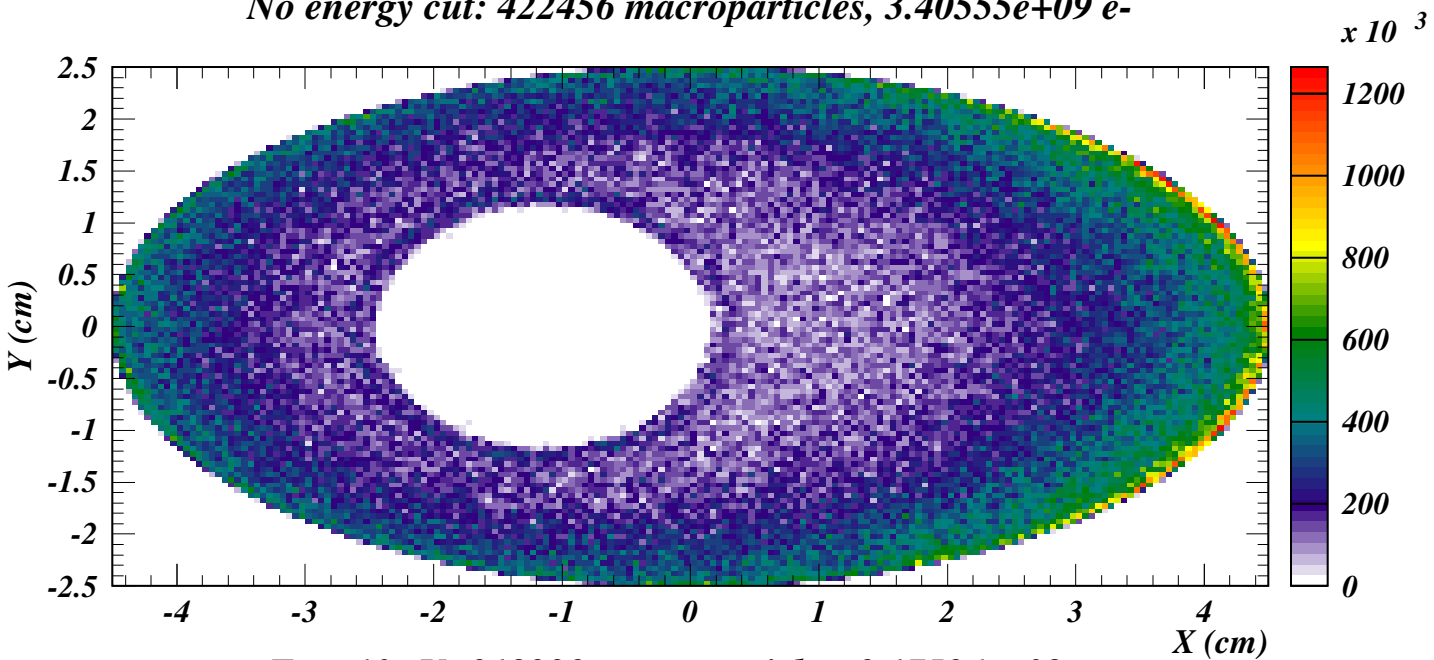
No energy cut: 1577199 macroparticles, 5.41822e+09 e-



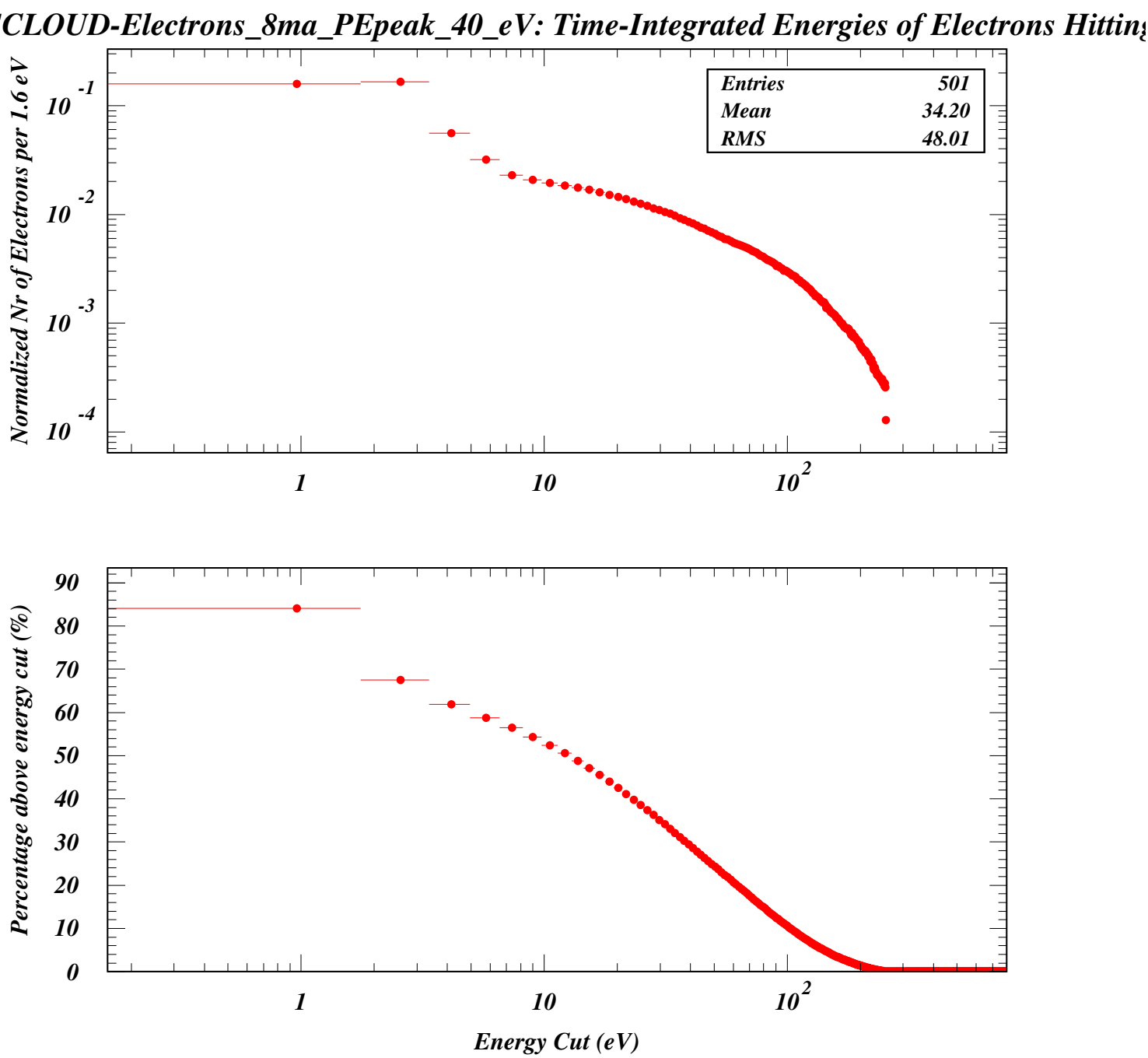
E_{kin}>10 eV: 337366 macroparticles, 1749761024 e-

10/07/15 17.55

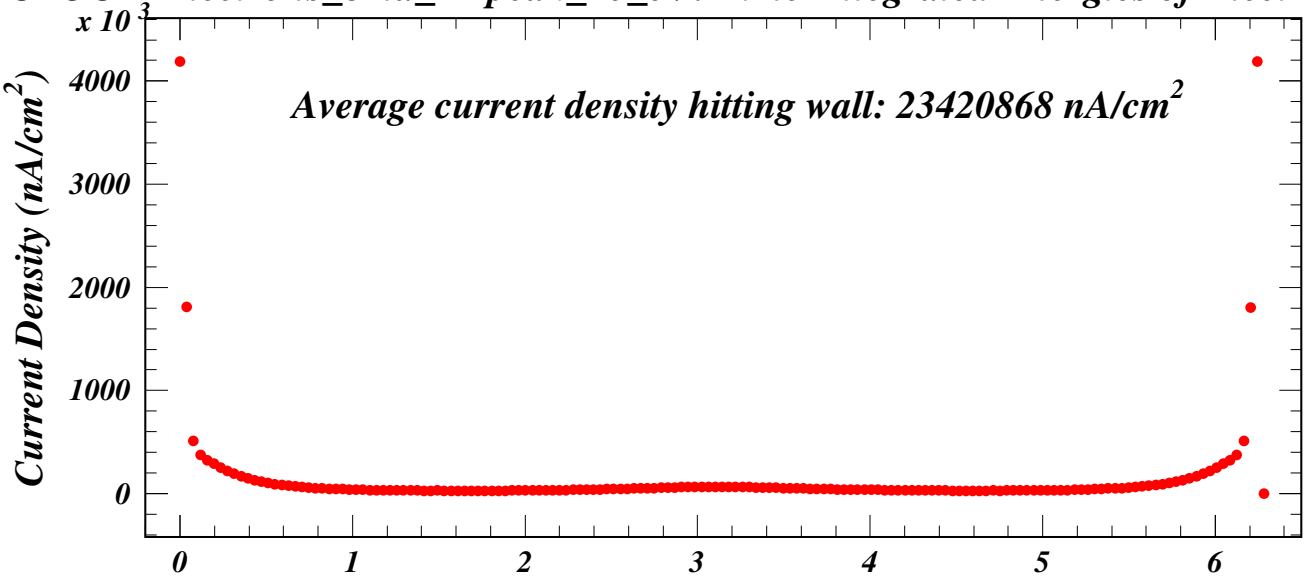

Cloud charge snapshot after bunch 2 at time = 14.432 ns
Y (cm)
X (cm)
x 10 3
No energy cut: 422456 macroparticles, 3.40555e+09 e-

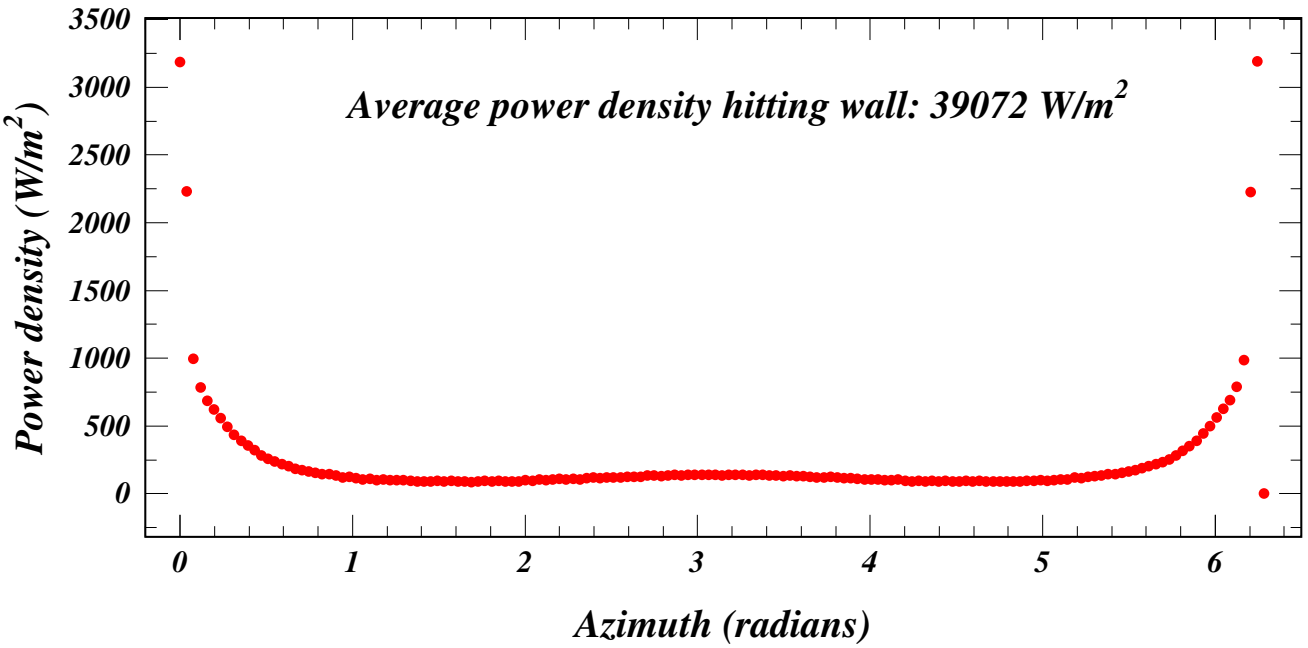

Y (cm)
X (cm)
x 10 3
E_{kin}>10 eV: 318223 macroparticles, 3.17536e+09 e-

10/07/15 17.55


ECLOUD-Electrons_8ma_PEpeak_40_eV: Time-Integrated Energies of Electrons Hitting
Entries 501
Mean 34.20
RMS 48.01
Normalized Nr of Electrons per 1.6 eV
10 -1
10 -2
10 -3
10 -4
1
10
10 2
Percentage above energy cut (%)
90
80
70
60
50
40
30
20
10
0
1
10
10 2
Energy Cut (eV)

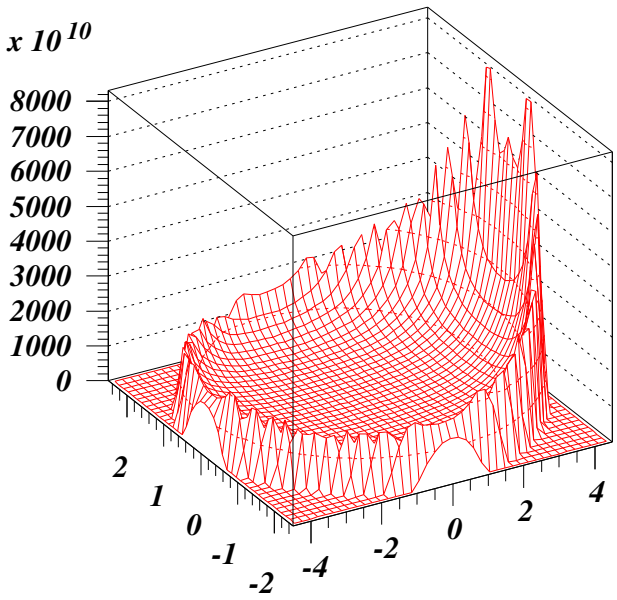
ECLOUD-Electrons_8ma_PEpeak_40_eV: Time-Integrated Energies of Electrons Hitting

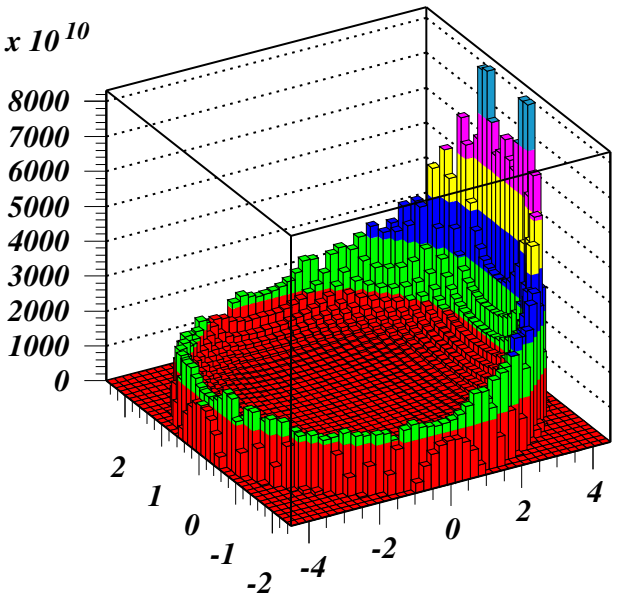


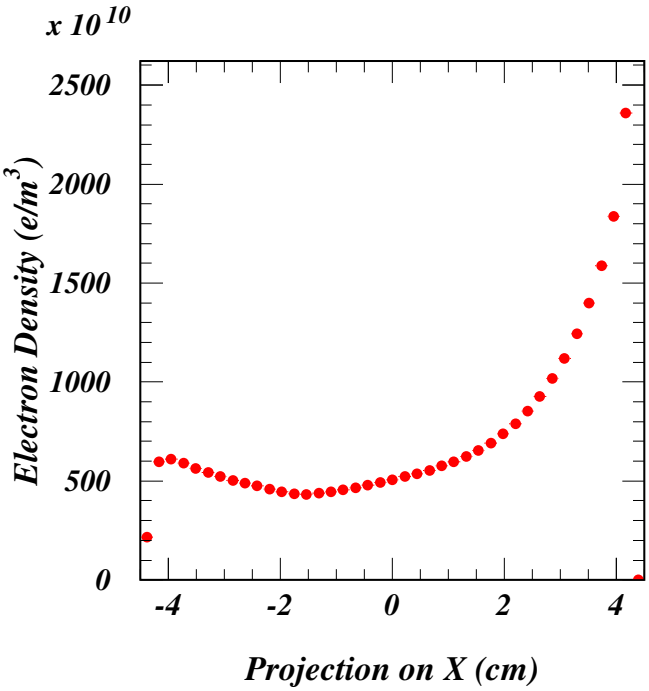


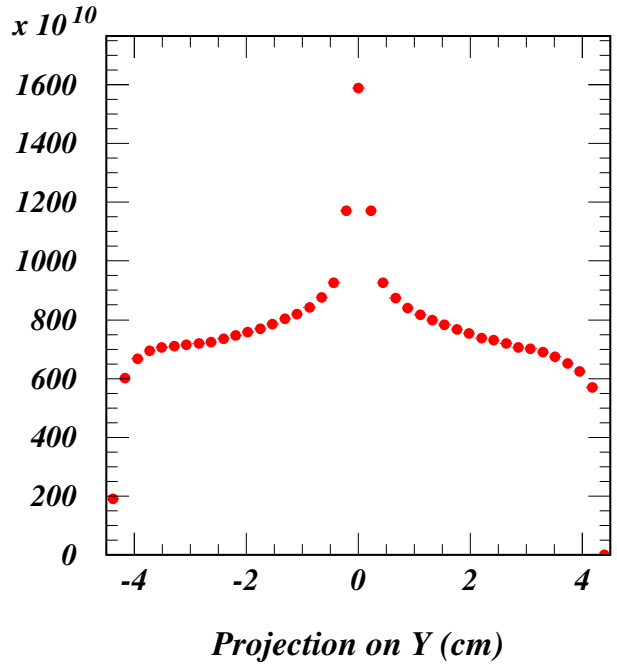
10/07/15 17.55

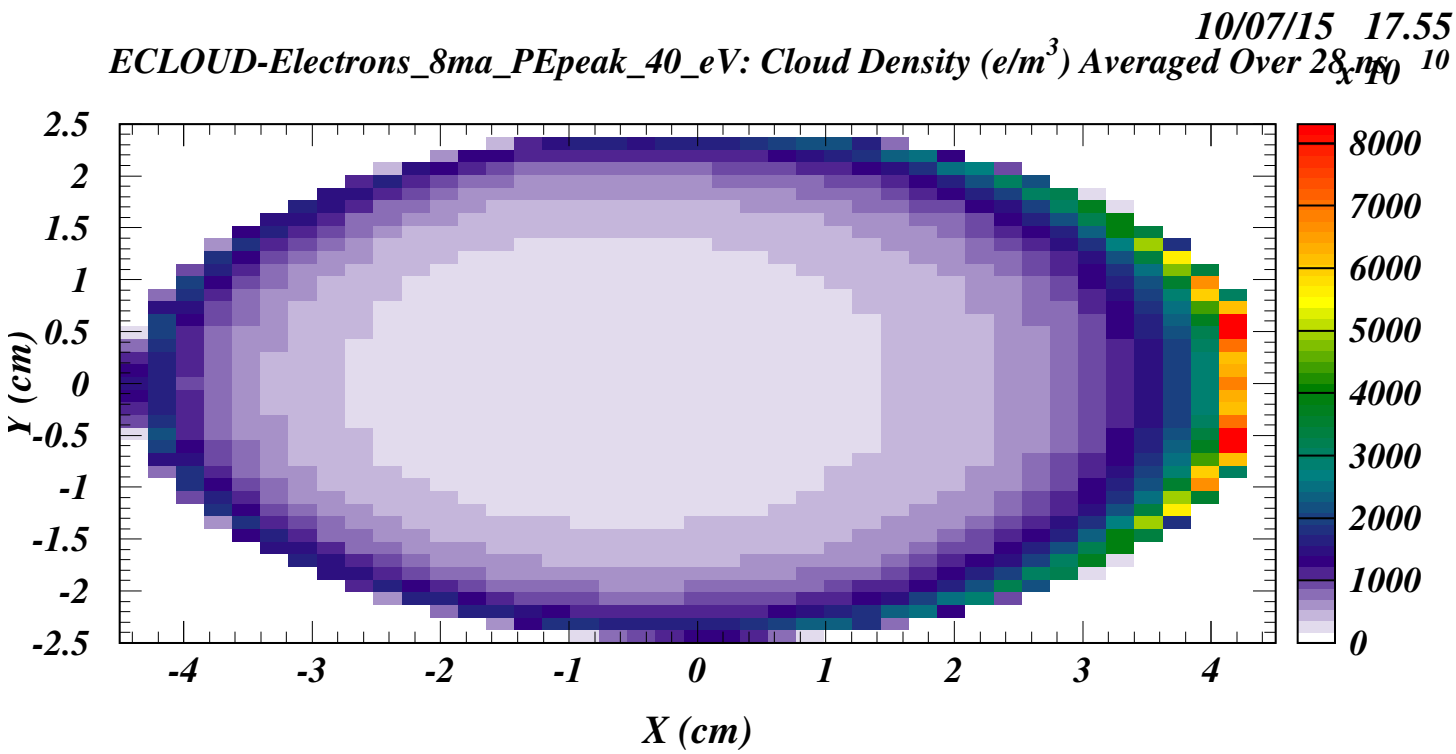
ECLOUD-Electrons_8ma_PEpeak_40_eV: Cloud Density (e/m^3) Averaged Over 28 ns





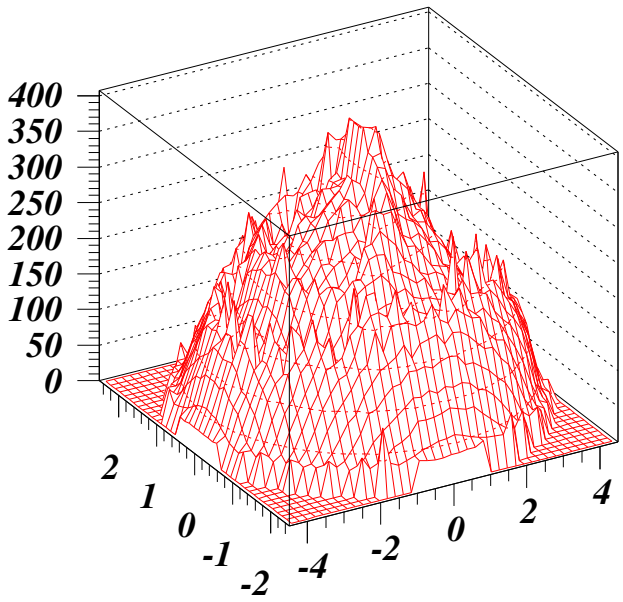


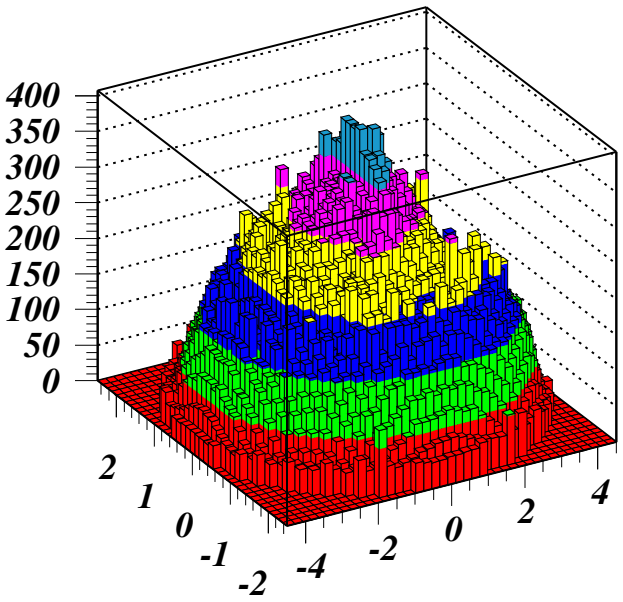


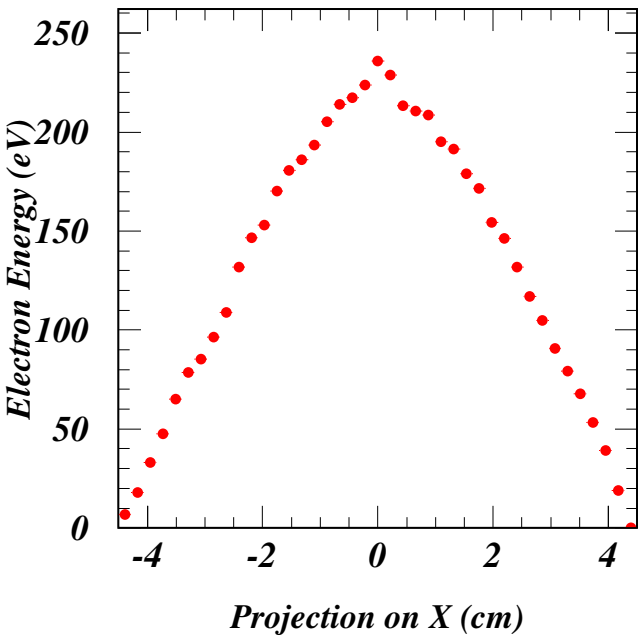

10/07/15 17.55
ECLOUD-Electrons_8ma_PEpeak_40_eV: Cloud Density (e/m3) Averaged Over 28 ns
x 10
10
8000
7000
6000
5000
4000
3000
2000
1000
0
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
Y (cm)
-4
-3
-2
-1
0
1
2
3
4
X (cm)

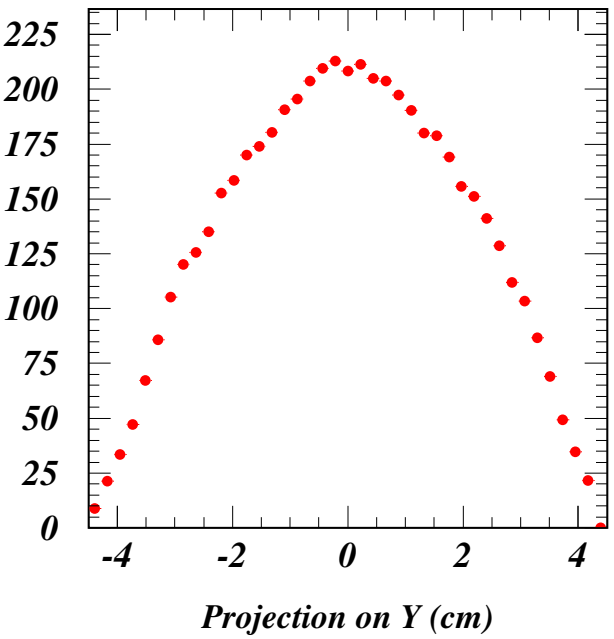
10/07/15 17.55

ECLOUD-Electrons_8ma_PEpeak_40_eV: Electron Energies (eV) Averaged Over 28 ns



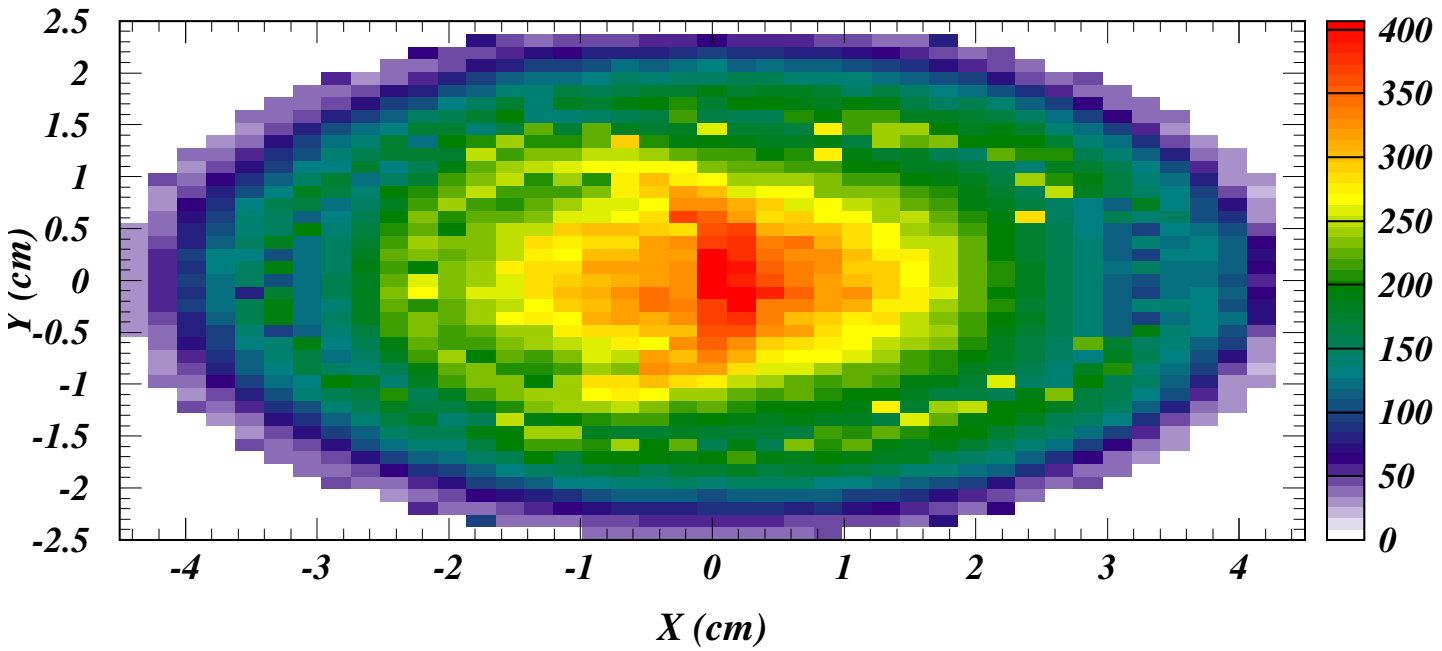


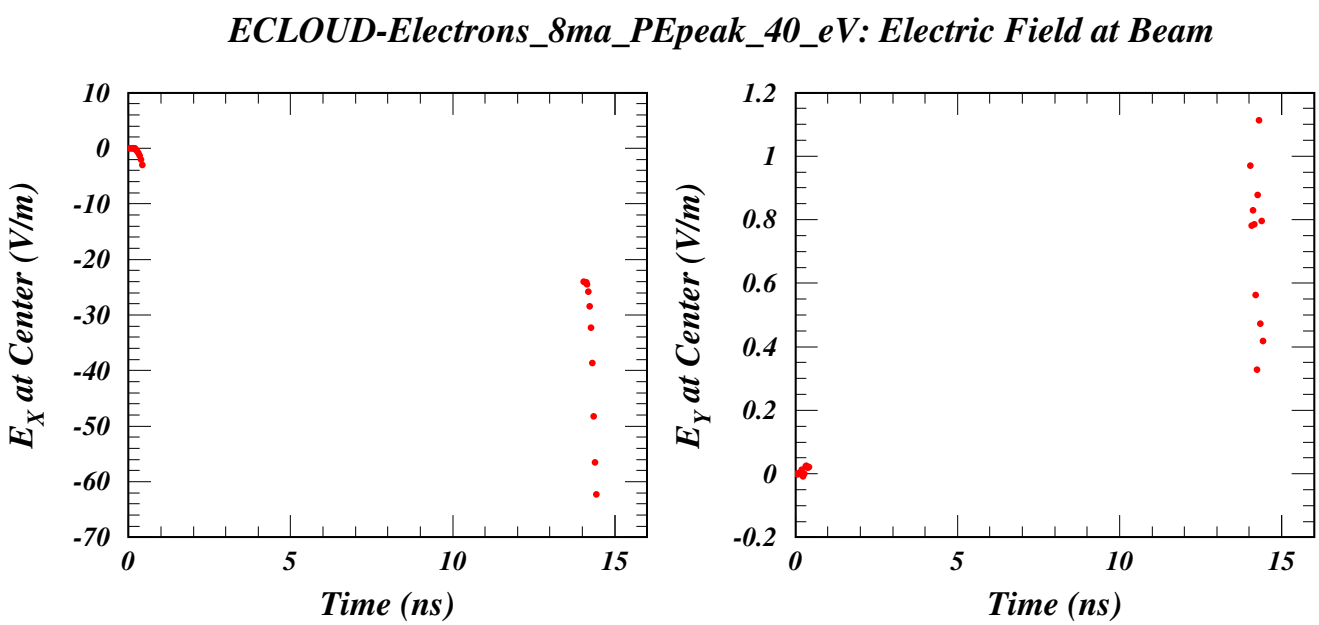


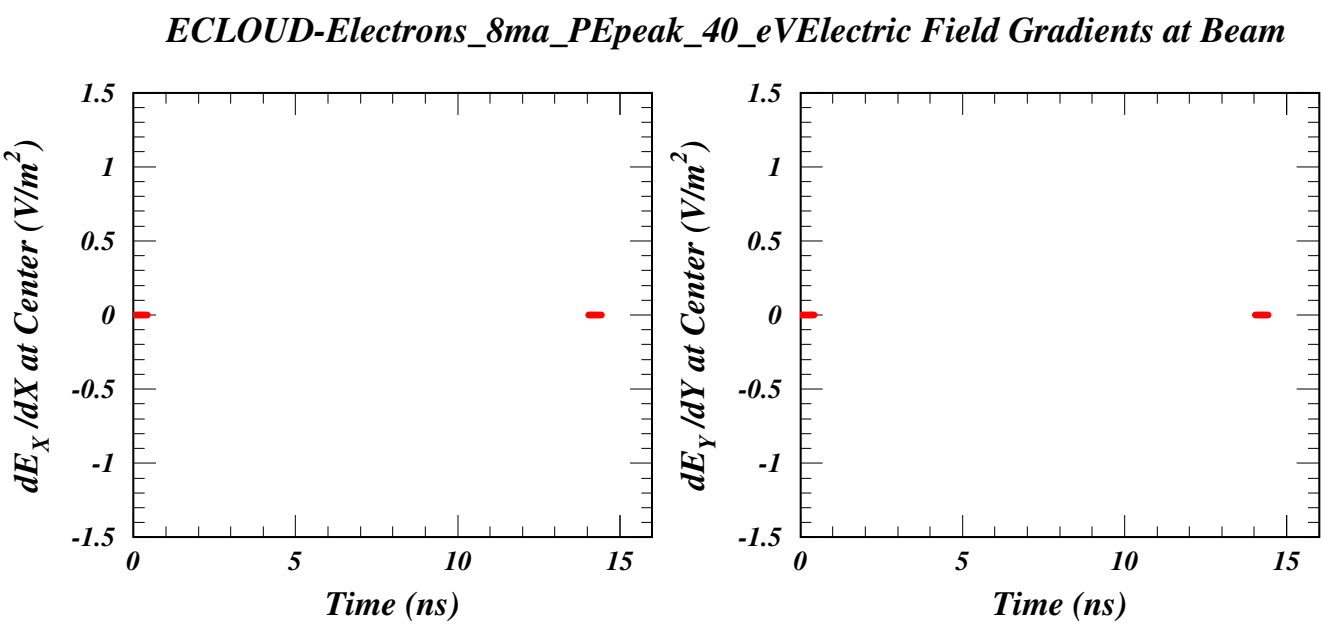


10/07/15 17.55

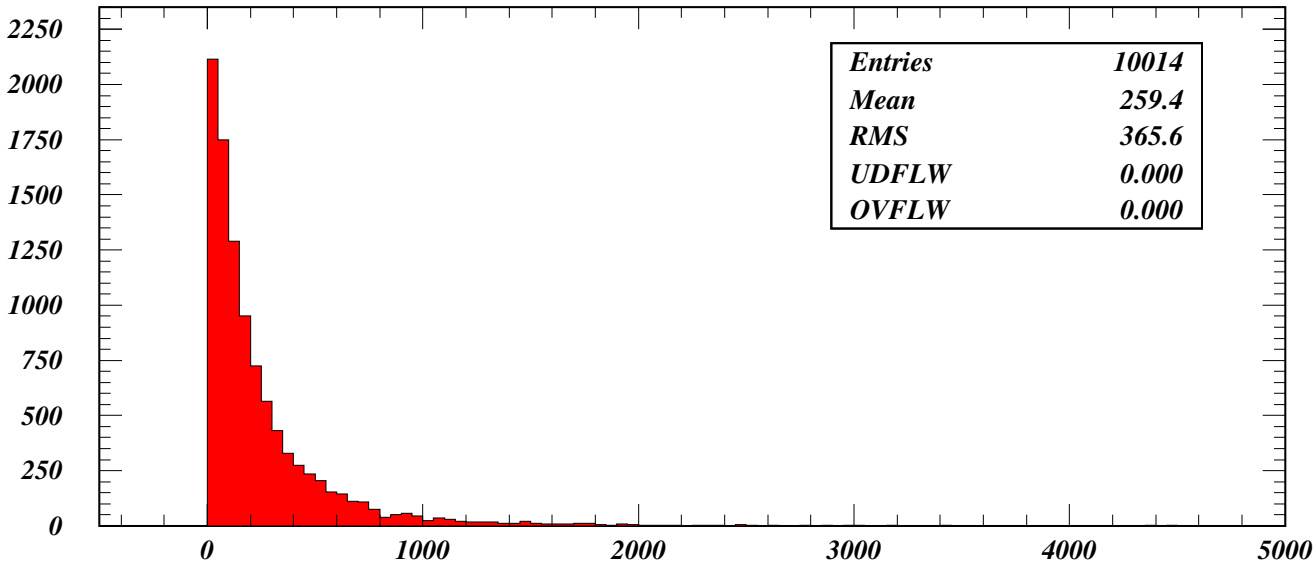
ECLOUD-Electrons_8ma_PEpeak_40_eV: Electron Energies (eV) Averaged Over 28 ns

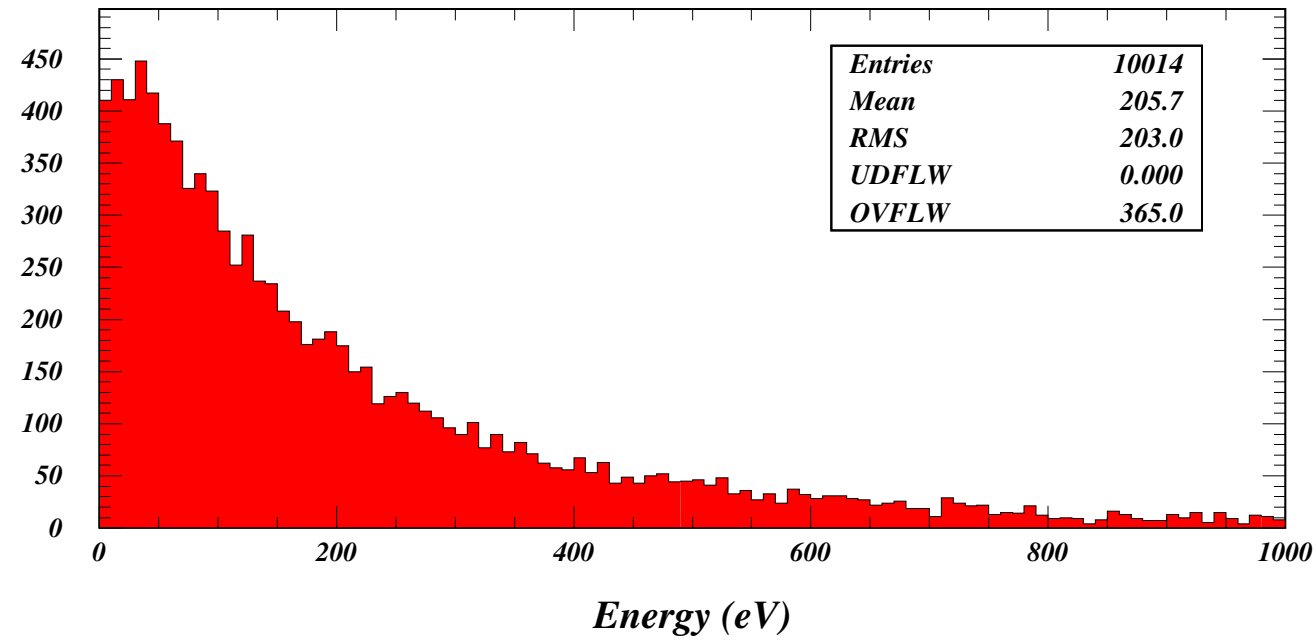


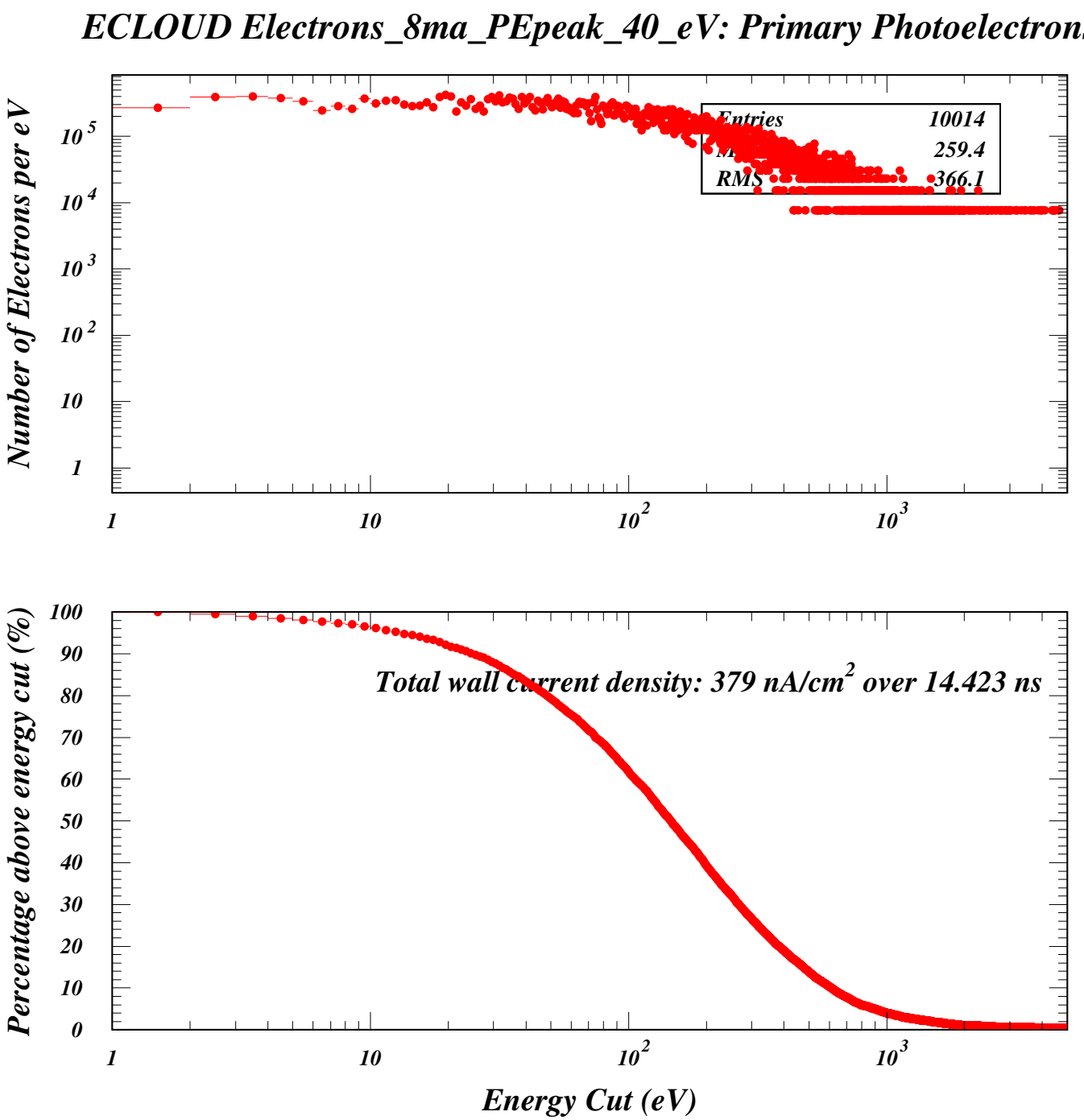

ECLOUD-Electrons_8ma_PEpeak_40_eV: Electric Field at Beam
E_X at Center (V/m)
10
0
-10
-20
-30
-40
-50
-60
-70
0
5
10
15
Time (ns)
E_Y at Center (V/m)
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
0
5
10
15
Time (ns)

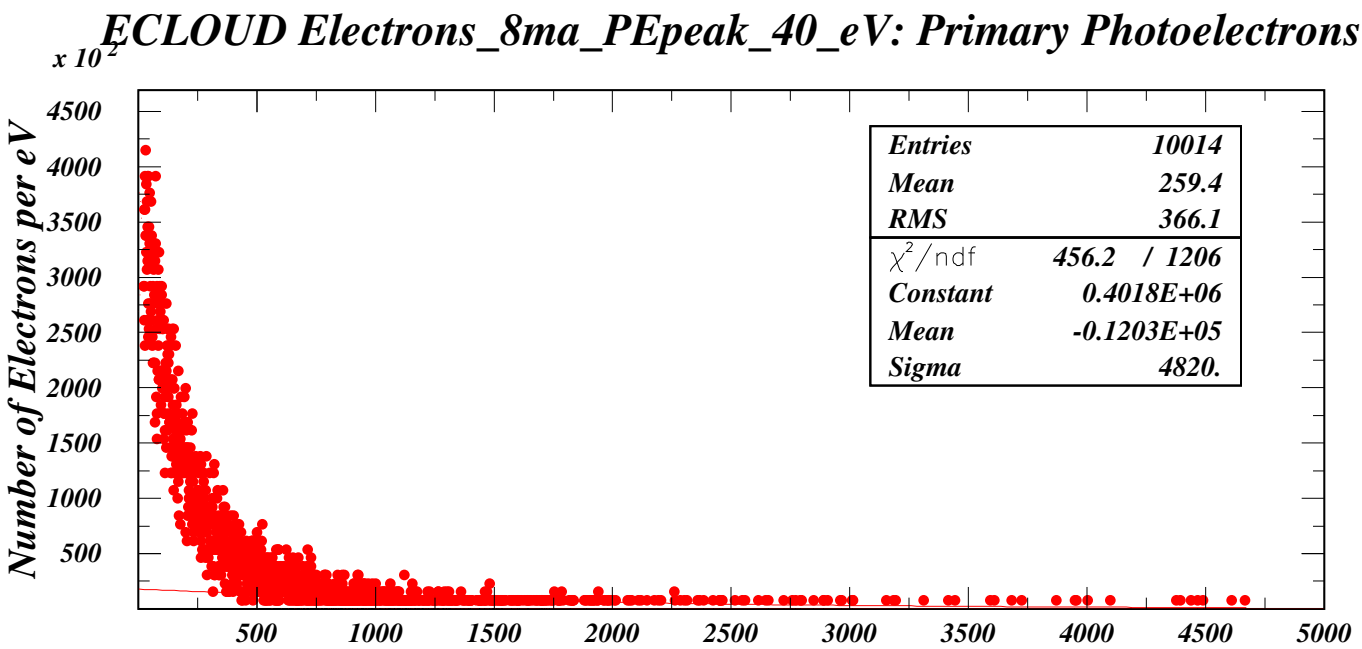

ECLOUD-Electrons_8ma_PEpeak_40_eVElectric Field Gradients at Beam
dE_X /dX at Center (V/m^2)
1.5
1
0.5
0
-0.5
-1
-1.5
0
5
10
15
Time (ns)
dE_Y /dY at Center (V/m^2)
1.5
1
0.5
0
-0.5
-1
-1.5
0
5
10
15
Time (ns)

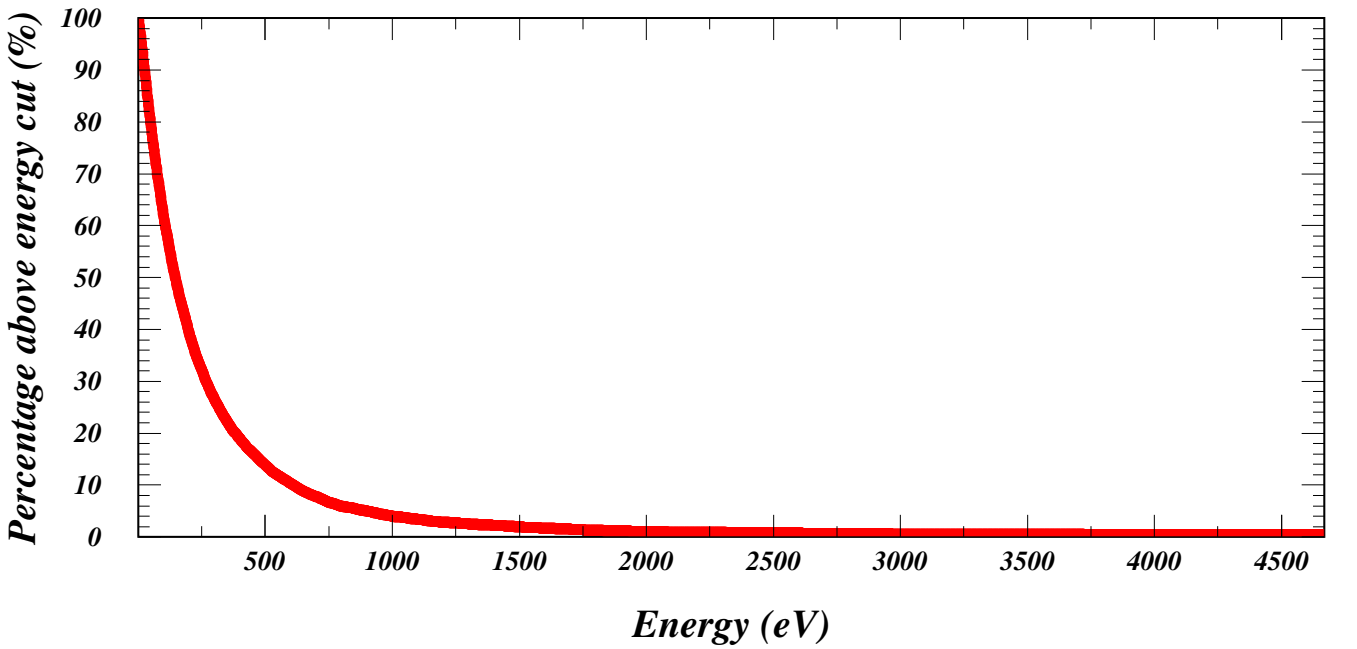
ECLOUD Electrons_8ma_PEpeak_40_eV: Primary Photoelectrons

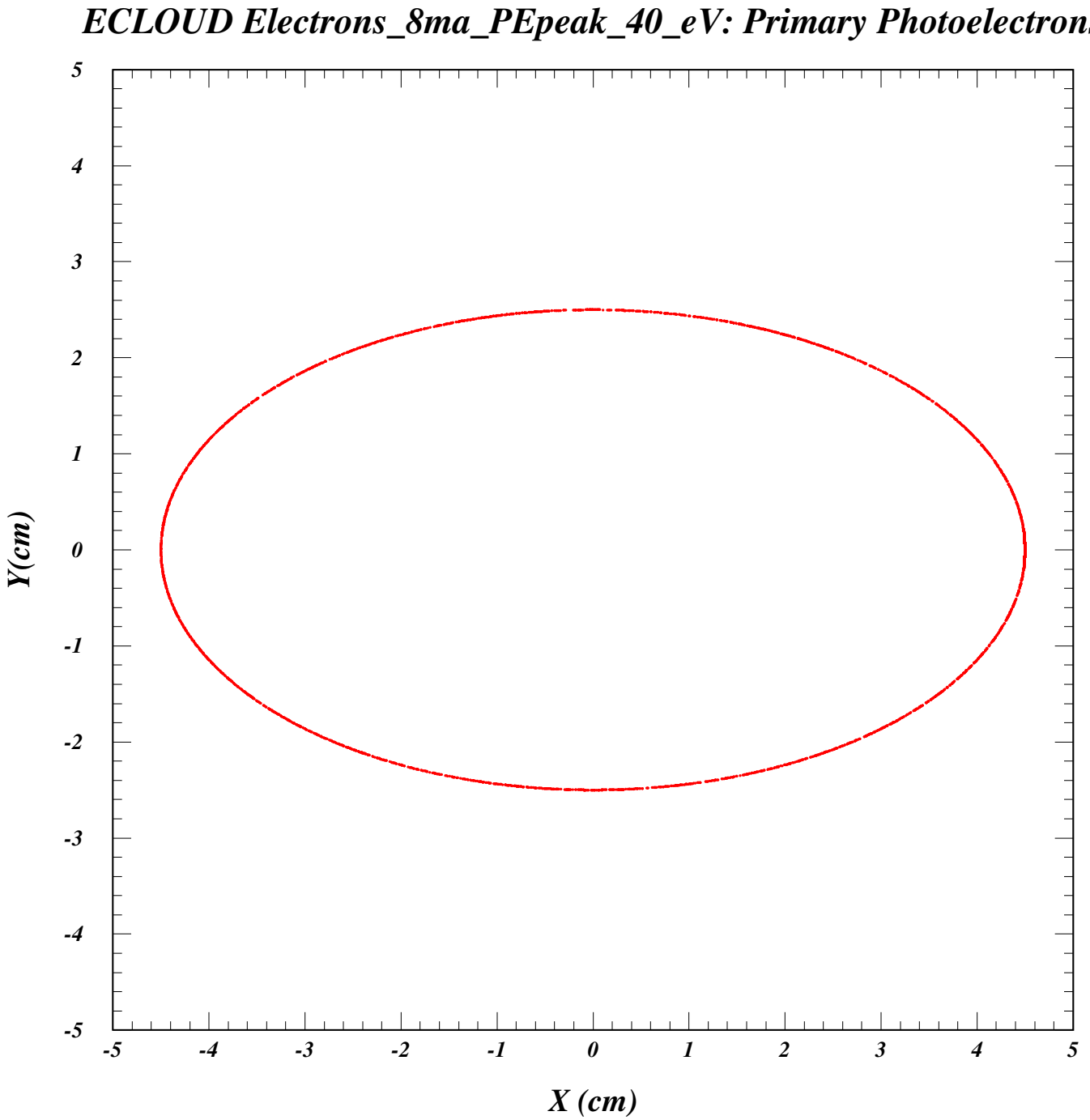




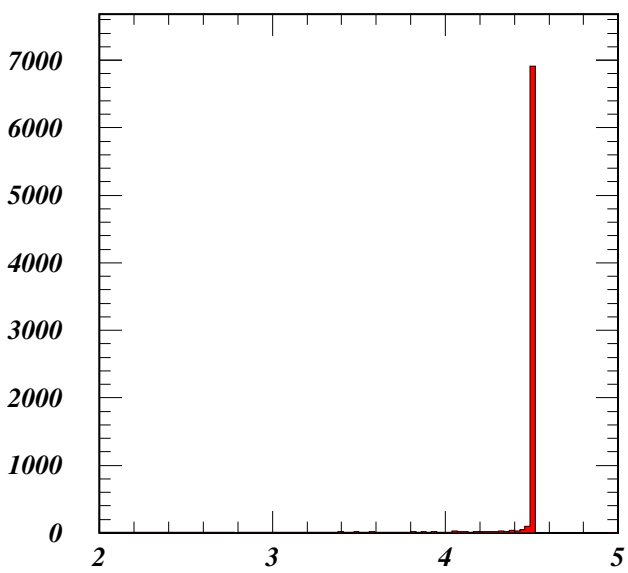

ECLOUD Electrons_8ma_PEpeak_40_eV: Primary Photoelectrons
Number of Electrons per eV
Entries 10014
259.4
RMS 366.1
Percentage above energy cut (%)
Total wall current density: 379 nA/cm^2 over 14.423 ns
Energy Cut (eV)


ECLOUD Electrons_8ma_PEpeak_40_eV: Primary Photoelectrons
x 10^2
Number of Electrons per eV
4500
4000
3500
3000
2500
2000
1500
1000
500
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
Entries 10014
Mean 259.4
RMS 366.1
χ²/ndf 456.2 / 1206
Constant 0.4018E+06
Mean -0.1203E+05
Sigma 4820.

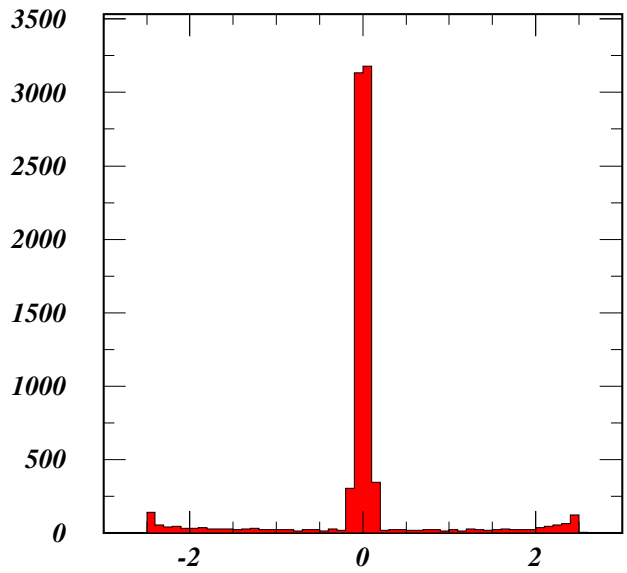

Percentage above energy cut (%)
100
90
80
70
60
50
40
30
20
10
0
500
1000
1500
2000
2500
3000
3500
4000
4500
Energy (eV)


ECLOUD Electrons_8ma_PEpeak_40_eV: Primary Photoelectrons
Y(cm)
X (cm)
5
4
3
2
1
0
-1
-2
-3
-4
-5
-5
-4
-3
-2
-1
0
1
2
3
4
5

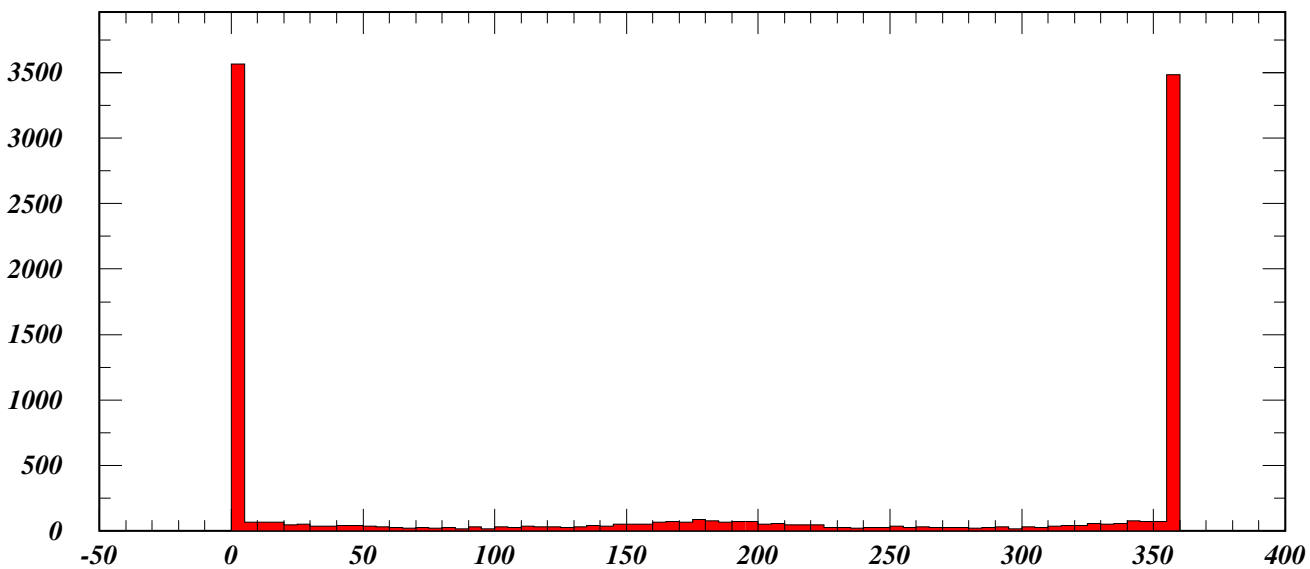
ECLOUD Electrons_8ma_PEpeak_40_eV: Primary Photoelectrons



X (cm)



Y (cm) for X>0



ϕ (degrees)