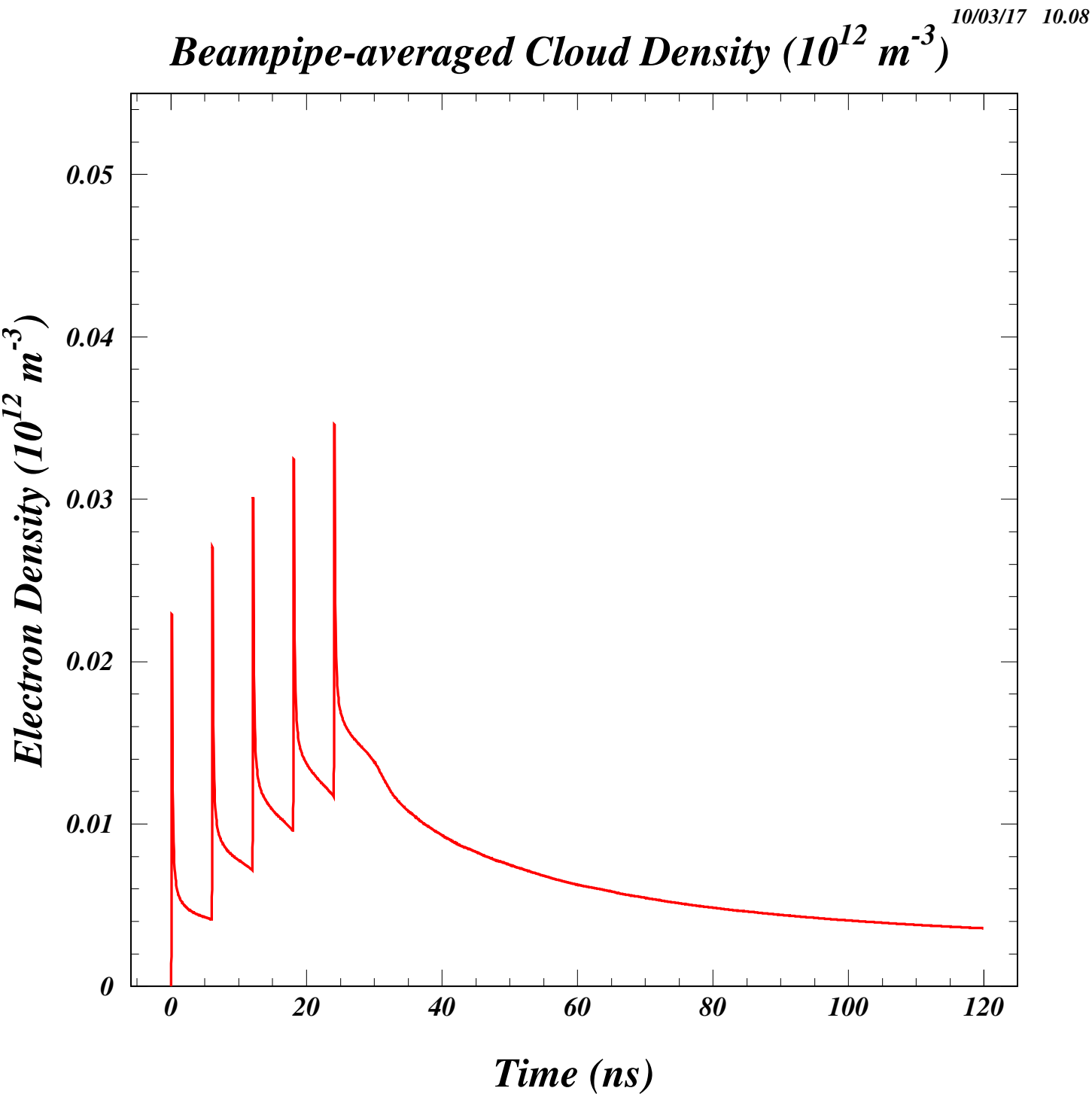
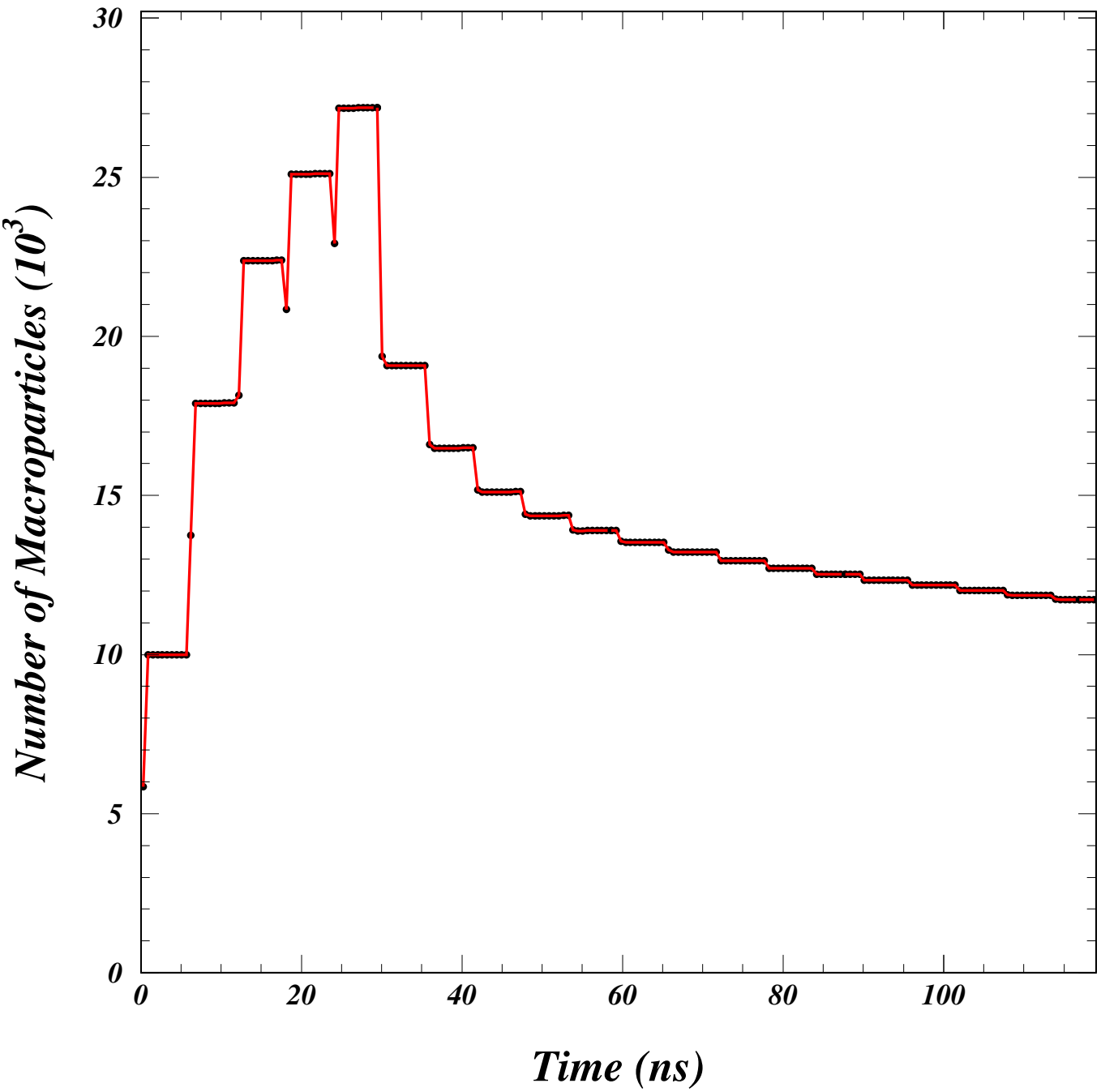
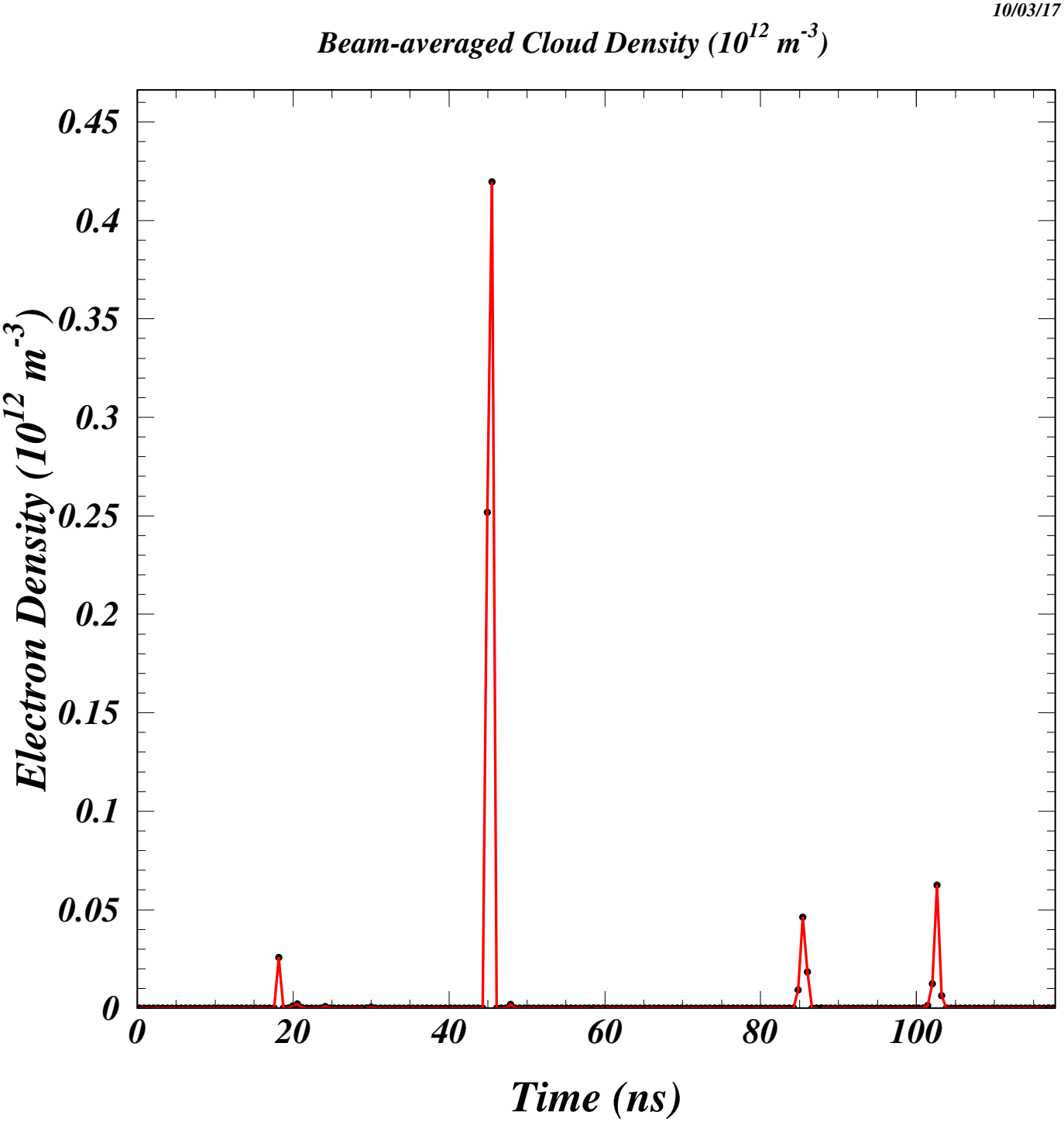

10/03/17 10.08
Beampipe-averaged Cloud Density ($10^{12}$ $m^{-3}$)
Electron Density ($10^{12}$ $m^{-3}$)
0.05
0.04
0.03
0.02
0.01
0
0
20
40
60
80
100
120
Time (ns)

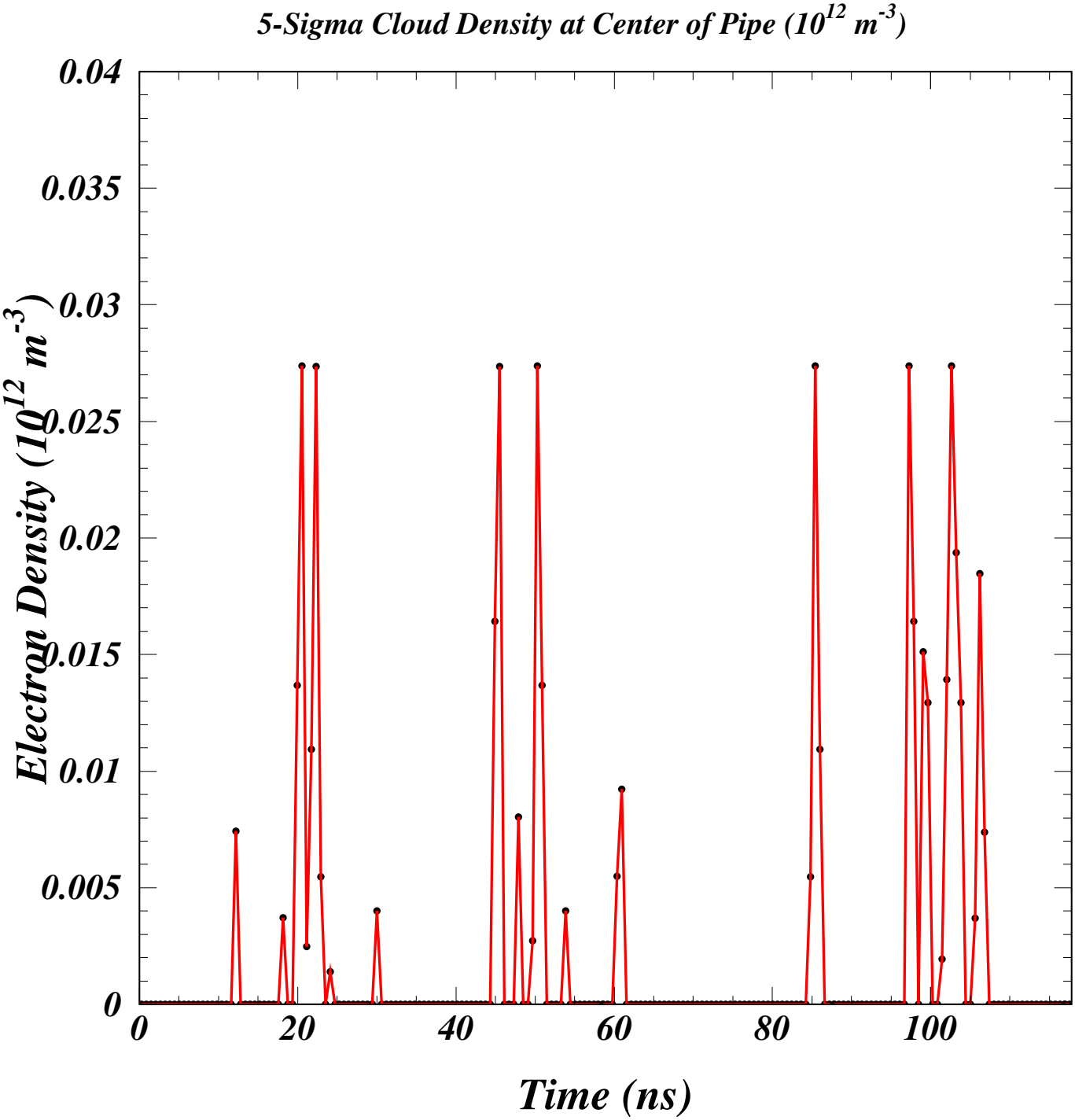
10/03/17 10.08

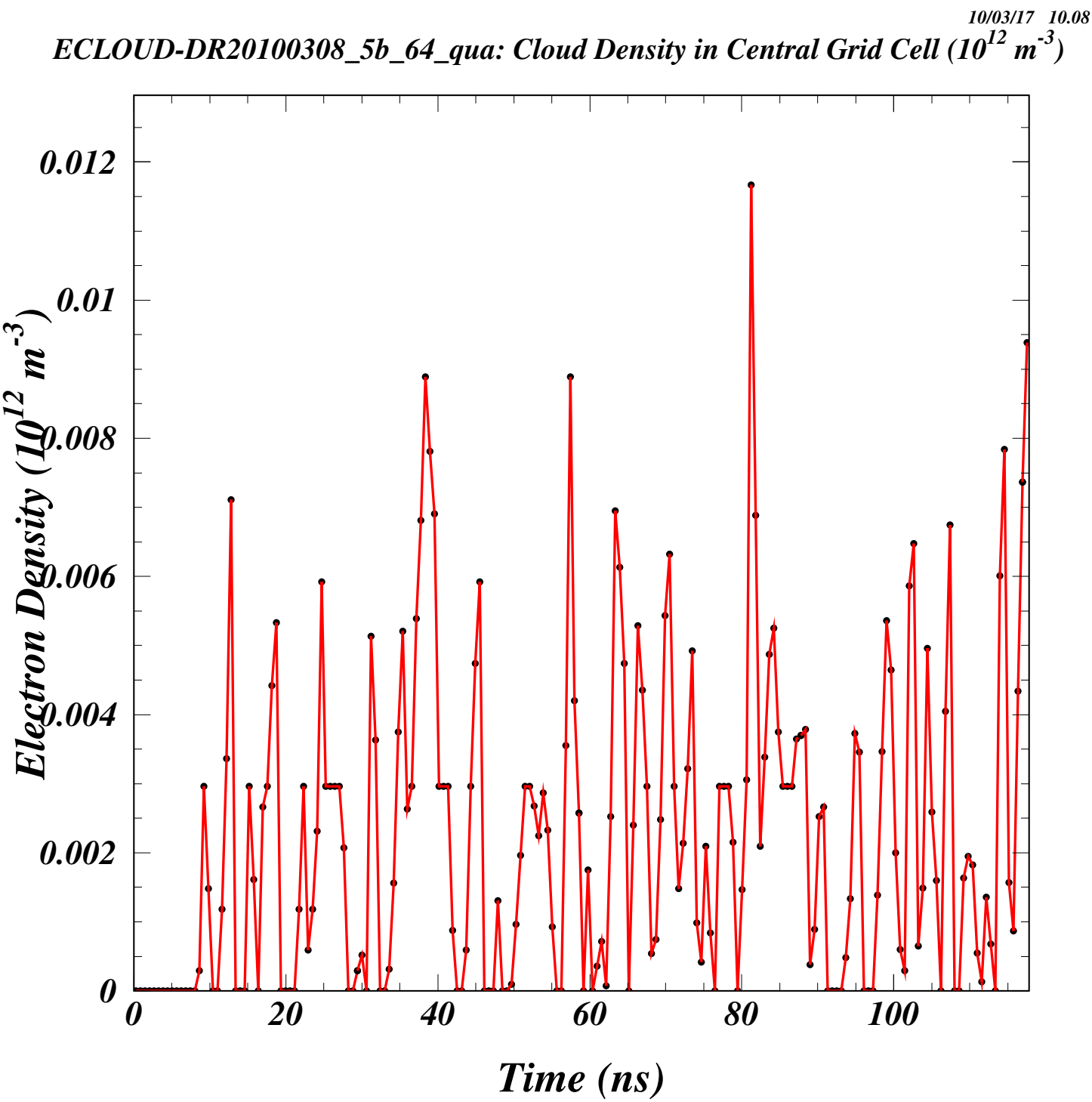
# Macroparticle Statistics




Beam-averaged Cloud Density ($10^{12}$ $m^{-3}$)
Electron Density ($10^{12}$ $m^{-3}$)
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
20
40
60
80
100
Time (ns)

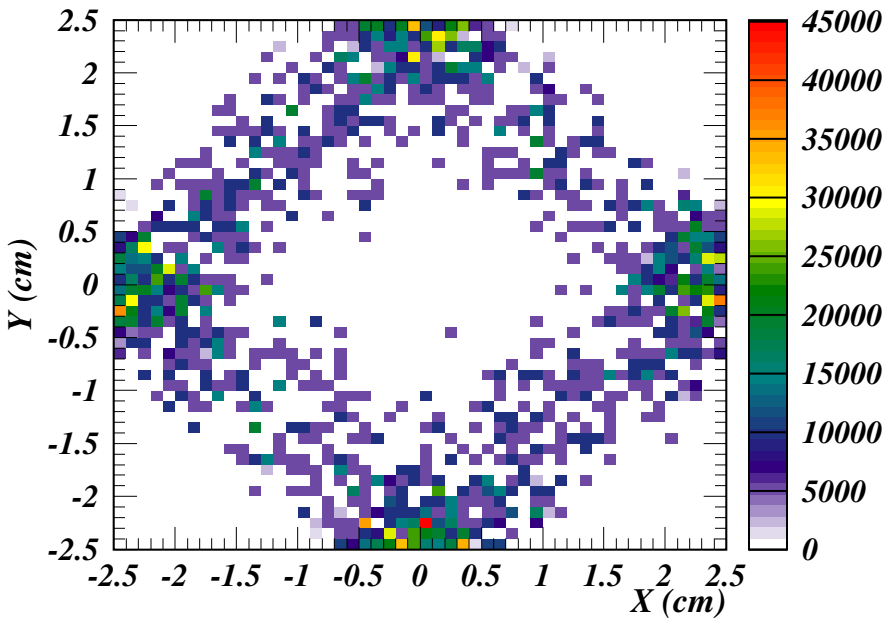
10/03/17 10.08


5-Sigma Cloud Density at Center of Pipe ($10^{12}$ $m^{-3}$)
Electron Density ($10^{12}$ $m^{-3}$)
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0
20
40
60
80
100
Time (ns)

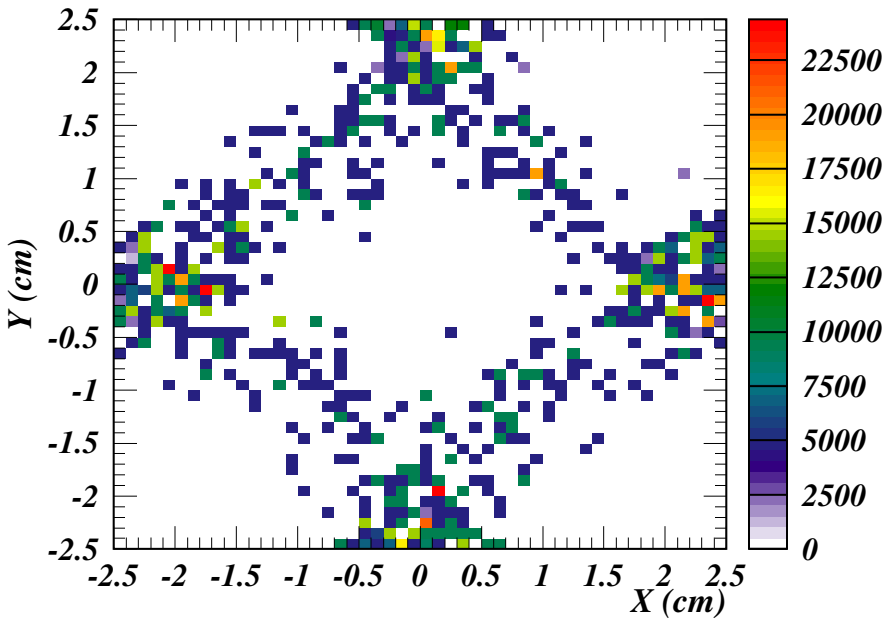

10/03/17 10.08
ECLOUD-DR20100308_5b_64_qua: Cloud Density in Central Grid Cell ($10^{12}$ $m^{-3}$)
Electron Density ($10^{12}$ $m^{-3}$)
0.012
0.01
0.008
0.006
0.004
0.002
0
0
20
40
60
80
100
Time (ns)

10/03/17 10.08

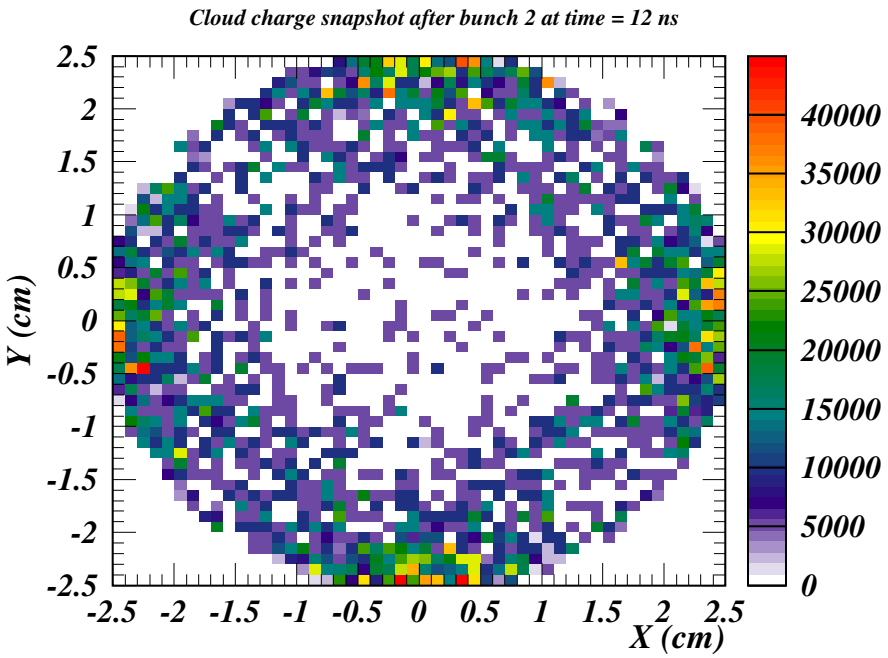
Cloud charge snapshot after bunch 1 at time = 6 ns



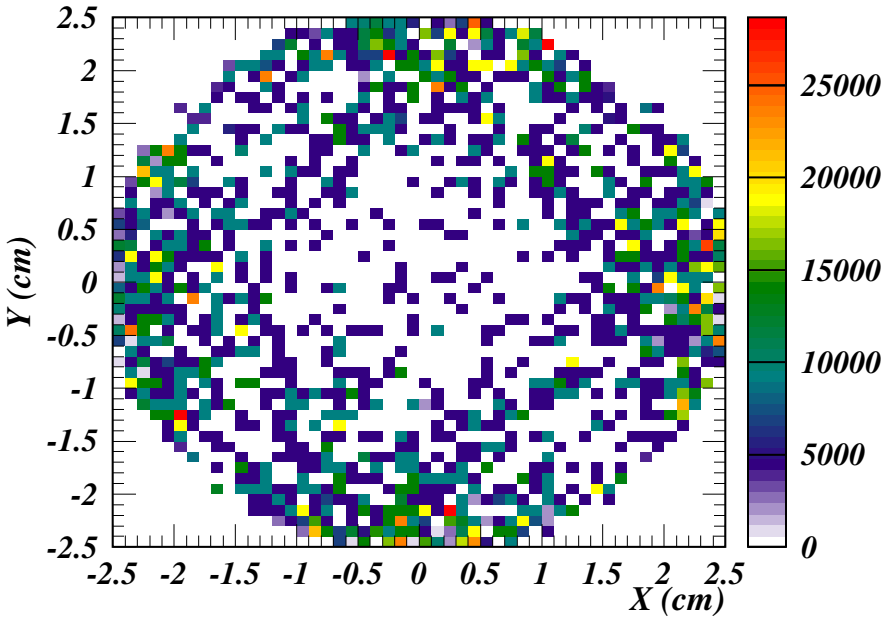

No energy cut: 9969 macroparticles, 8343793 e-



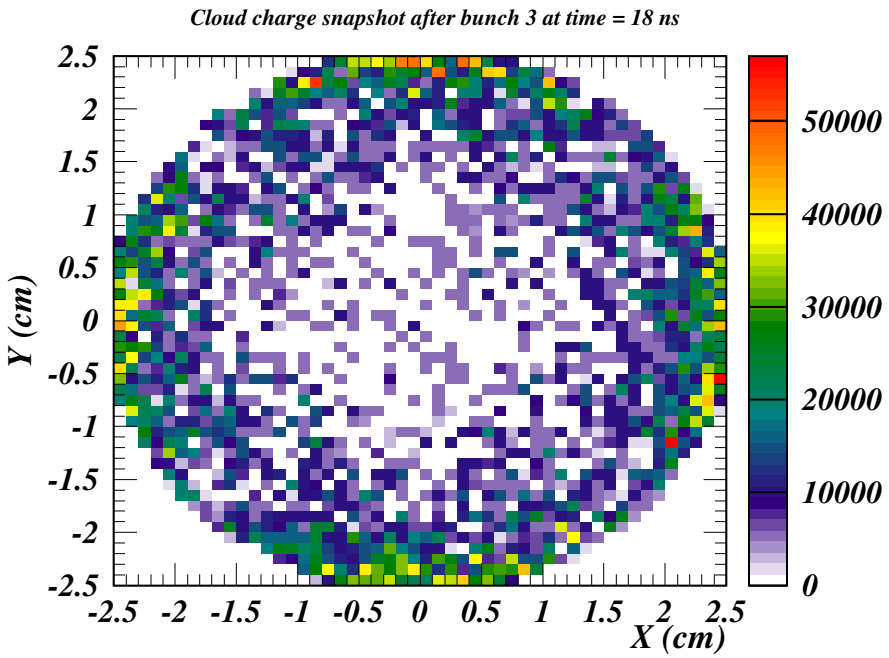

$E_{kin}$>10 eV: 845 macroparticles, 3.72024e+06 e-



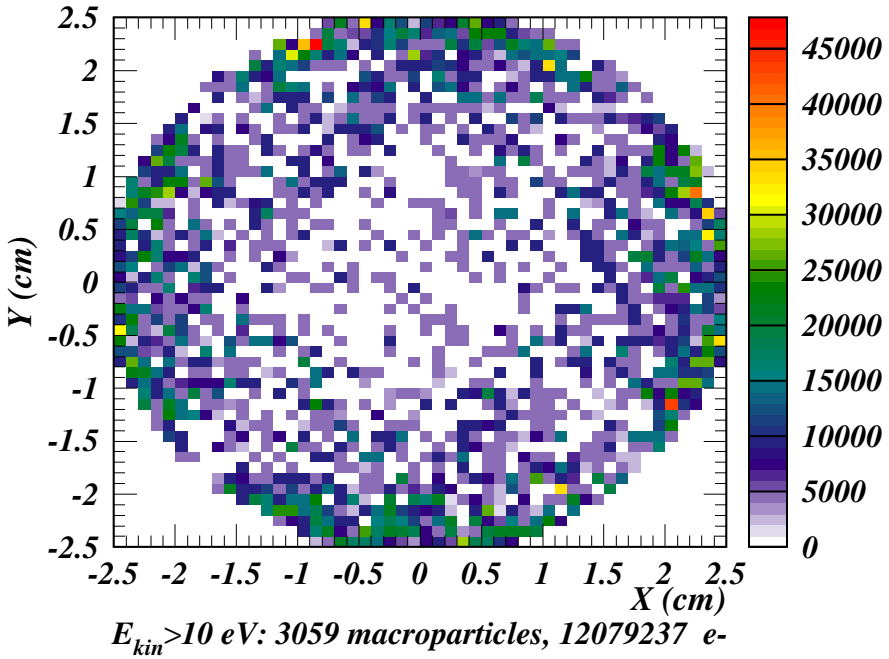

No energy cut: 17855 macroparticles, 14502185 e-




$E_{kin}$>10 eV: 2041 macroparticles, 8719791 e-



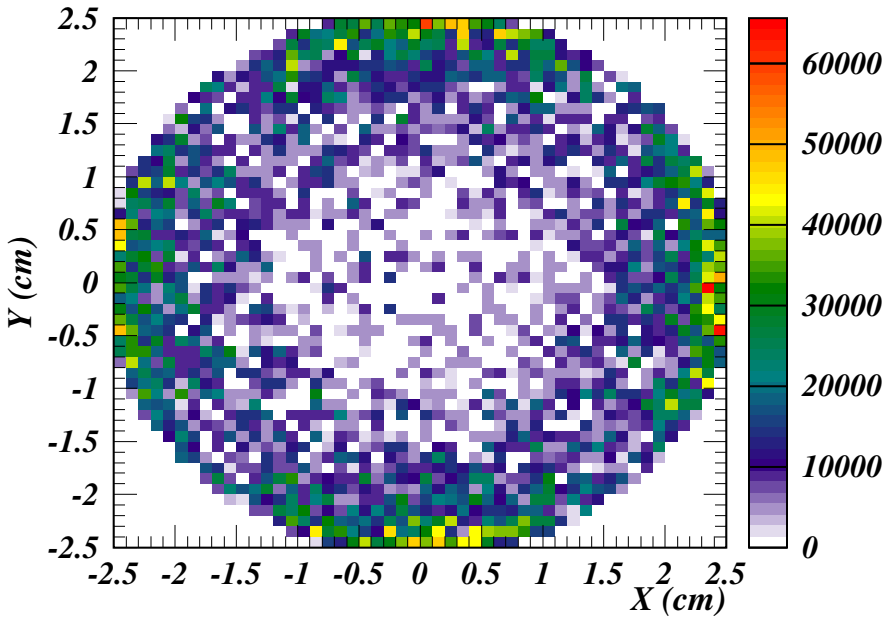

No energy cut: 22335 macroparticles, 19425256 e-



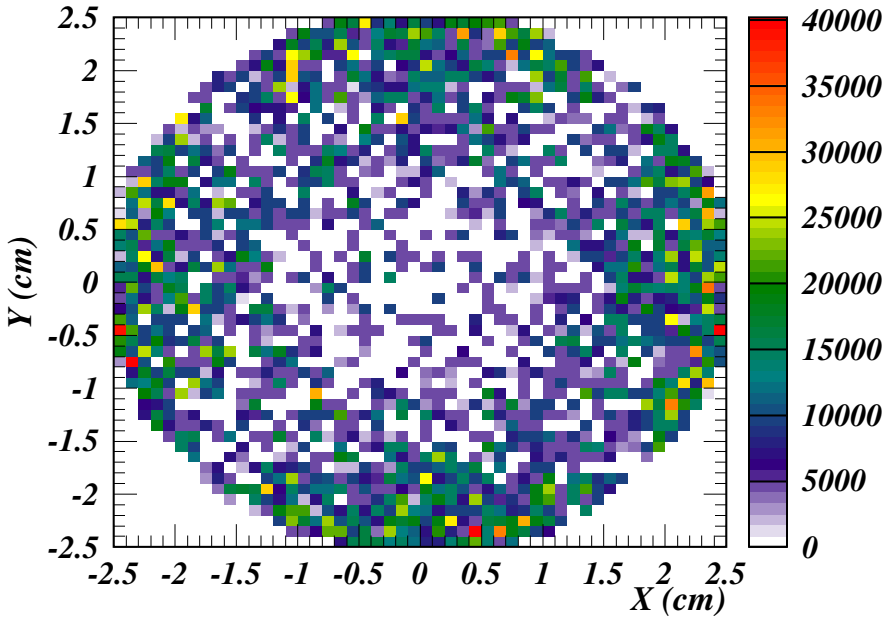

$E_{kin}$>10 eV: 3059 macroparticles, 12079237 e-

10/03/17 10.08

Cloud charge snapshot after bunch 4 at time = 24 ns

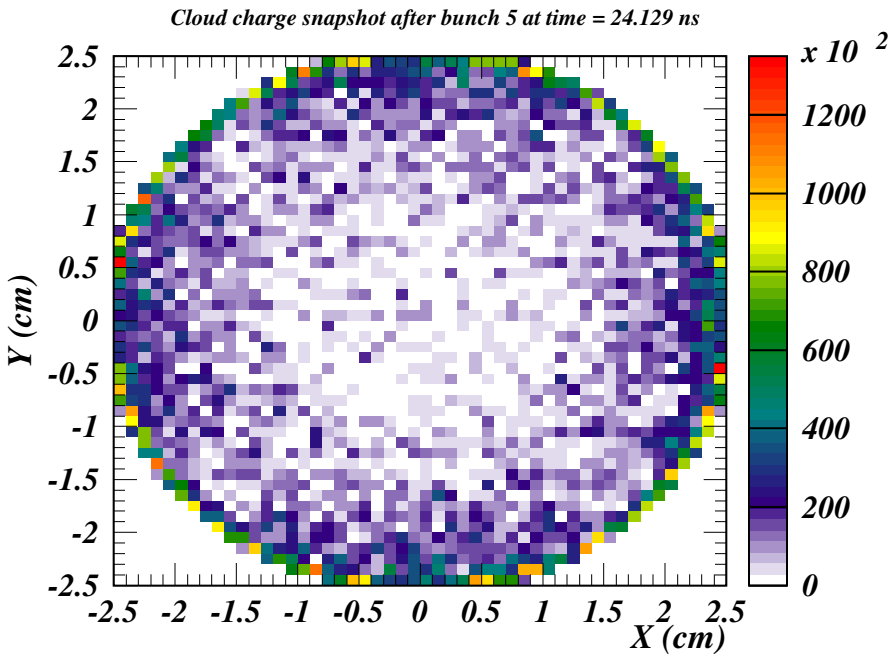



No energy cut: 25038 macroparticles, 23729102 e-

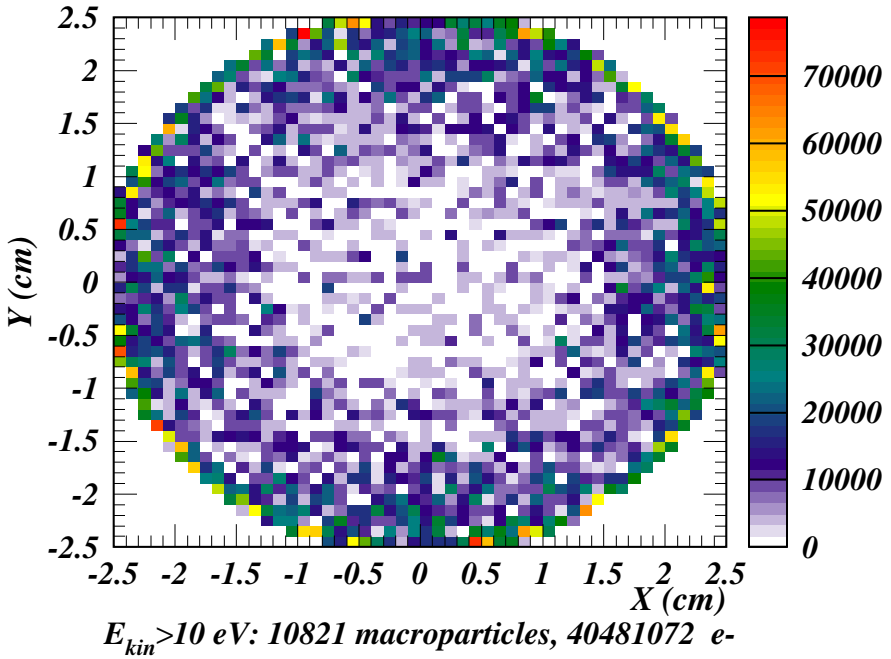



$E_{kin}$>10 eV: 4143 macroparticles, 15132811 e-

10/03/17 10.08



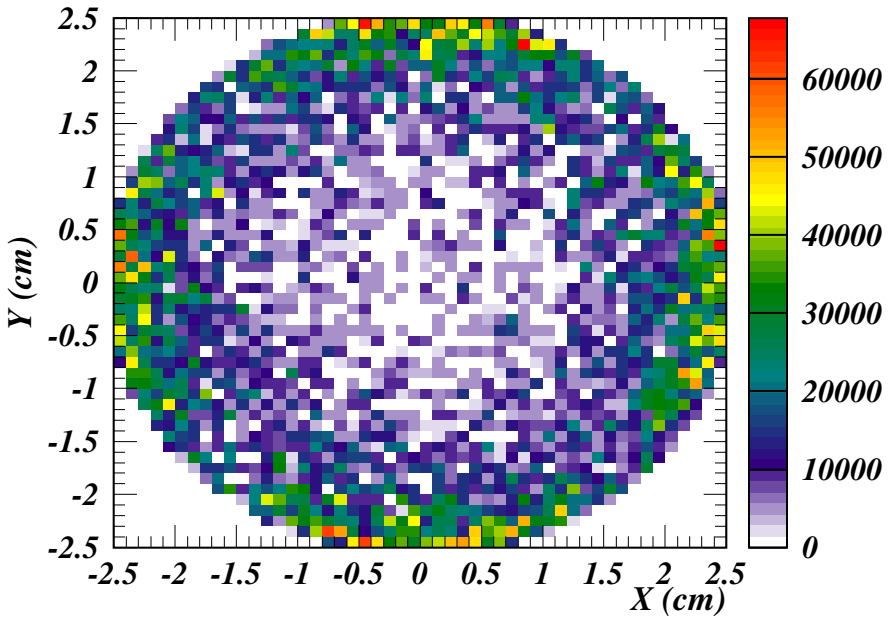

No energy cut: 27169 macroparticles, 68546544 e-



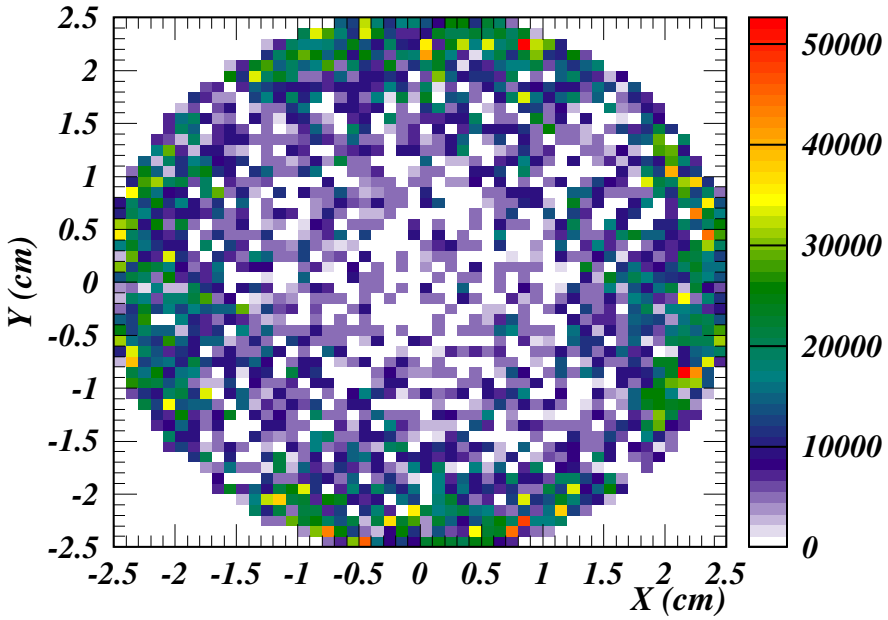

$E_{kin}$>10 eV: 10821 macroparticles, 40481072 e-

10/03/17 10.08

Cloud charge snapshot after bunch 5 at time = 30 ns

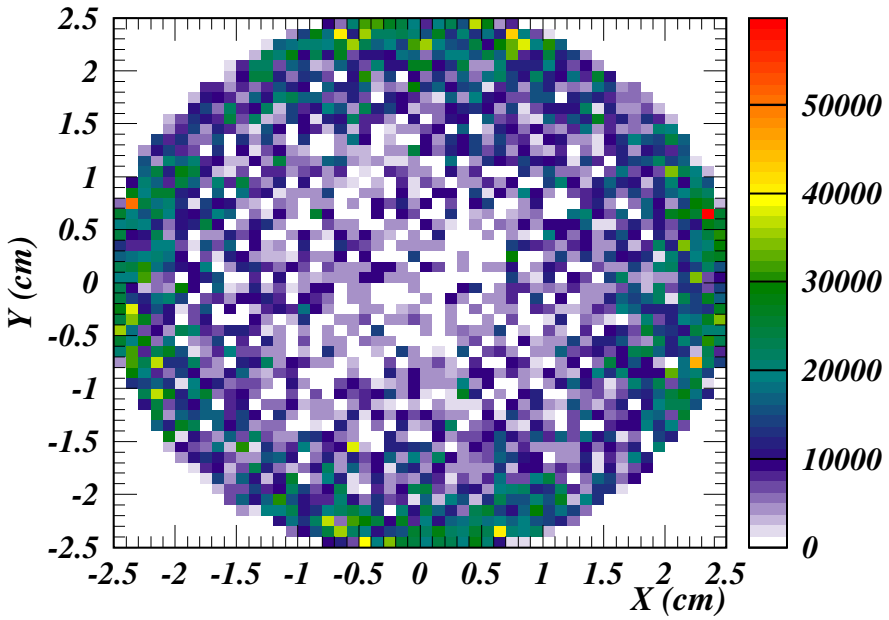



No energy cut: 27107 macroparticles, 28044370 e-

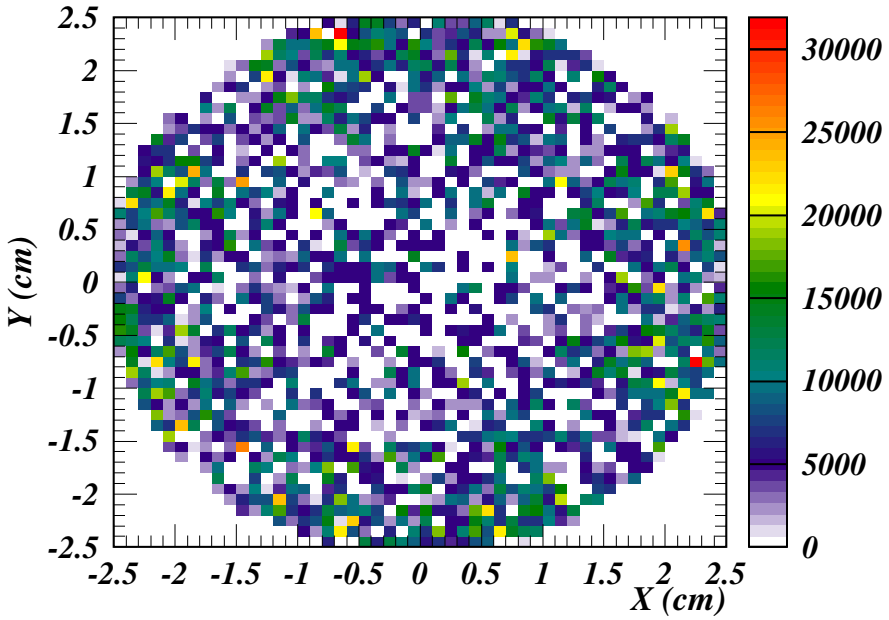



$E_{kin}$>10 eV: 5427 macroparticles, 18519156 e-

Cloud charge snapshot after bunch 6 at time = 36 ns



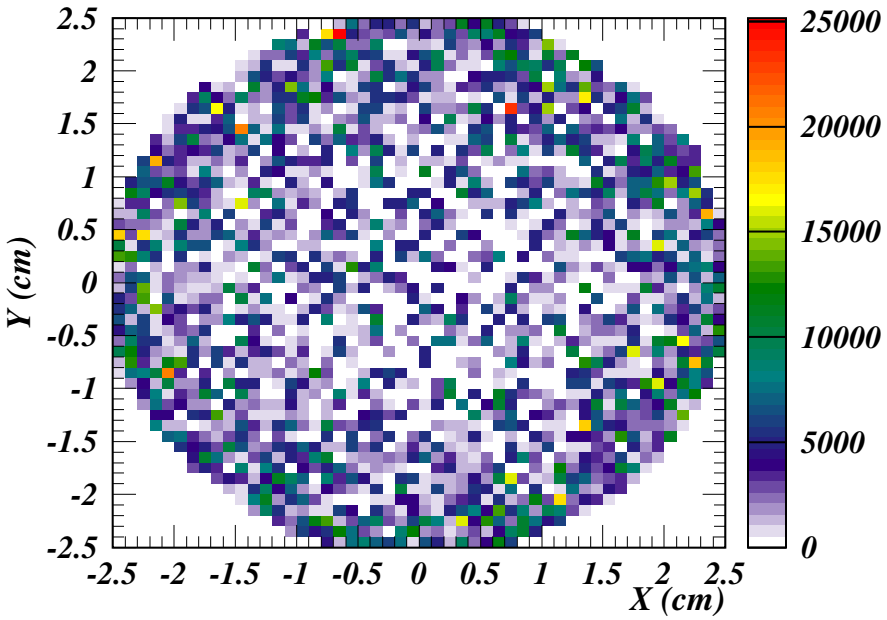

No energy cut: 18984 macroparticles, 21198530 e-



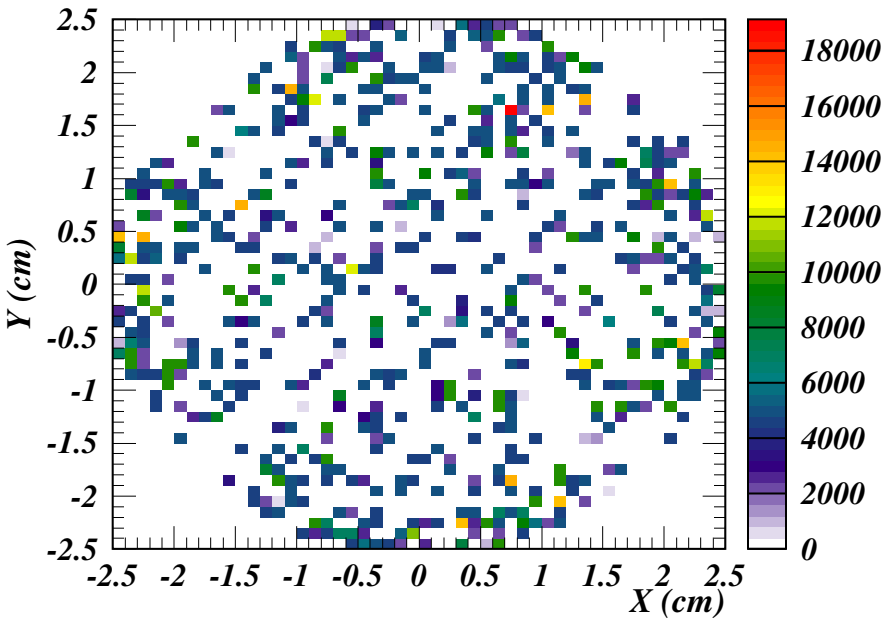

$E_{kin}$>10 eV: 3689 macroparticles, 11206175 e-

10/03/17 10.08

Cloud charge snapshot after bunch 21 at time = 120 ns

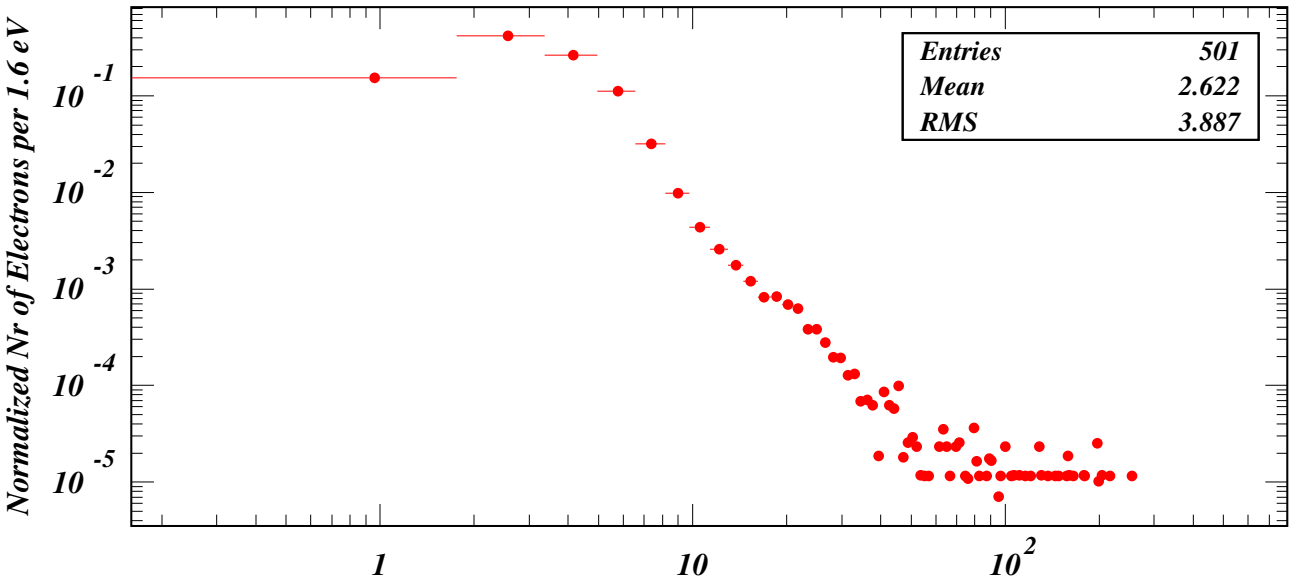


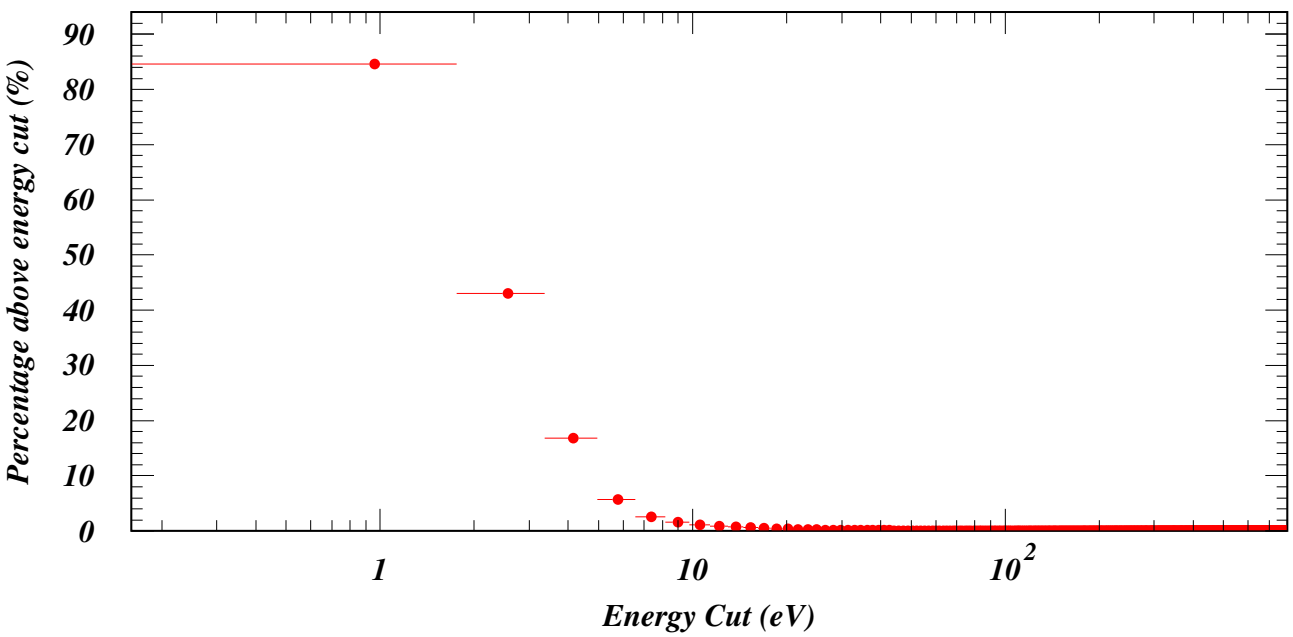

No energy cut: 11611 macroparticles, 7.24143e+06 e-



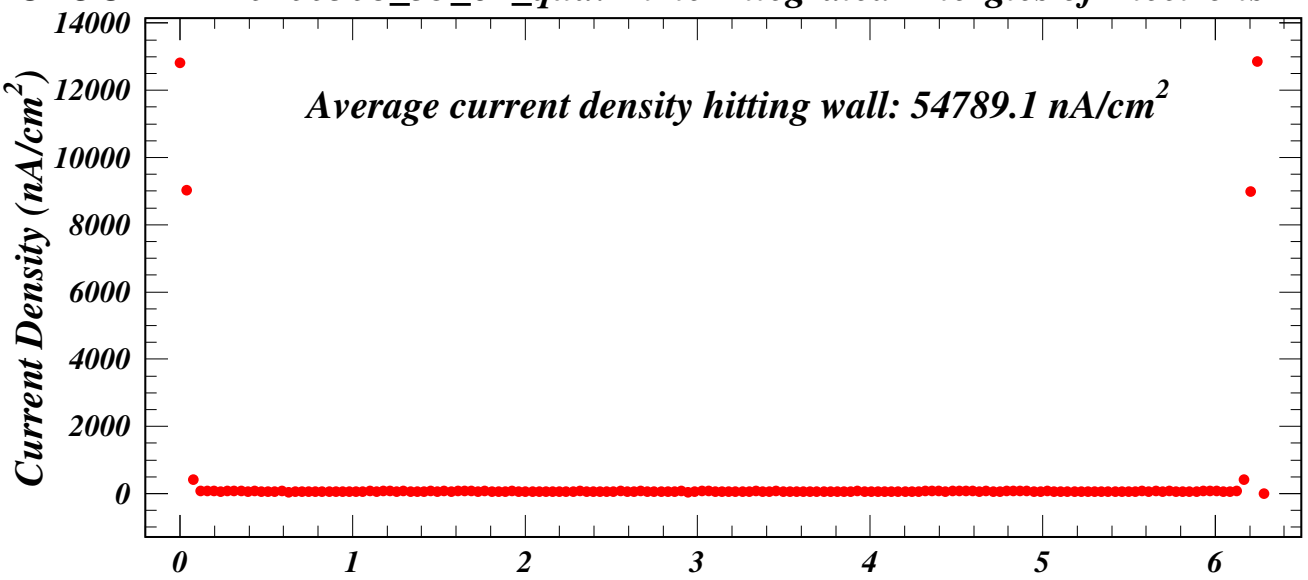

$E_{kin}$>10 eV: 911 macroparticles, 3.33982e+06 e-

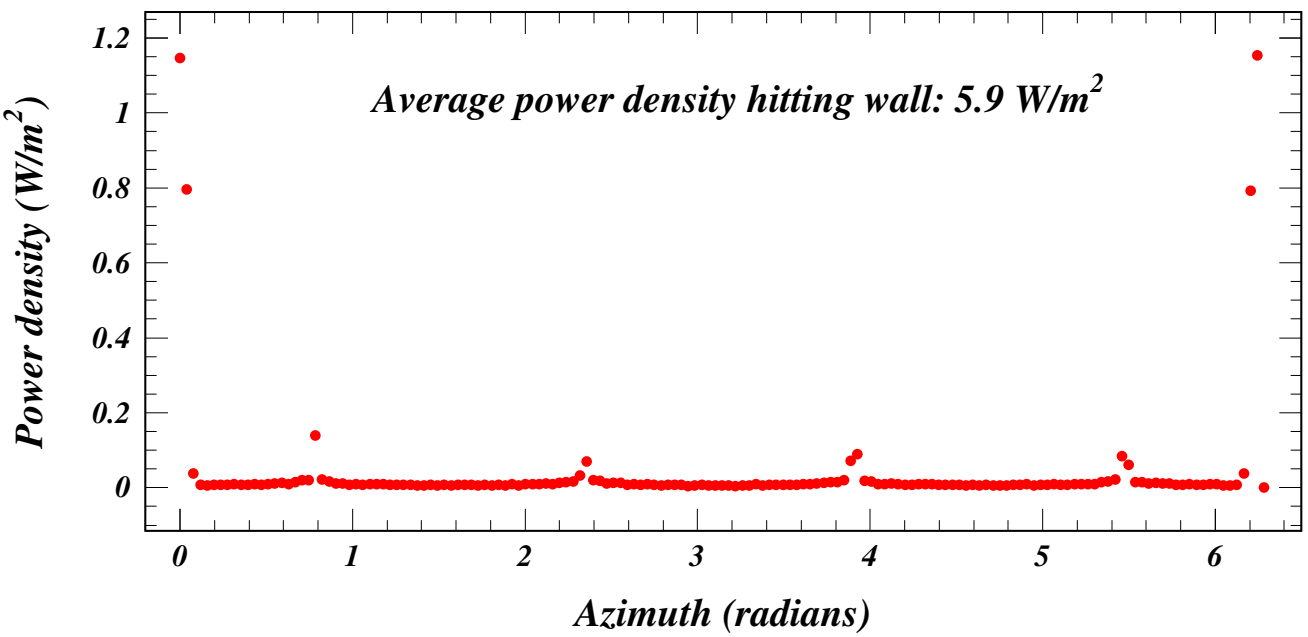
ECLOUD-DR20100308_5b_64_qua: Time-Integrated Energies of Electrons Hitting Wall



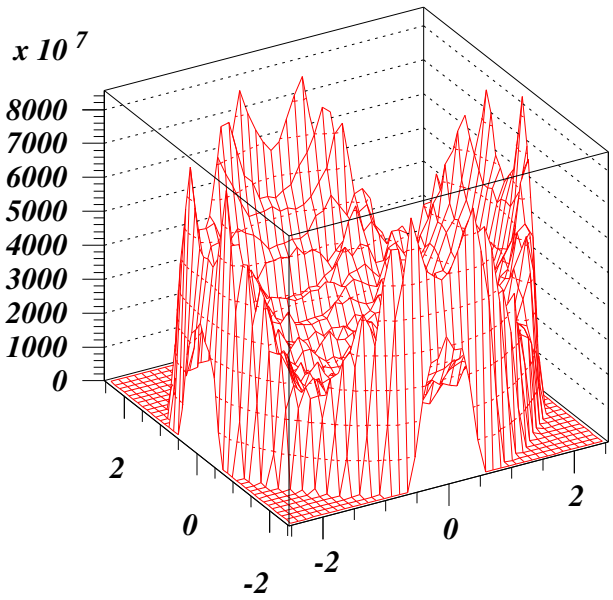
ECLOUD-DR20100308_5b_64_qua: Time-Integrated Energies of Electrons Hitting Wall

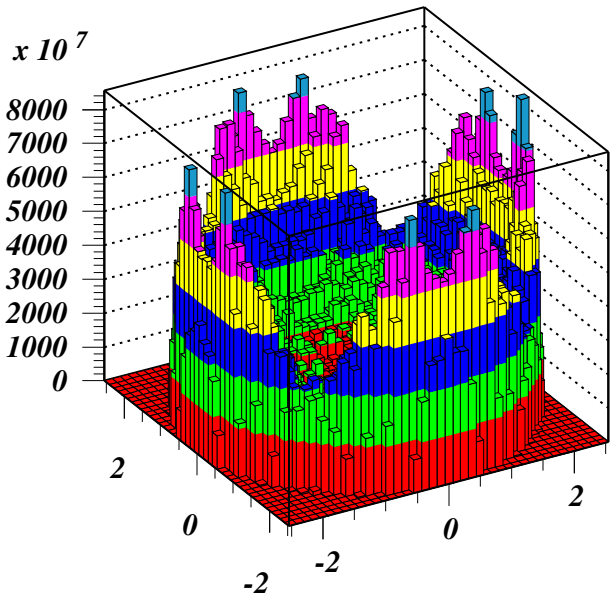


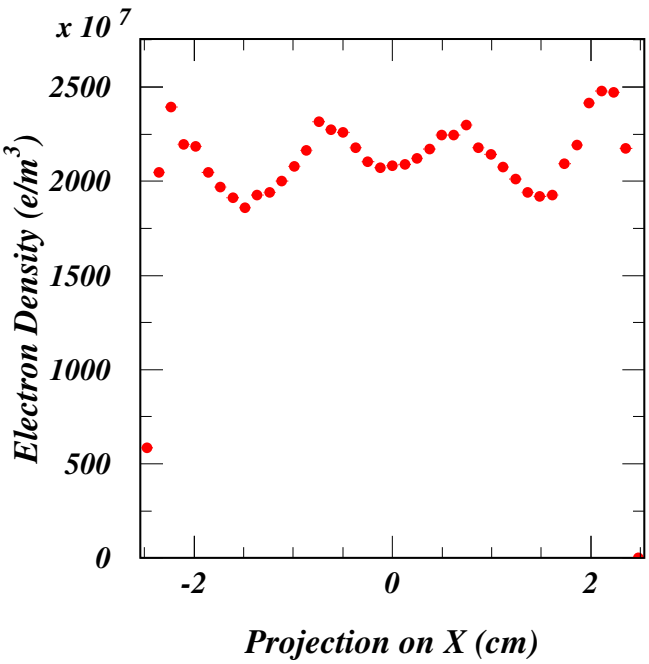



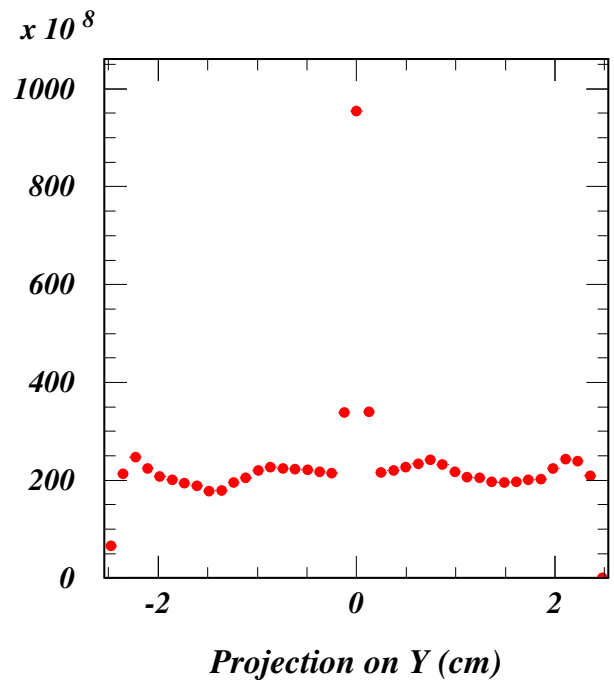
10/03/17 10.08

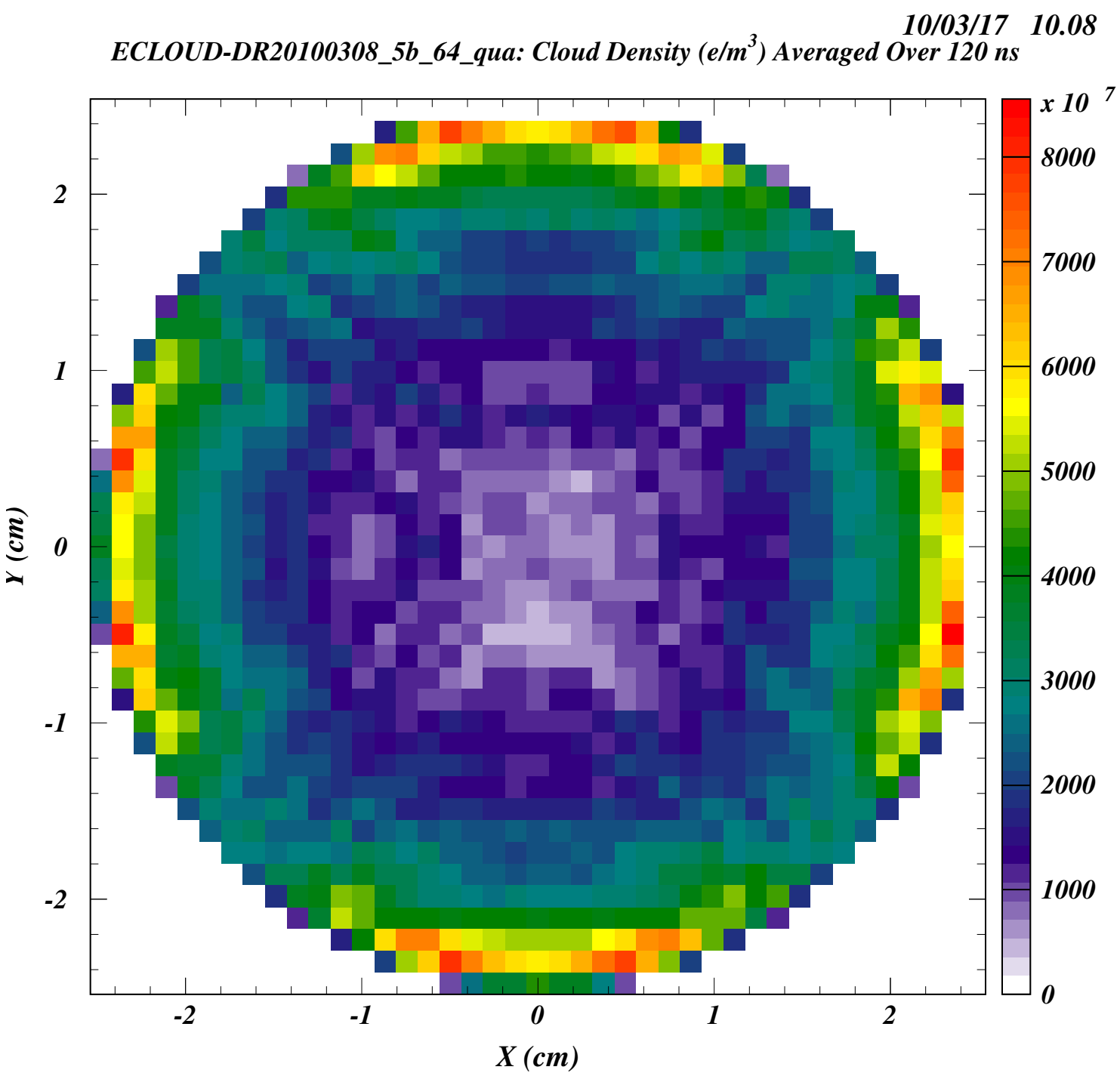
# ECLOUD-DR20100308_5b_64_qua: Cloud Density ($e/m^3$) Averaged Over 120 ns



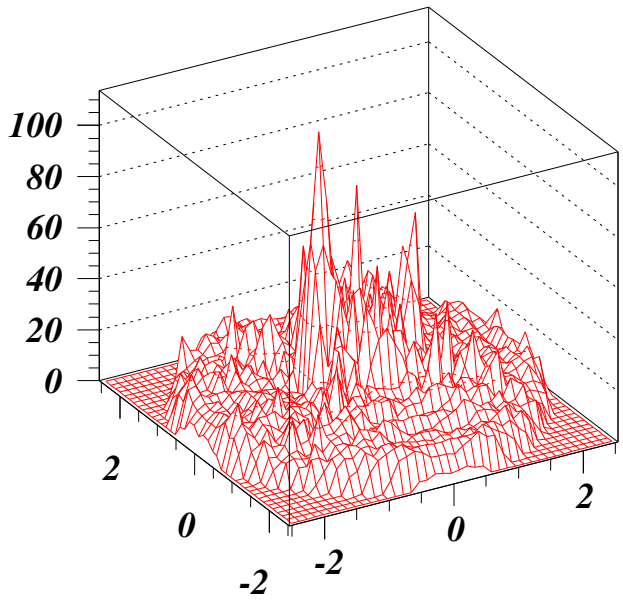



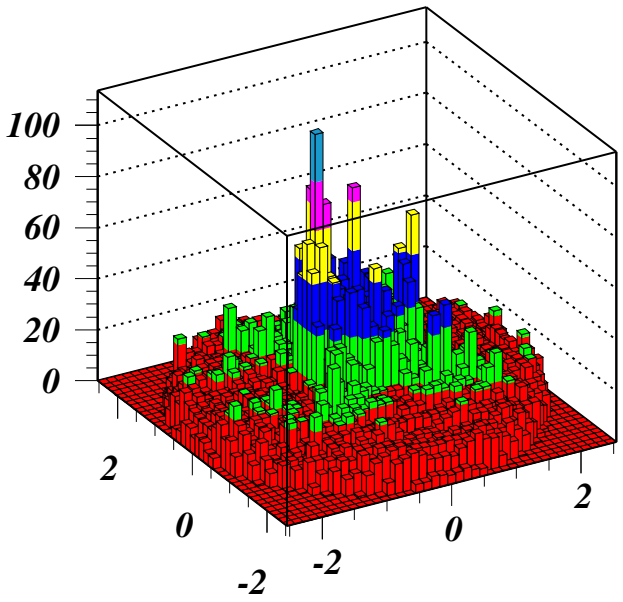



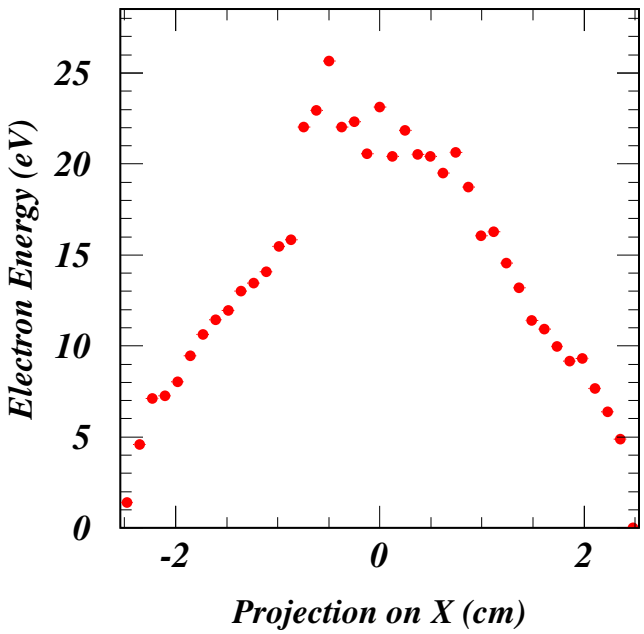



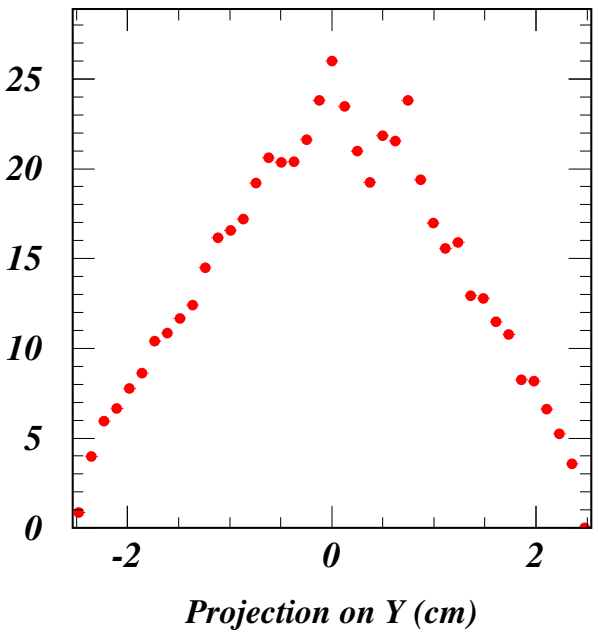

10/03/17 10.08
ECLOUD-DR20100308_5b_64_qua: Cloud Density (e/m3) Averaged Over 120 ns
x 10 7
8000
7000
6000
5000
4000
3000
2000
1000
0
2
1
0
-1
-2
Y (cm)
-2
-1
0
1
2
X (cm)

ECLOUD-DR20100308_5b_64_qua: Electron Energies (eV) Averaged Over 120 ns



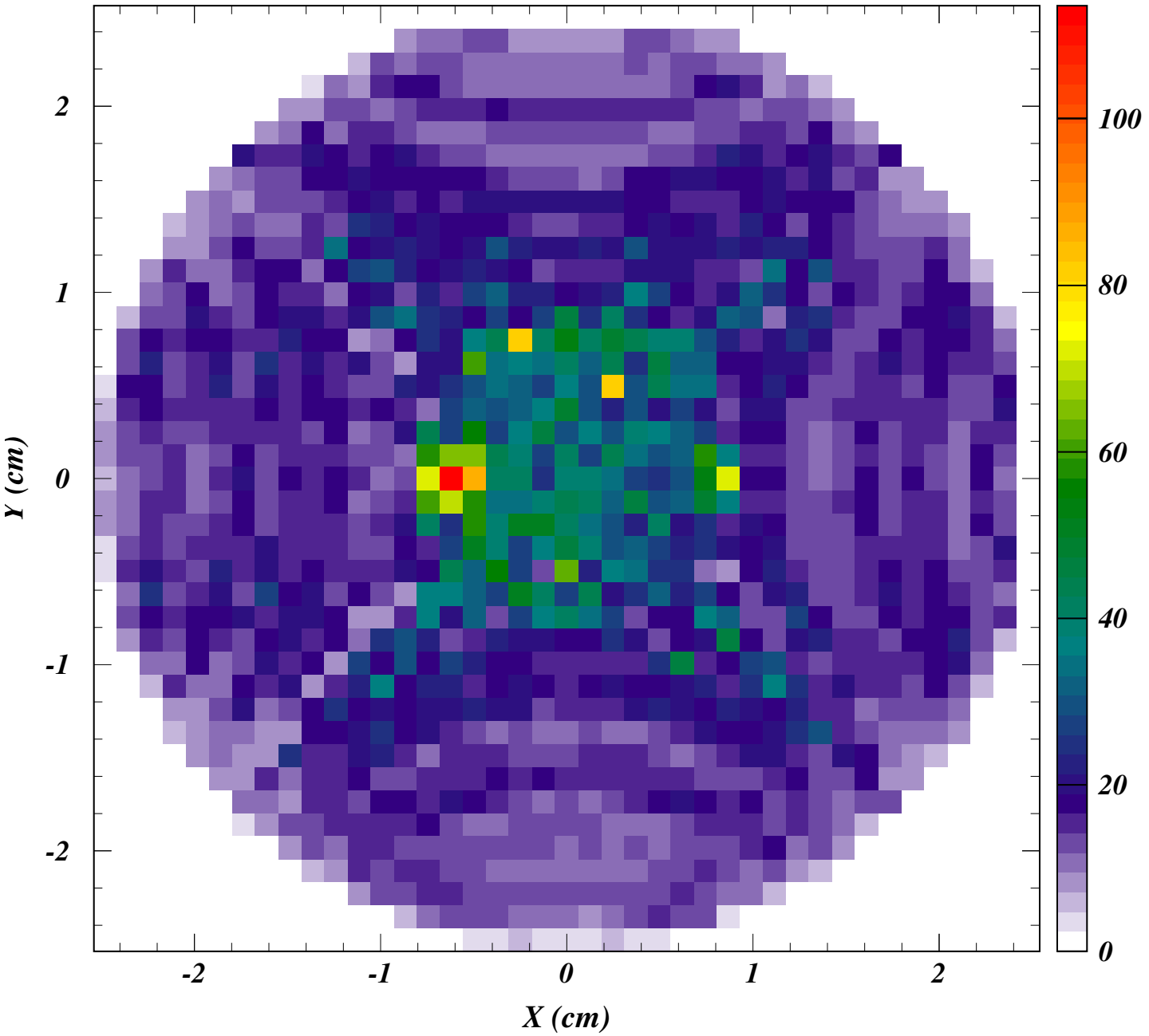



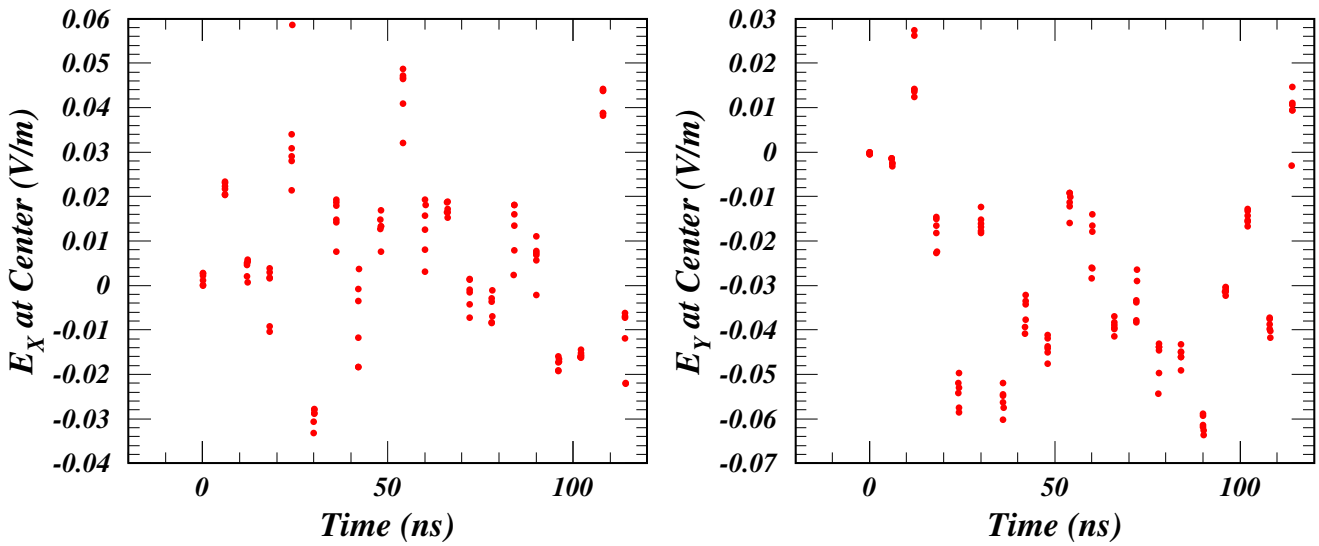
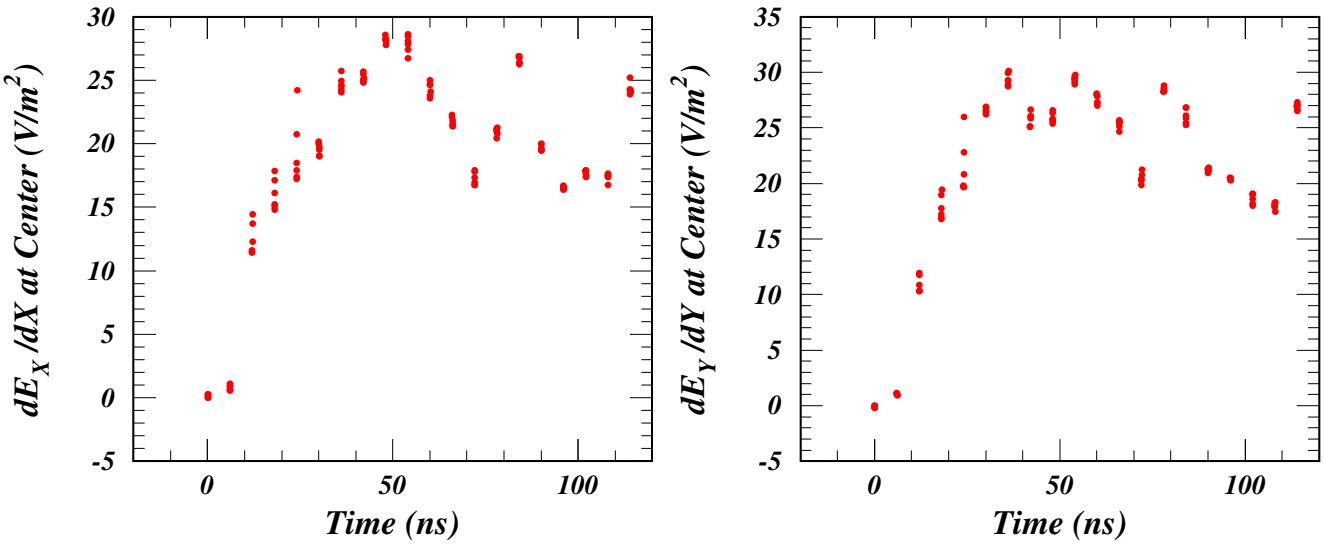



10/03/17 10.08

ECLOUD-DR20100308_5b_64_qua: Electron Energies (eV) Averaged Over 120 ns




ECLOUD-DR20100308_5b_64_qua: Electric Field at Beam
$E_X$ at Center (V/m)
0.06
0.05
0.04
0.03
0.02
0.01
0
-0.01
-0.02
-0.03
-0.04
0
50
100
Time (ns)
$E_Y$ at Center (V/m)
0.03
0.02
0.01
0
-0.01
-0.02
-0.03
-0.04
-0.05
-0.06
-0.07
0
50
100
Time (ns)

*ECLOUD-DR20100308_5b_64_quaElectric Field Gradients at Beam*