200 kV

400 A gun solenoid

0.32 mm (rms) spot size

Xoff=0

Yoff=0

50000 particles

25 ps (uniform)

0.56 mm mrad /mm emittance

Viewer 1=1.47 m

Space charge grid: Nrad=70, Nlong\_in=100

|  |  |  |
| --- | --- | --- |
| Charge (nC) | # of Active particles | # of lost particles |
| 0.01 | 50000 | 0 |
| 0.05 | 49972 | 28 |
| 0.10 | 42108 | 7892 |
| 0.15 | 34561 | 15439 |
| 0.20 | 29225 | 20775 |
| 0.25 | 25513 | 24487 |

0.25 nC

25513 particles in distribution

-127.57 pC total charge

Position 1.47

5.44244e-05 MeV, beta\*gamma 0.0, beta 0.0146

8.35459e-02 keV sig energy spread

27.43502 ps, sig time at cathode

sigx = 2.5336 mm, sigy = 2.5316 mm

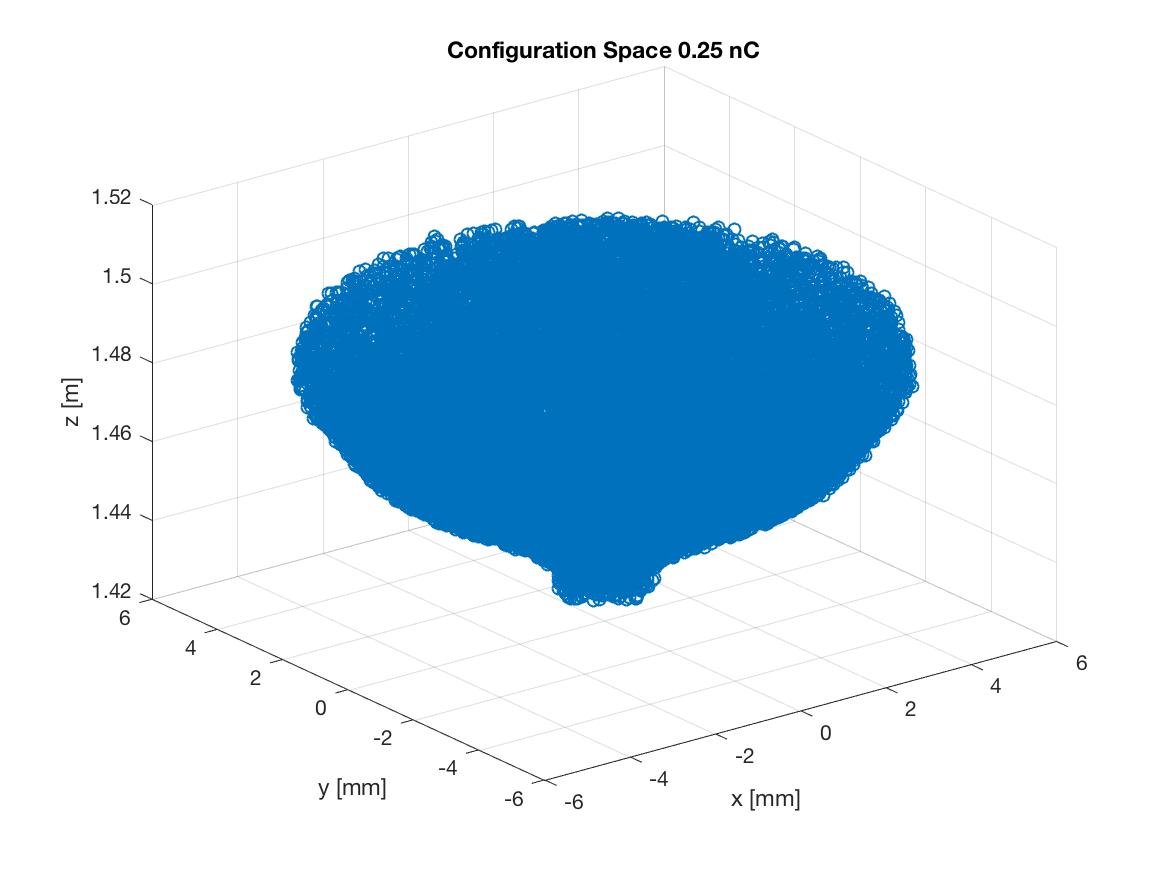
sigxp = 240132.5190 mrad, sigyp = 185628.0044 mrad

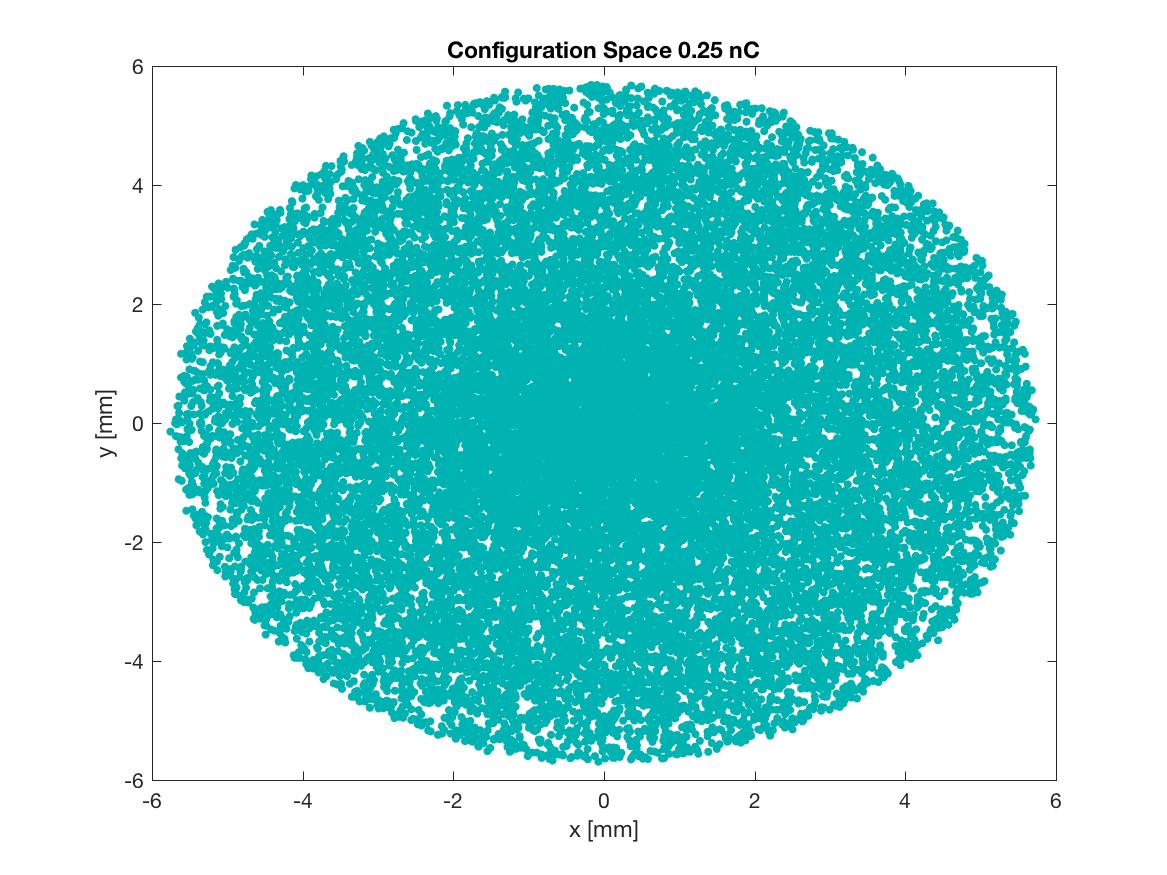
sigz = 18.8119 mmnEnz = 21.3107 keV mm = 4867.5371 keV ps

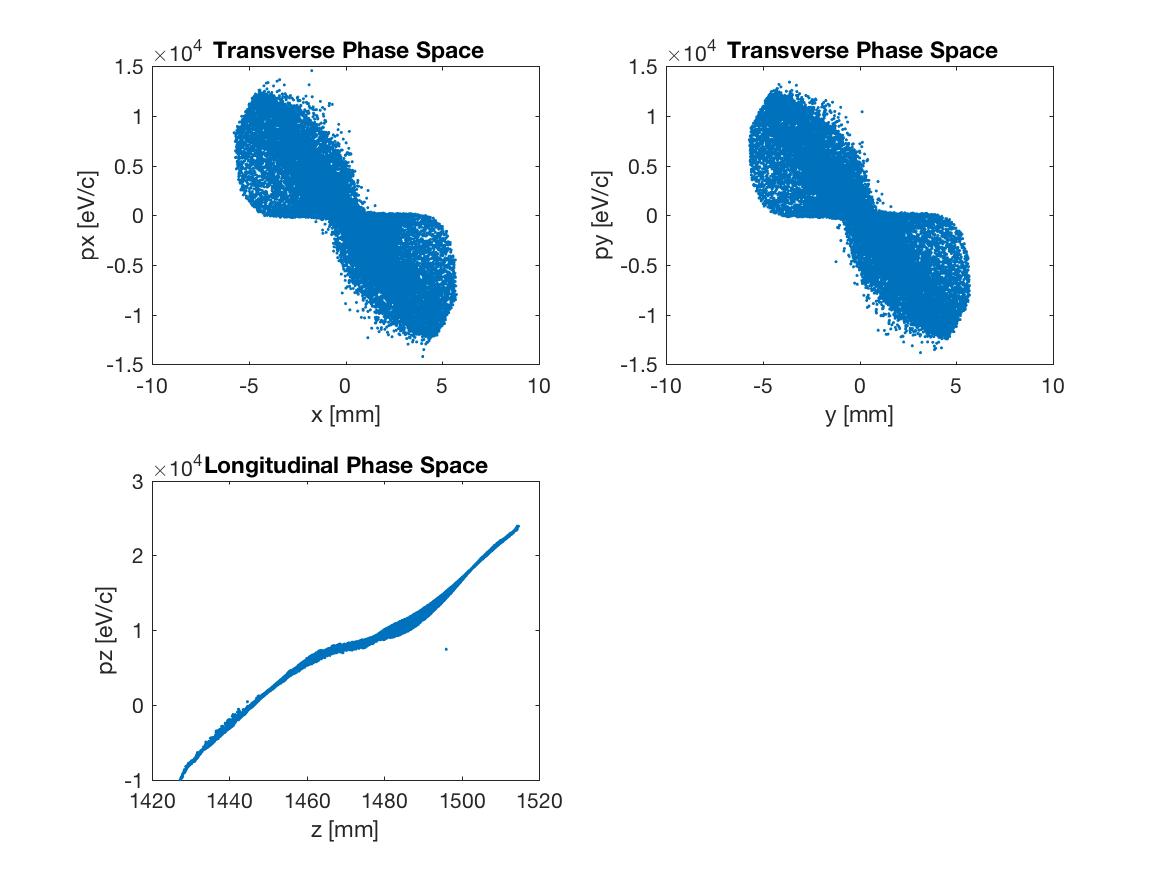
Enxps = 13.8811 um, Enyps = 13.8720 um

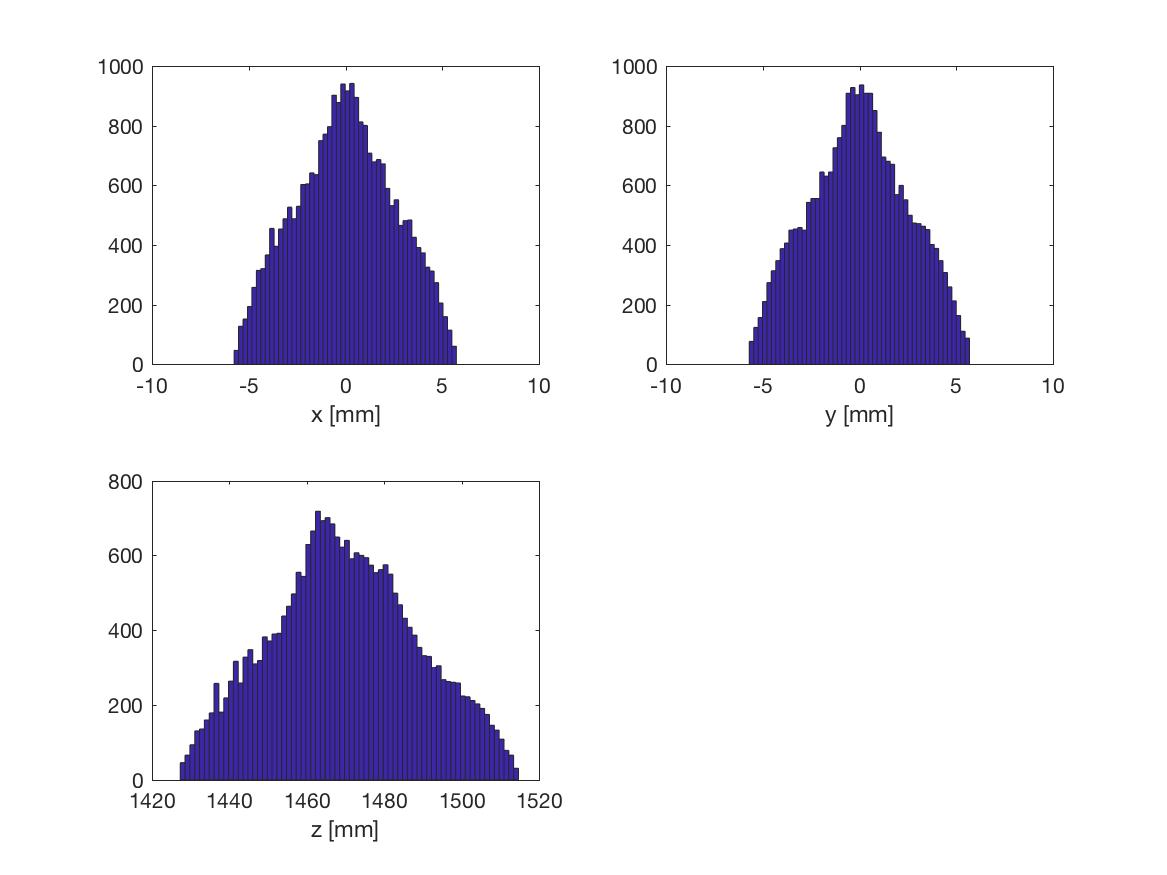
Enxtr = 8878.8225 um, Enytr = 6858.3373 um

Exge = 951.0667 um, Eyge = 950.4416 um









0.20 nC

29225 particles in distribution

-116.90 pC total charge

Position 1.47

5.65046e-05 MeV, beta\*gamma 0.0, beta 0.0149

8.18884e-02 keV sig energy spread

26.88200 ps, sig time at cathode

sigx = 2.4433 mm, sigy = 2.4446 mm

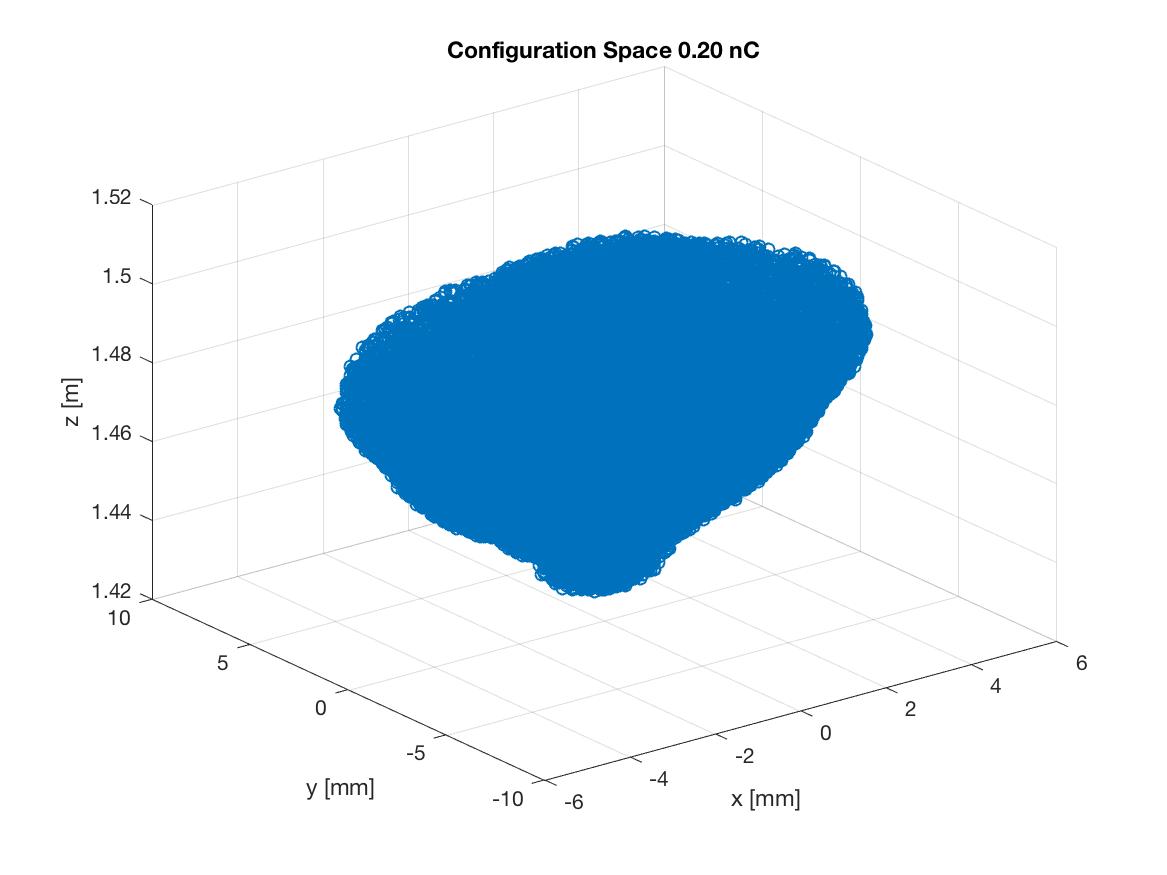
sigxp = 30798.6191 mrad, sigyp = 37691.1021 mrad

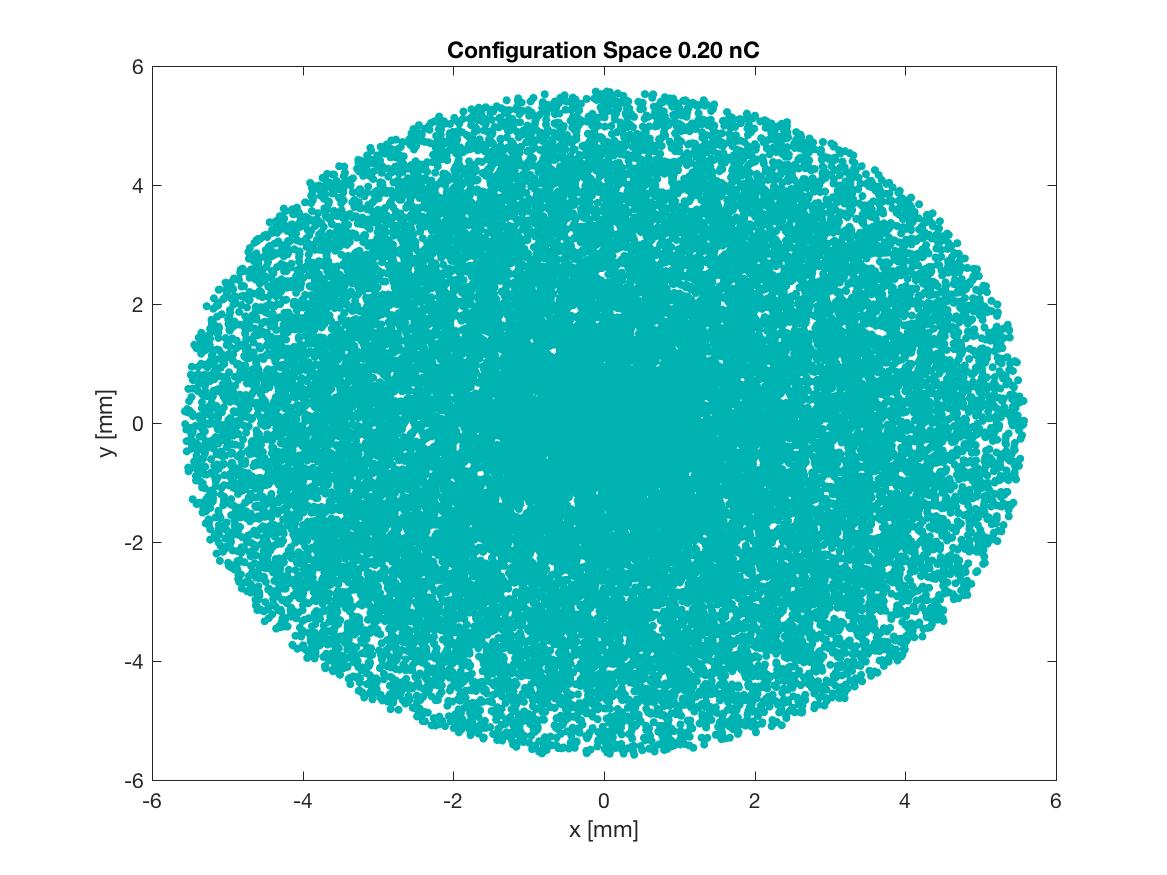
sigz = 18.3079 mmnEnz = 18.8069 keV mm = 4215.8609 keV ps

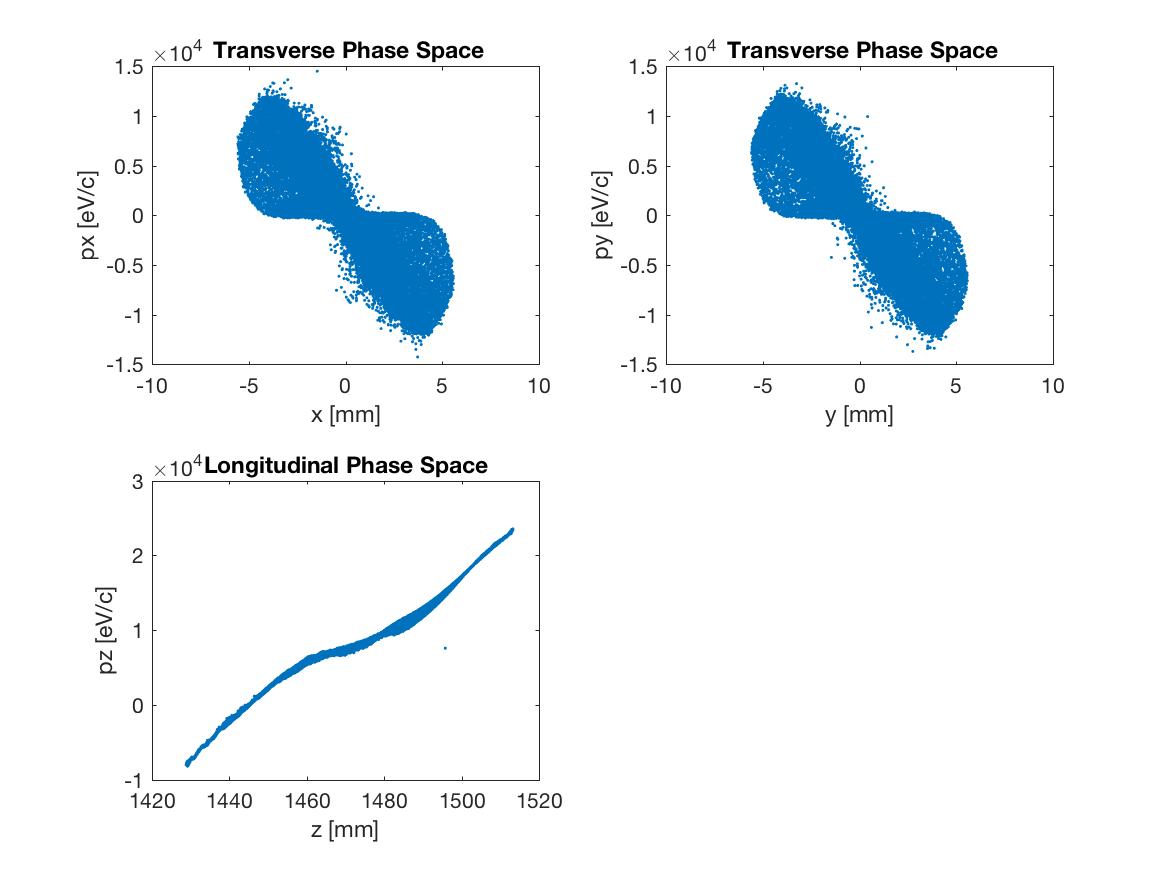
Enxps = 13.2037 um, Enyps = 13.1960 um

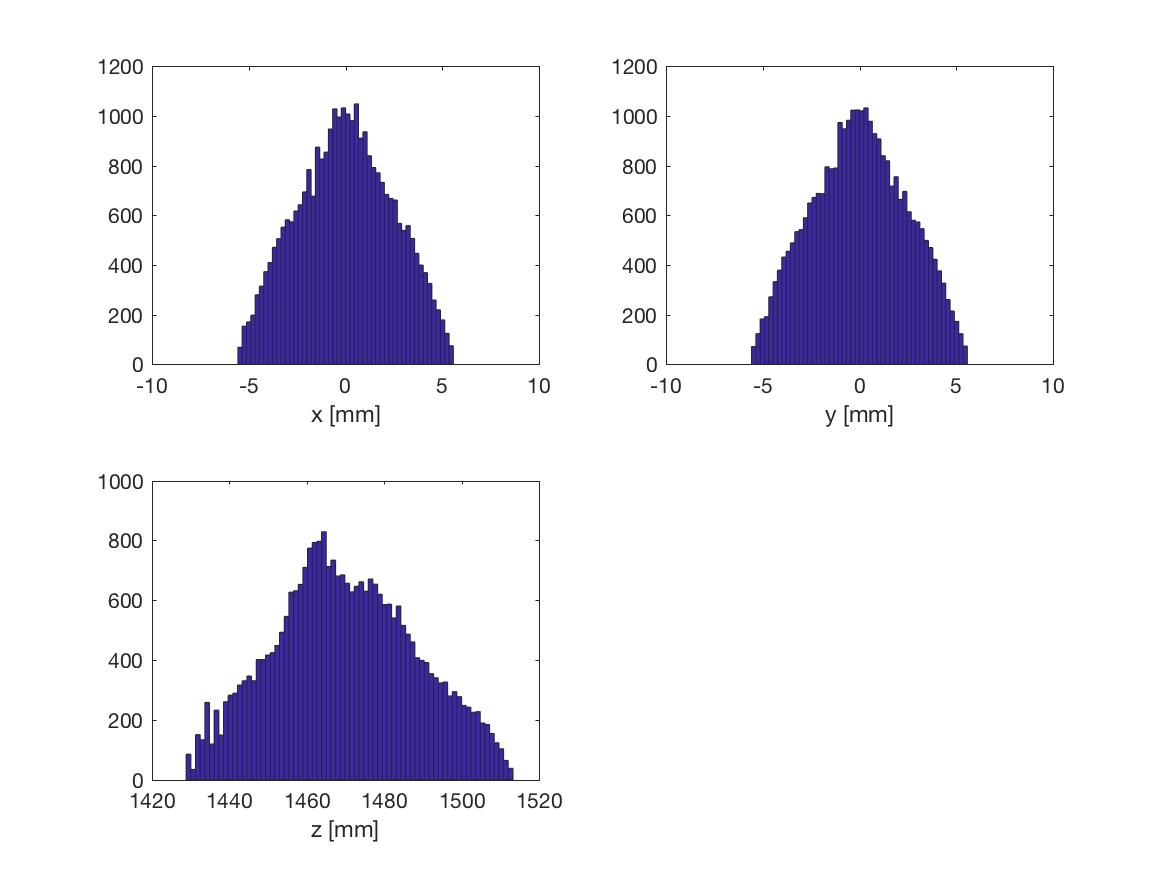
Enxtr = 1118.6496 um, Enytr = 1369.8907 um

Exge = 887.8465 um, Eyge = 887.3243 um









0.15 nC

34561 particles in distribution

-103.68 pC total charge

Position 1.47

2.00823e-05 MeV, beta\*gamma 0.0, beta 0.0089

7.32450e-02 keV sig energy spread

26.27558 ps, sig time at cathode

sigx = 2.3603 mm, sigy = 2.3617 mm

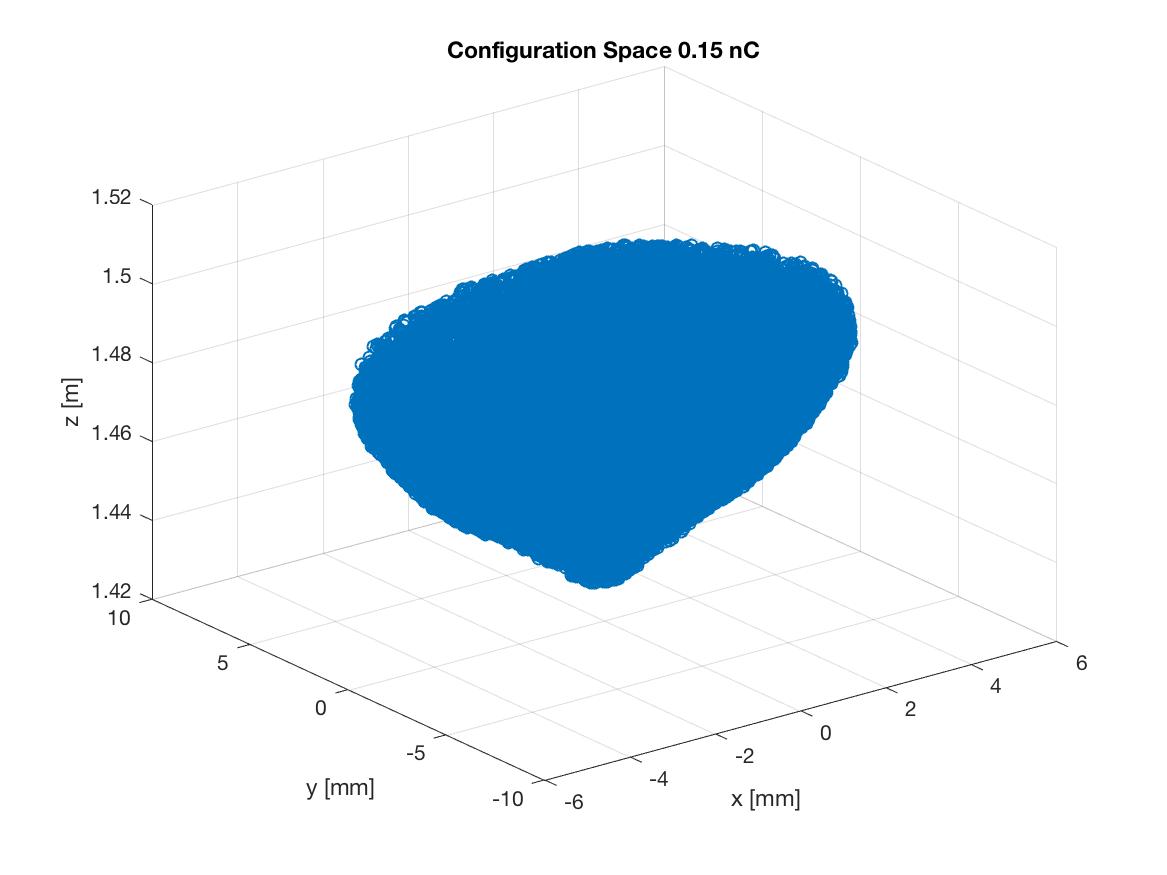
sigxp = 77350.7830 mrad, sigyp = 76511.7097 mrad

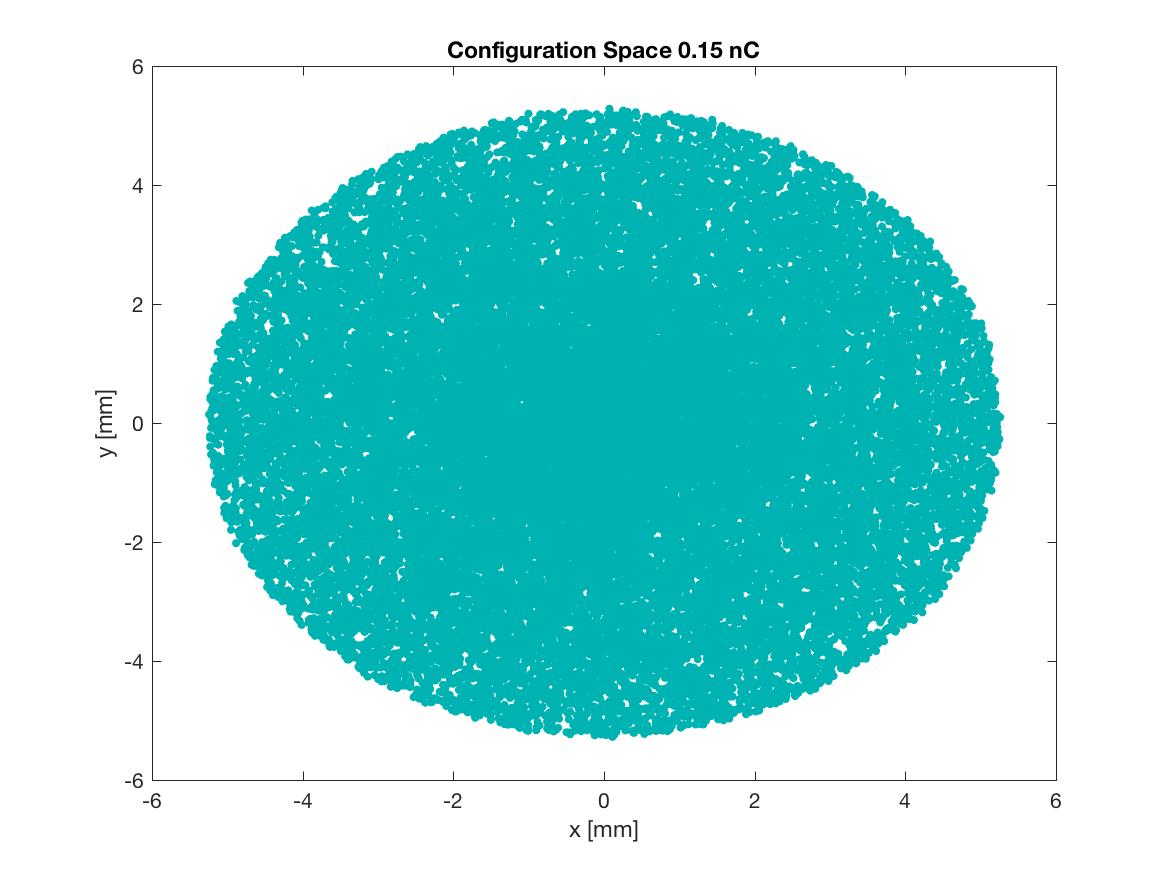
sigz = 17.5644 mmnEnz = 16.0269 keV mm = 6026.0047 keV ps

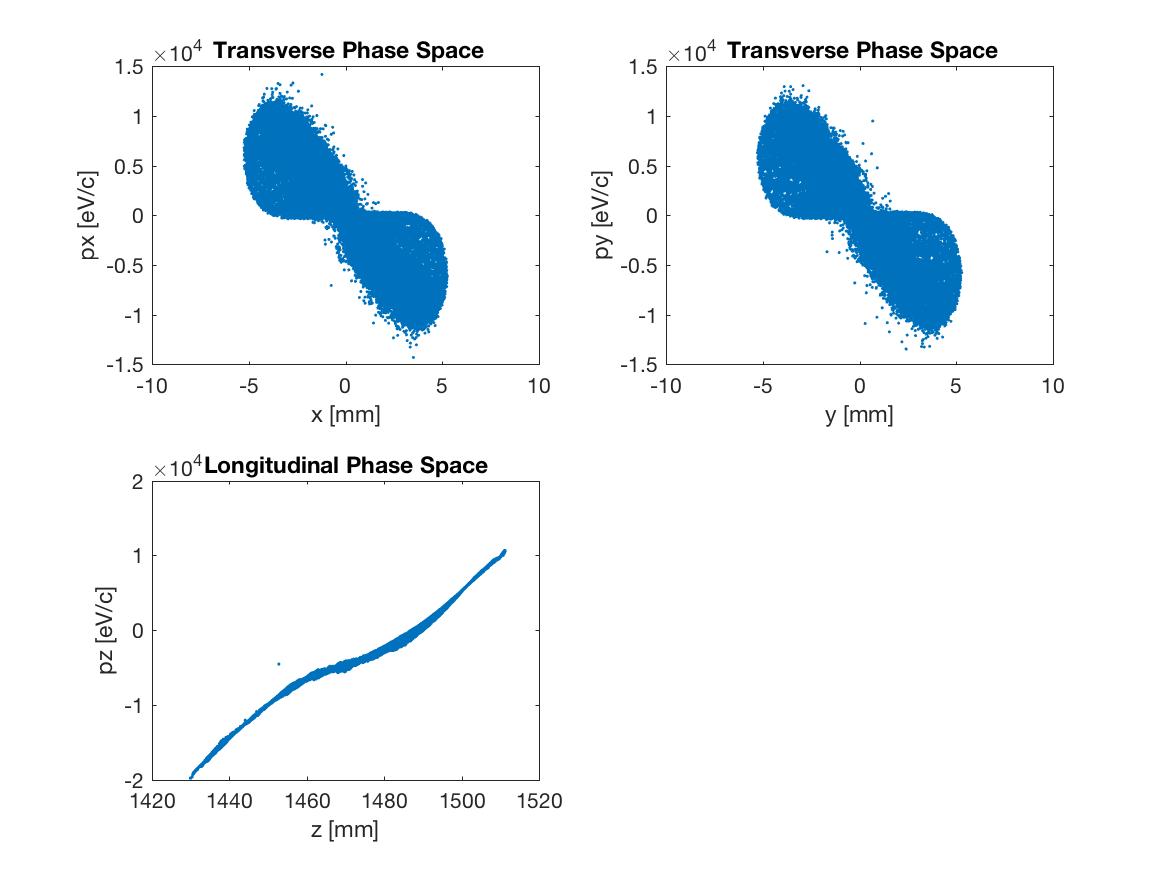
Enxps = 12.1738 um, Enyps = 12.1942 um

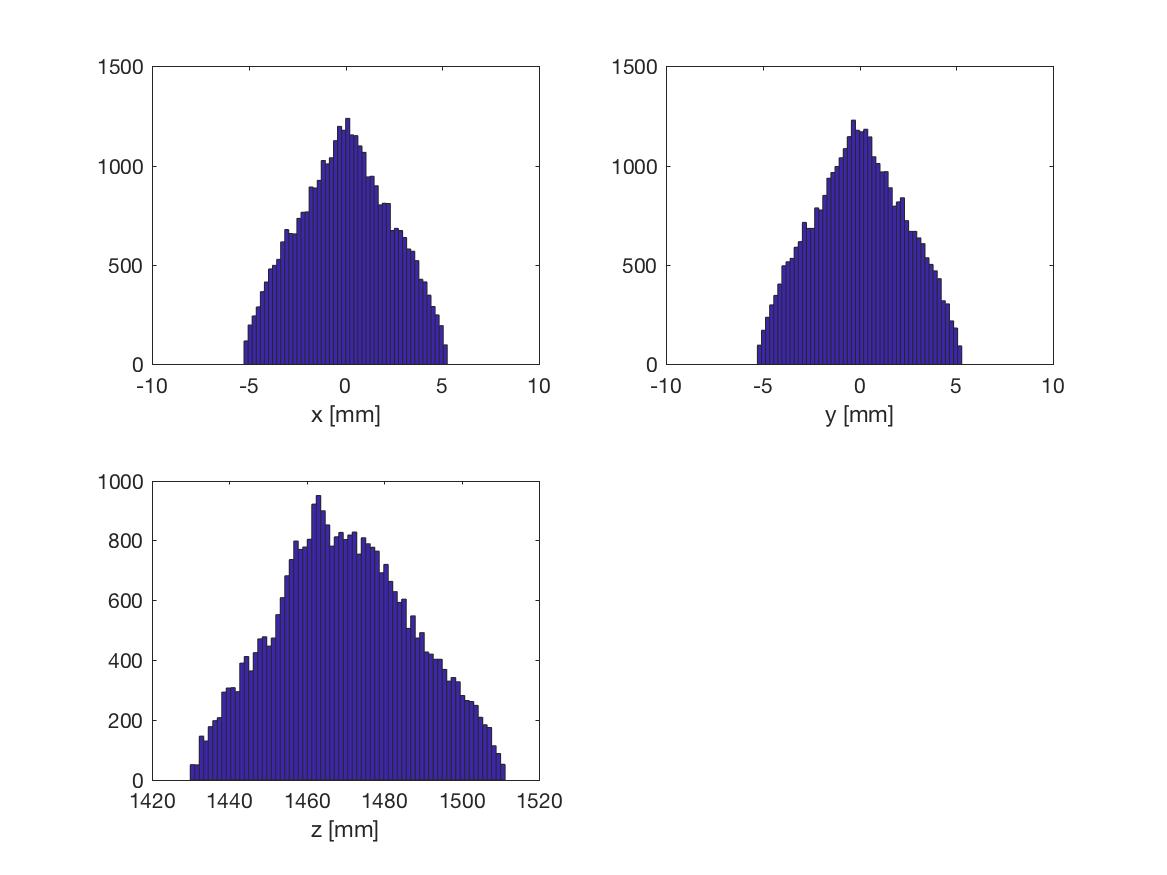
Enxtr = -1618.3349 um, Enytr = -1601.5364 um

Exge = -1373.1260 um, Eyge = -1375.4269 um









* 1. nC

42108 particles in distribution

-84.22 pC total charge

Position 1.47

6.73147e-06 MeV, beta\*gamma 0.0, beta 0.0051

4.86747e-02 keV sig energy spread

25.60645 ps, sig time at cathode

sigx = 2.2058 mm, sigy = 2.2057 mm

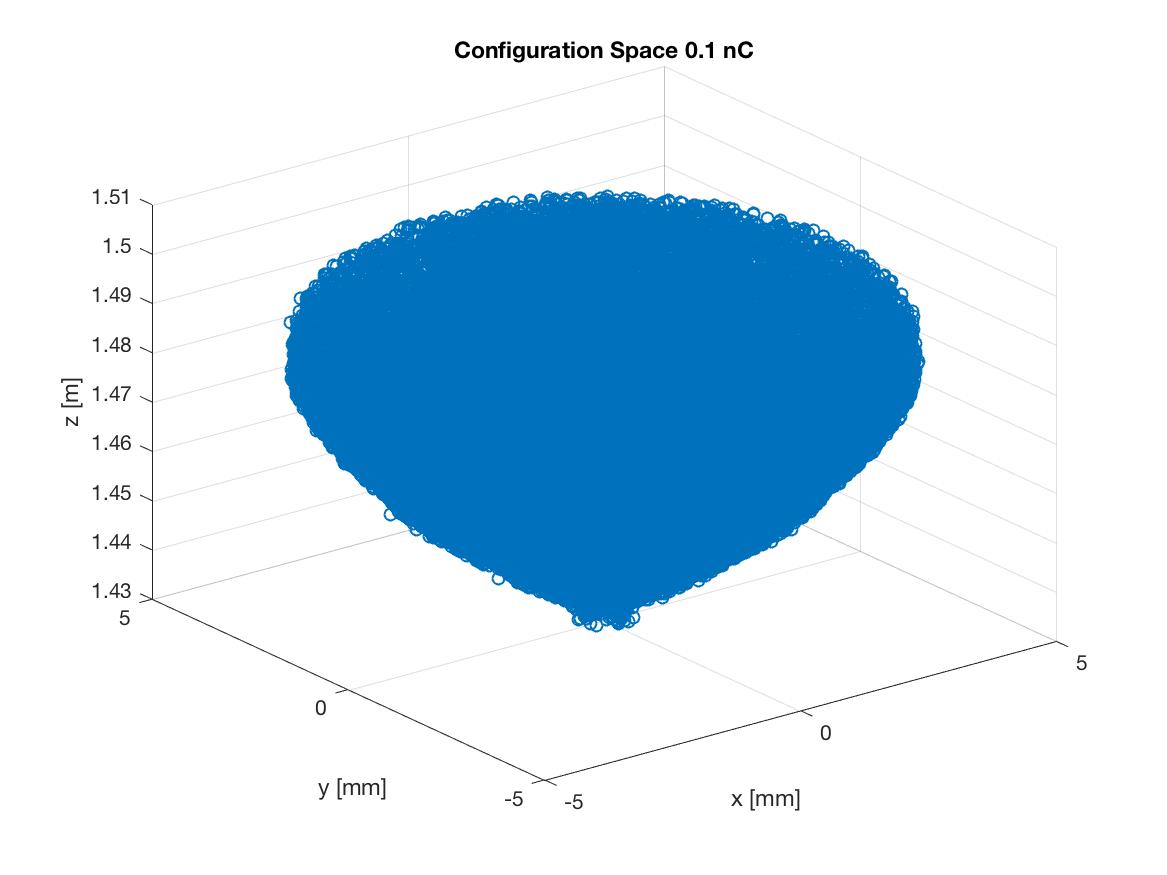
sigxp = 147989.5200 mrad, sigyp = 103508.2548 mrad

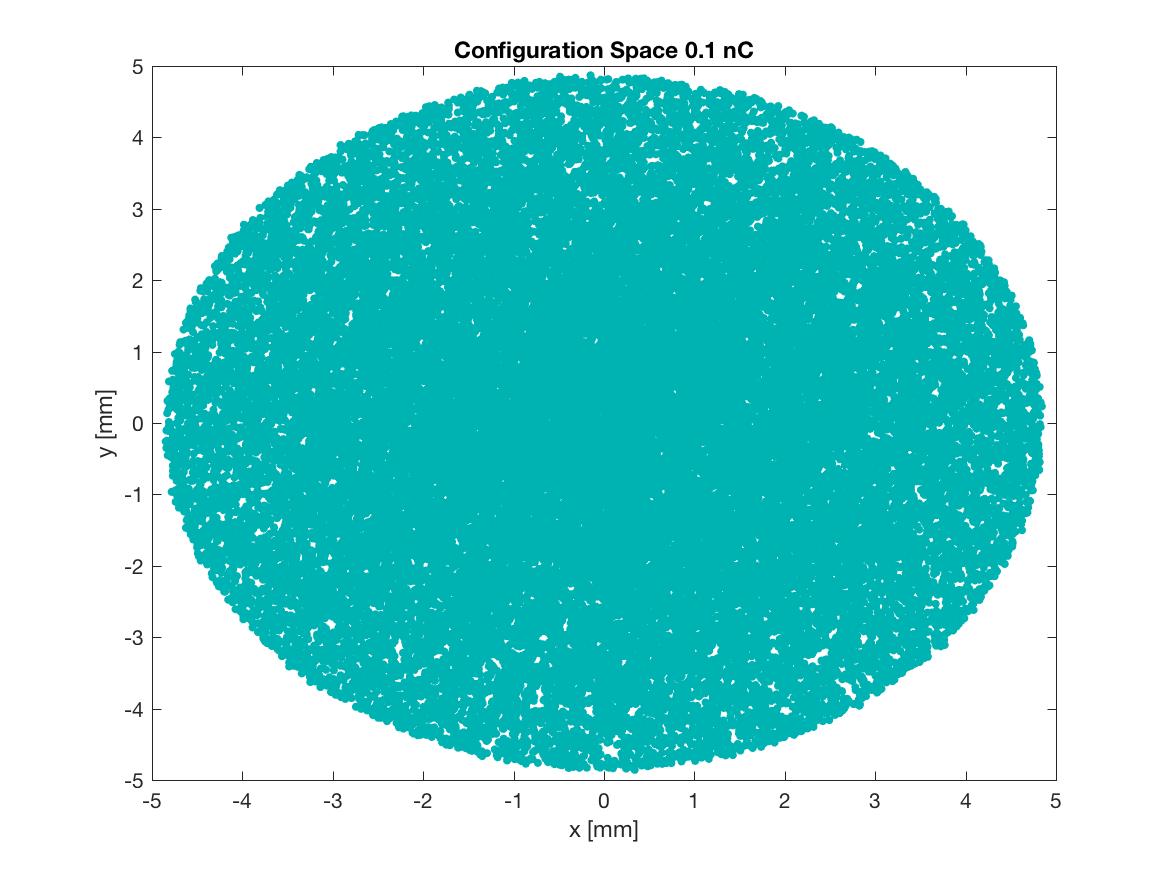
sigz = 16.3821 mmnEnz = 12.1971 keV mm = 7921.0065 keV ps

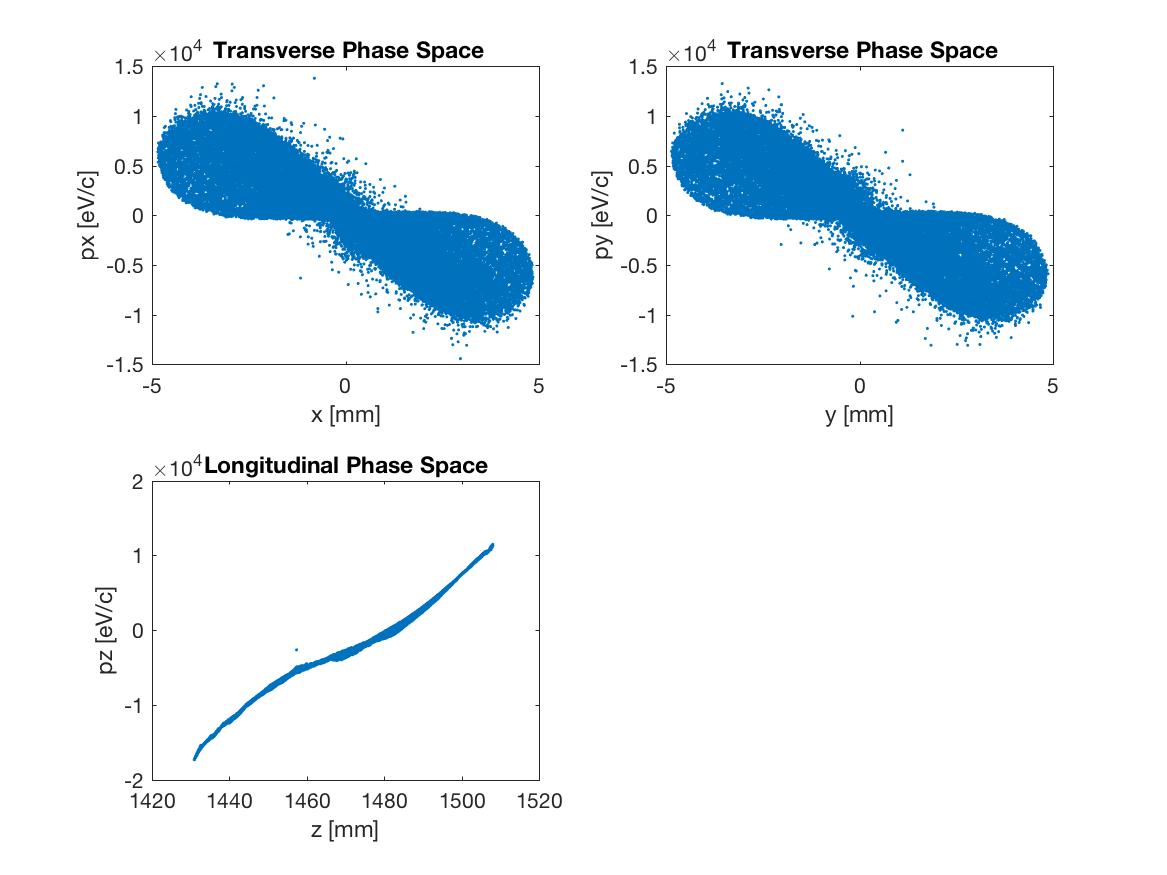
Enxps = 10.5226 um, Enyps = 10.5522 um

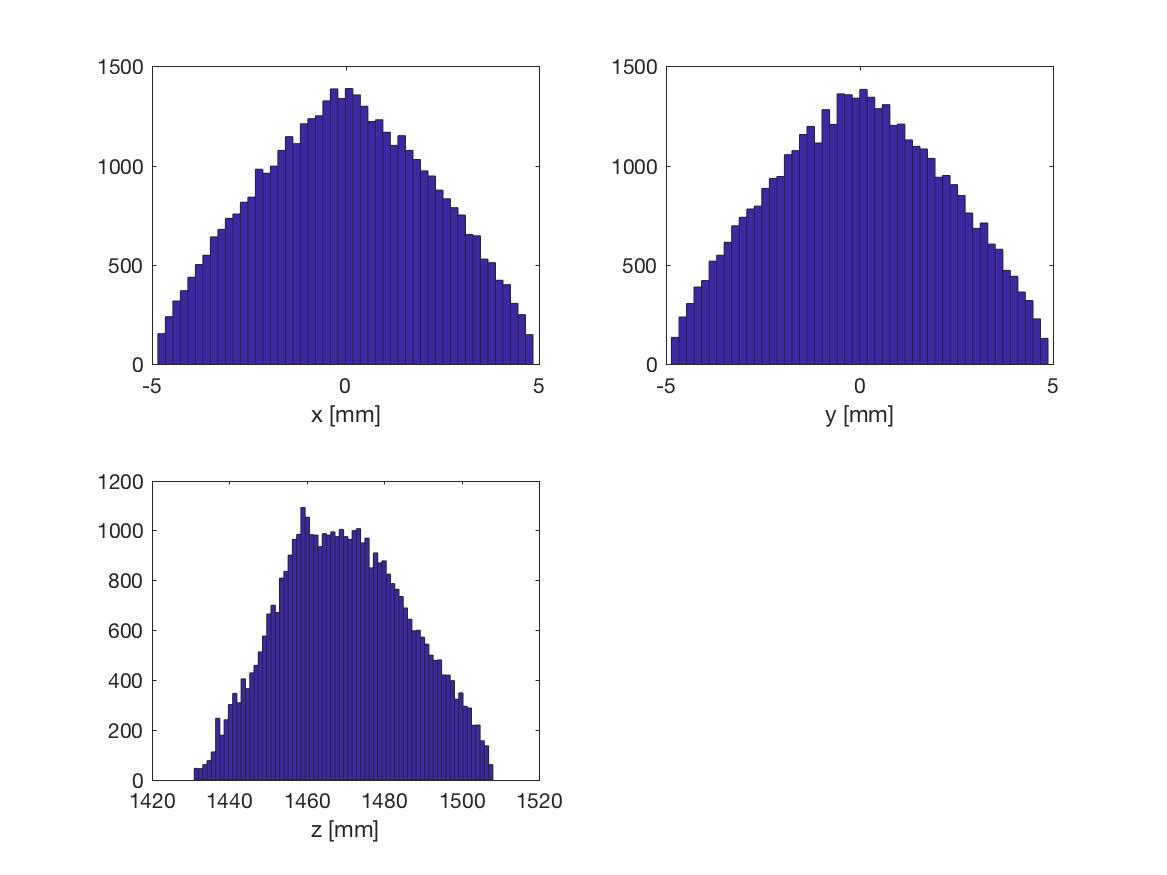
Enxtr = -1675.4417 um, Enytr = -1171.8120 um

Exge = -2050.0407 um, Eyge = -2055.8120 um









0.05 nC

49972 particles in distribution

-49.97 pC total charge

Position 1.47

2.07440e-01 MeV, beta\*gamma 1.0, beta 0.7029

2.80473e+00 keV sig energy spread

24.99629 ps, sig time at cathode

sigx = 1.8566 mm, sigy = 1.8565 mm

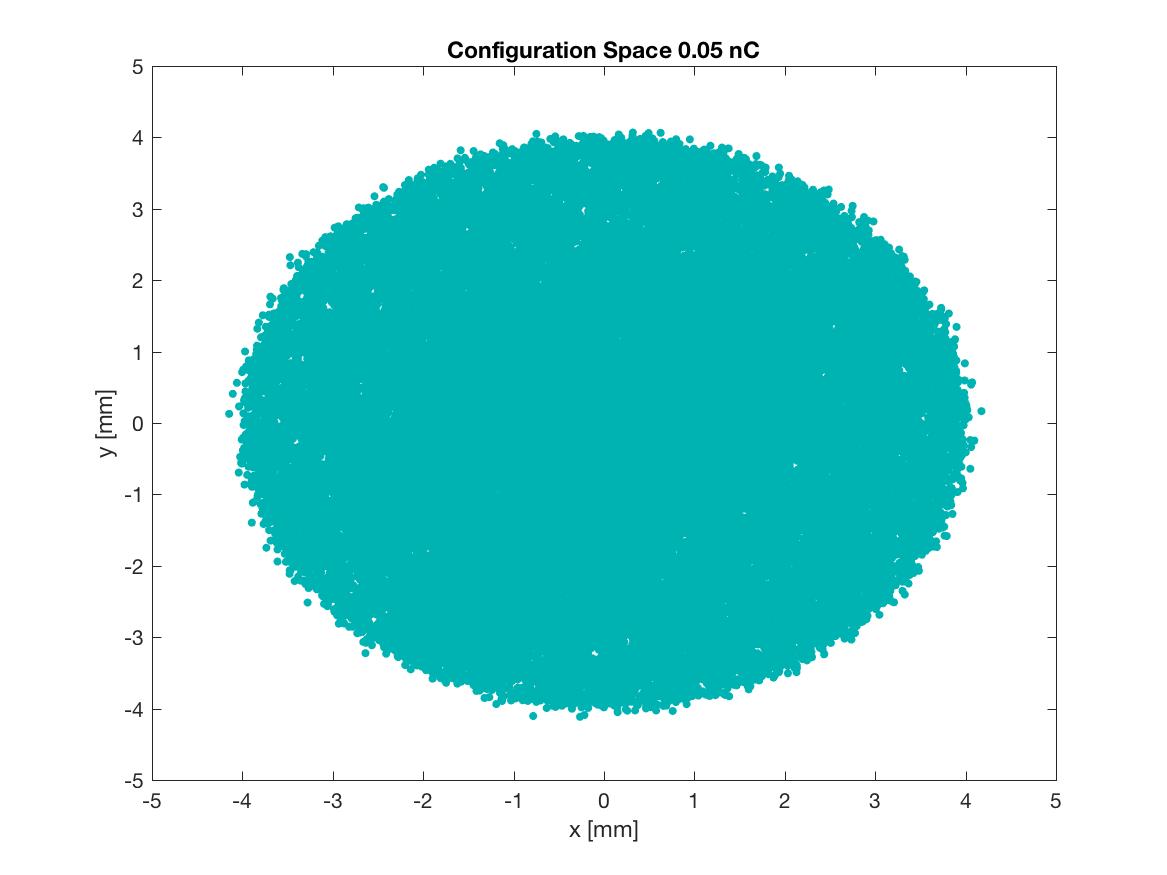
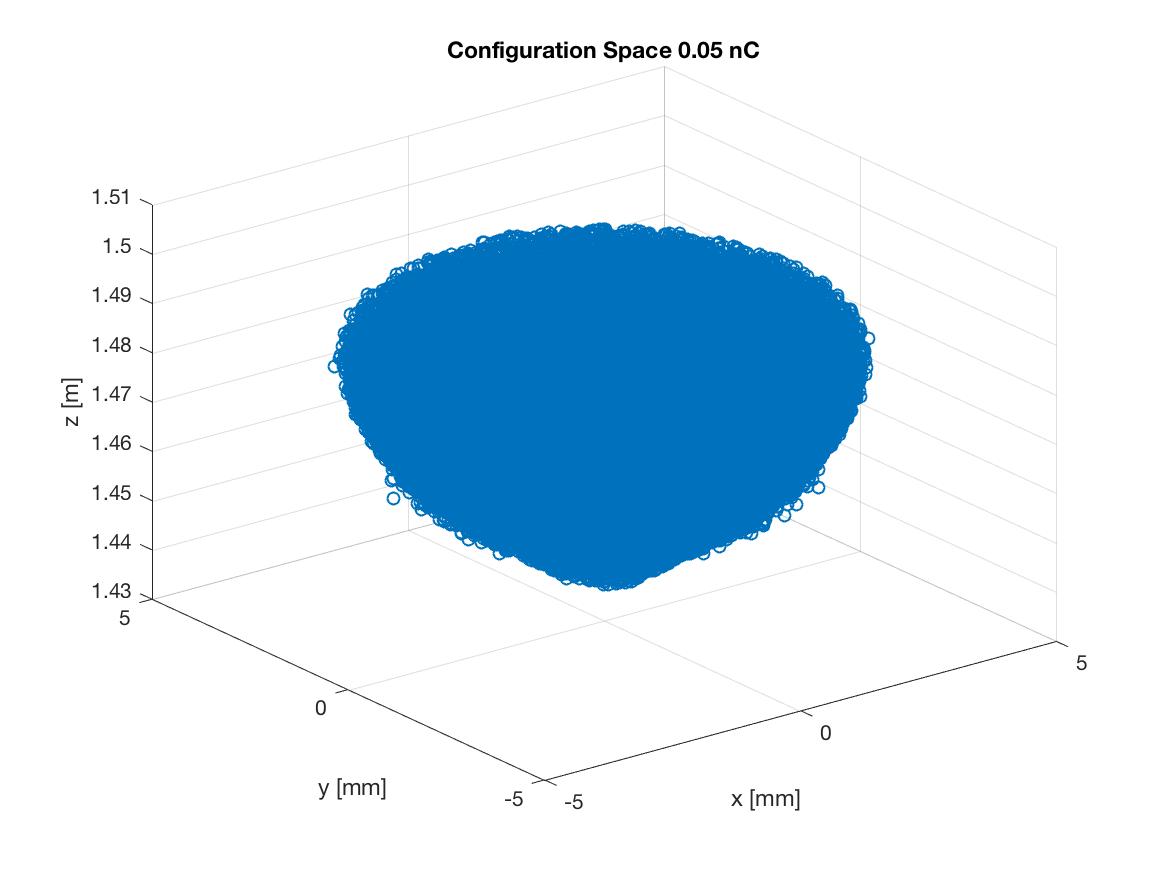
sigxp = 7.4244 mrad, sigyp = 7.4232 mrad

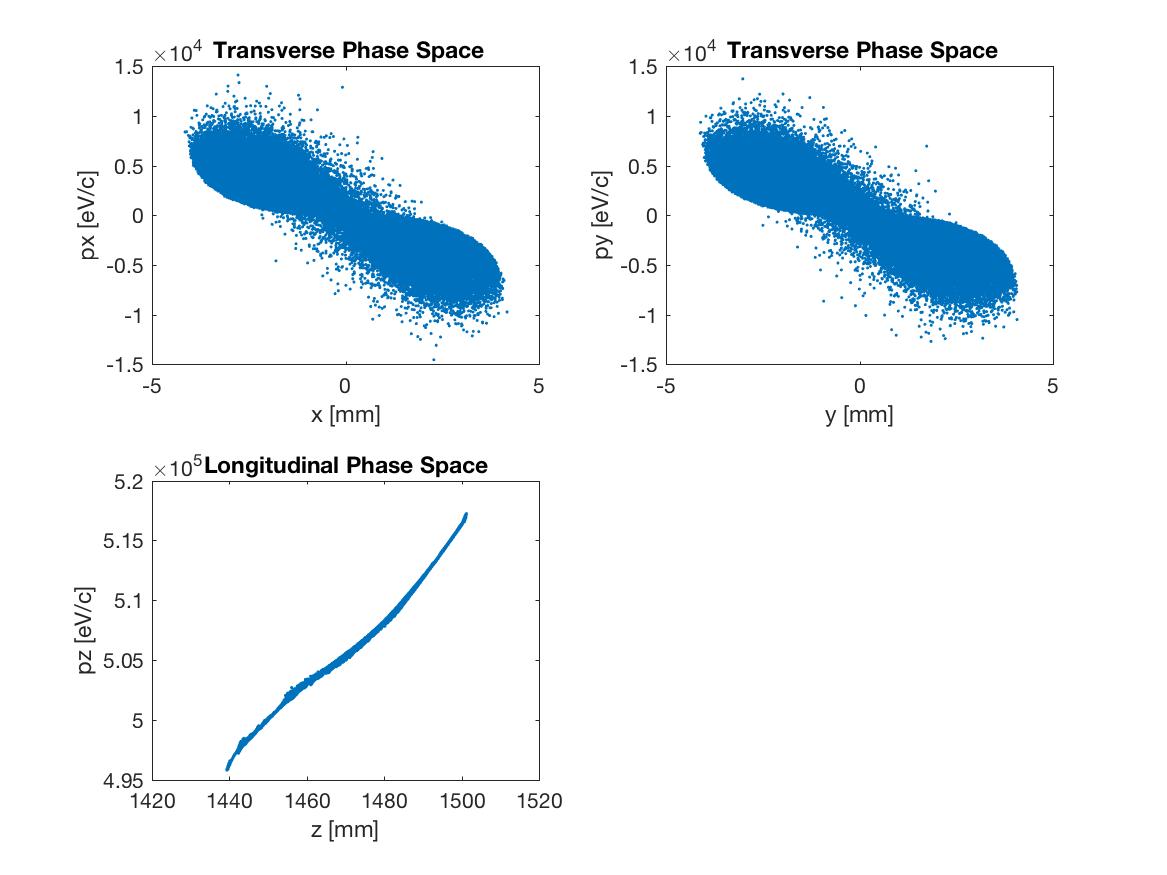
sigz = 13.5067 mmnEnz = 5.7310 keV mm = 27.1767 keV ps

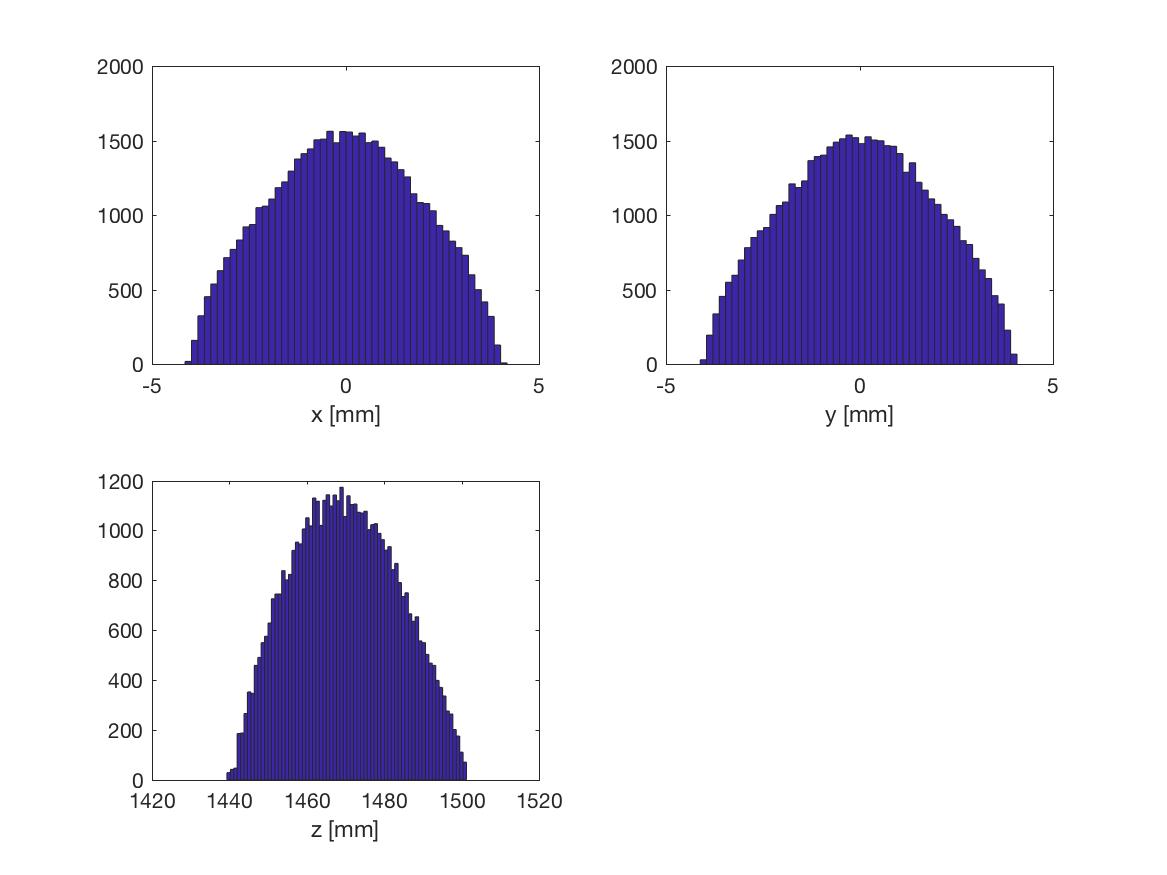
Enxps = 6.7144 um, Enyps = 6.7161 um

Enxtr = 6.7828 um, Enytr = 6.7845 um

Exge = 6.7941 um, Eyge = 6.7958 um

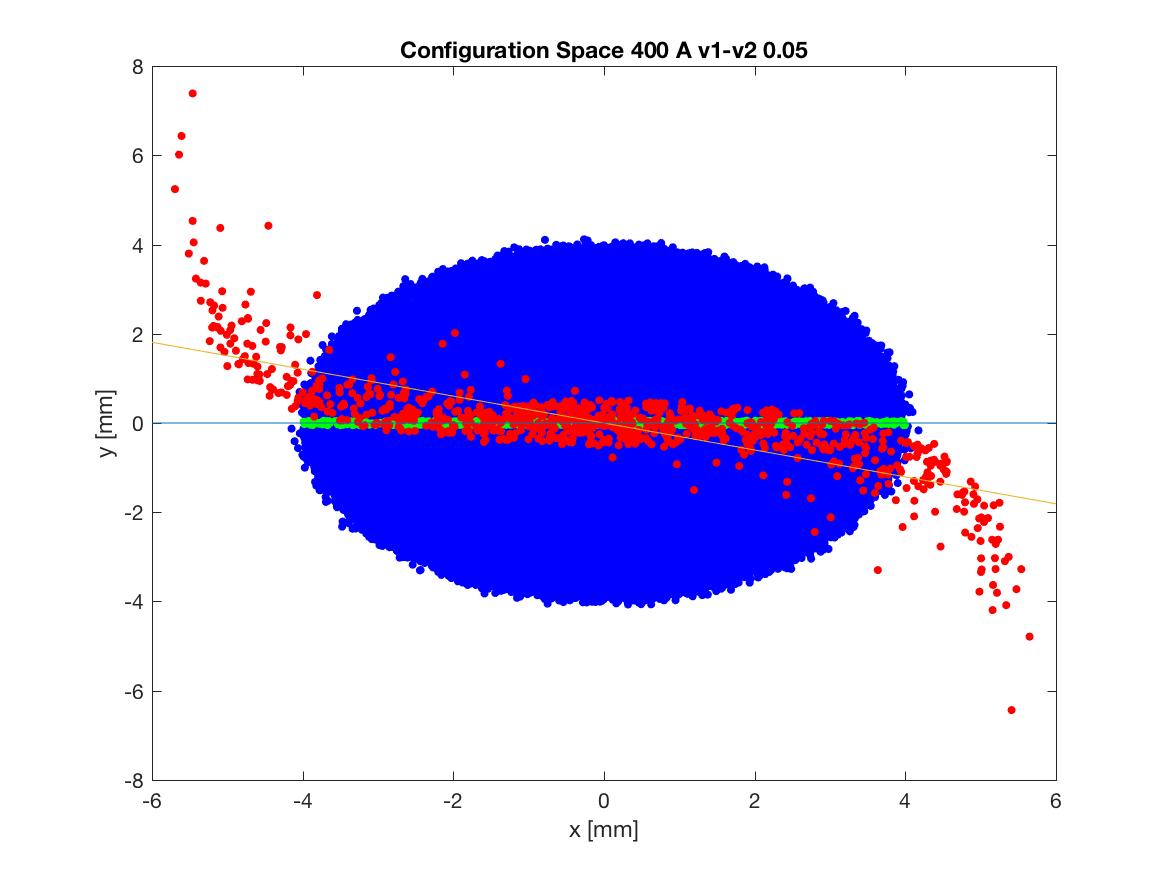






angle in radv1-v2= -2.930304e-01

angle in degreev1-v2= -1.679792e+01



* 1. nC

50000 particles in distribution

-10.00 pC total charge

Position 1.47

2.07581e-01 MeV, beta\*gamma 1.0, beta 0.7031

1.12912e+00 keV sig energy spread

25.00026 ps, sig time at cathode

sigx = 1.1355 mm, sigy = 1.1356 mm

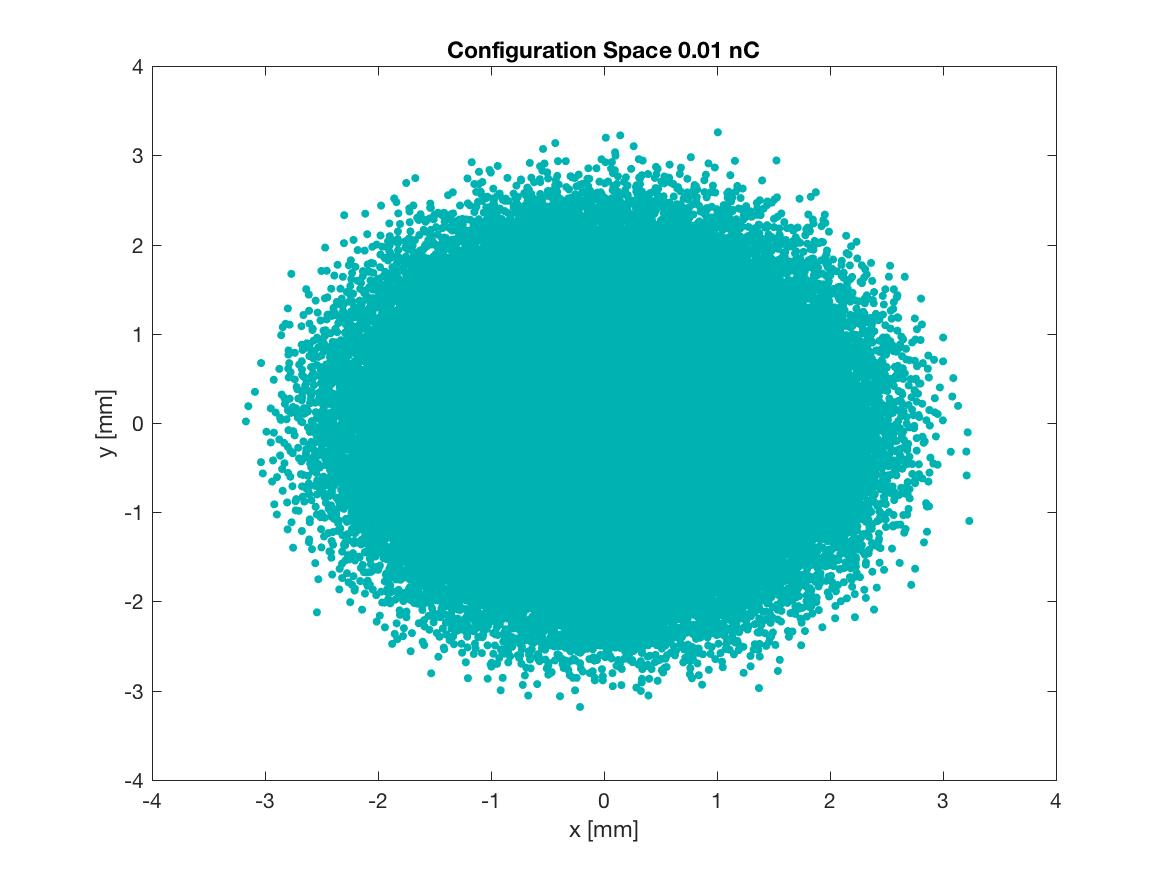
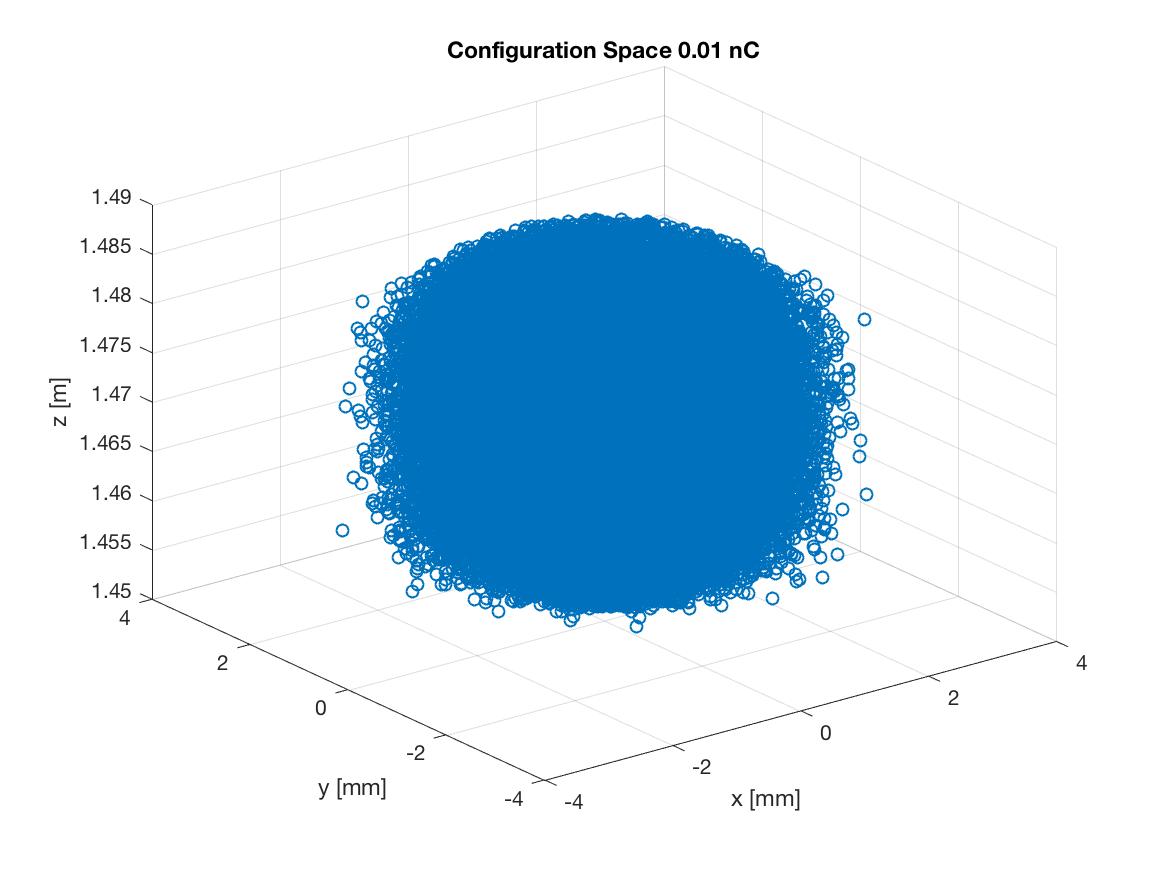
sigxp = 6.3732 mrad, sigyp = 6.3706 mrad

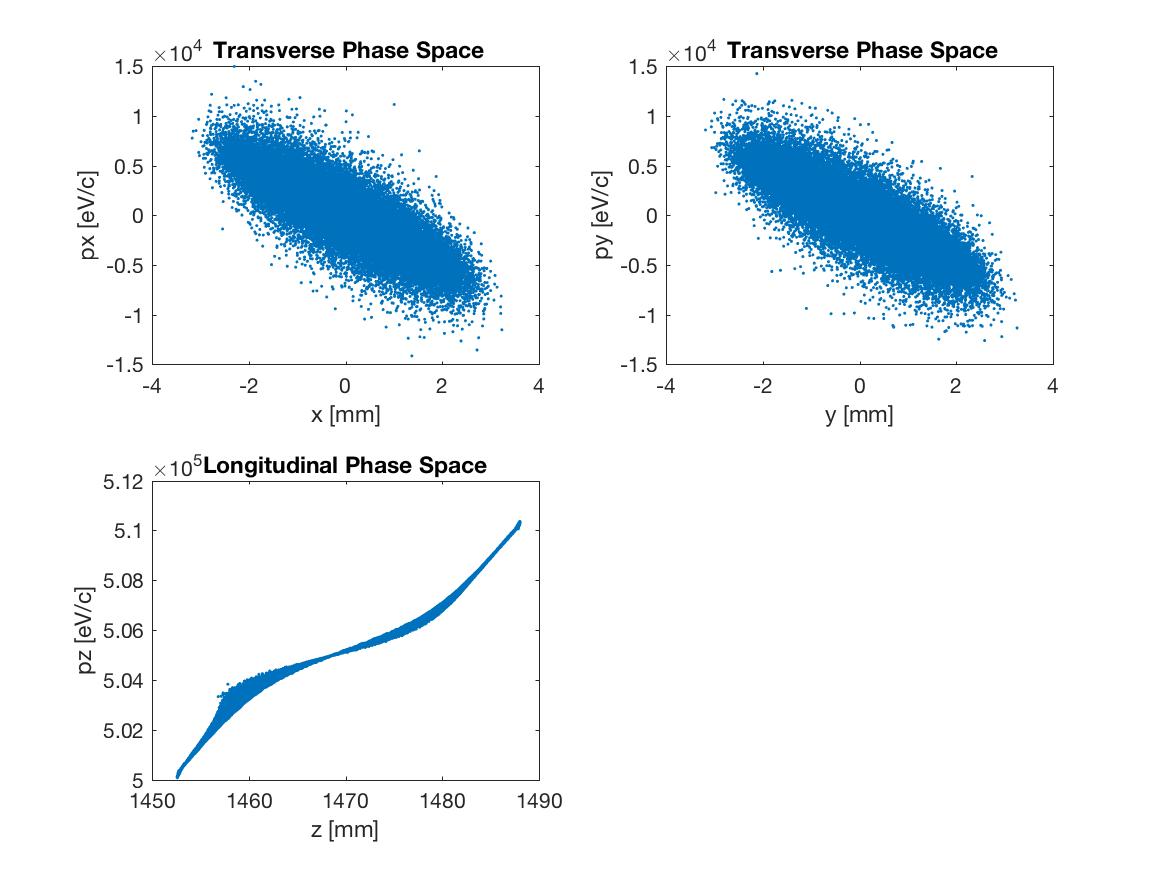
sigz = 7.9001 mmnEnz = 2.6807 keV mm = 12.7097 keV ps

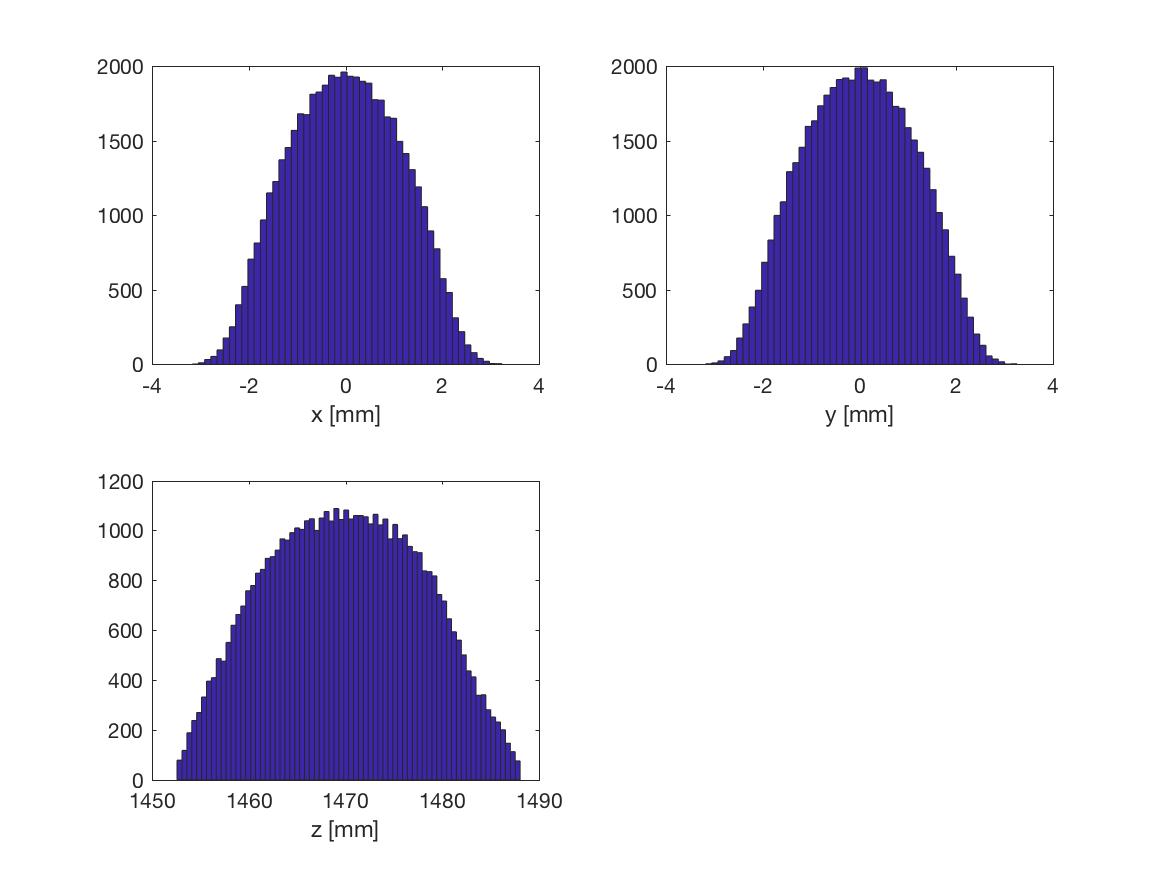
Enxps = 3.8255 um, Enyps = 3.8262 um

Enxtr = 3.8296 um, Enytr = 3.8303 um

Exge = 3.8693 um, Eyge = 3.8701 um







angle in radv1-v2= -7.729033e-01

angle in degreev1-v2= -4.430656e+01

