Fun4All Calorimeter Plots

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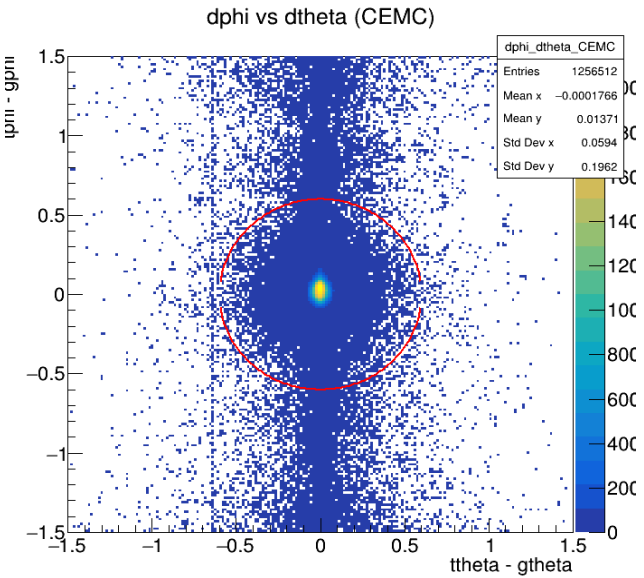
Fun4All QA Biweekly Meeting
14 May 2021

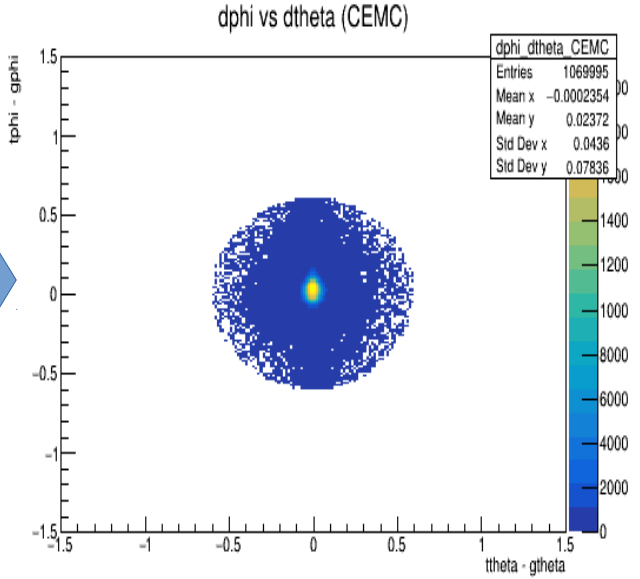
Details:

- Particle: e-, pi- , K-
- Statistics: 100000
- ge and gp range: 0-30 GeV
- geta range: -4 to 4
- **NO ENERGY CUT (only geta cuts and circular cuts employed)**
- **Photon digitization: turned off**
- **Sampling fraction problem in CEMC**
- **Readjustment of geta cuts removed excess of zeroes in the various energy plots**

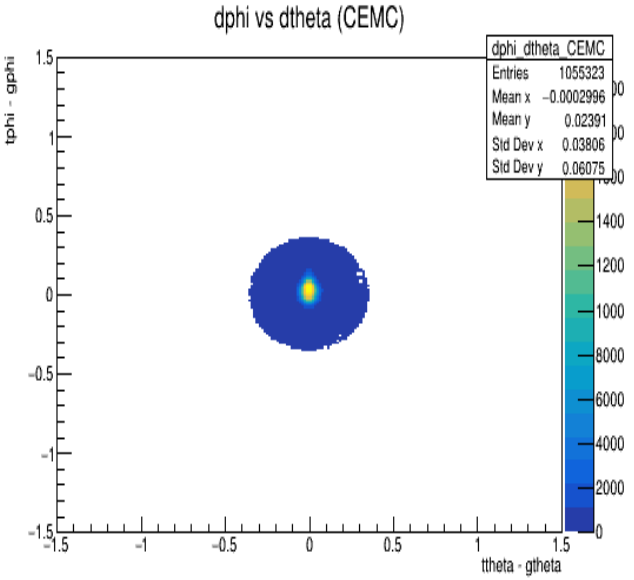
Electron – CEMC (η = -1.5 to 1.2)



Before circular cut



After circular cut (radius = 0.6)



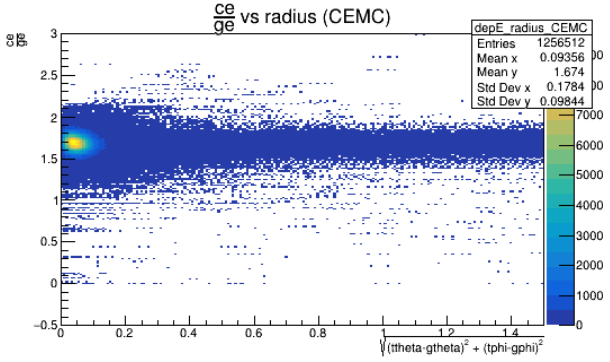
After circular cut (radius = 0.35)

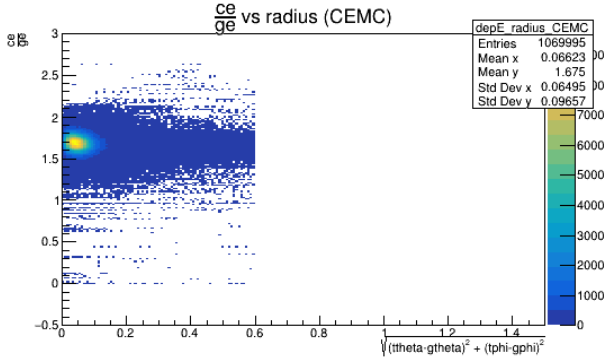
Electron – CEMC (η = -1.5 to 1.2)

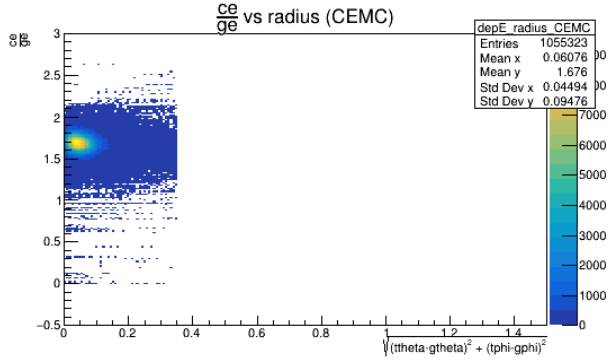
Before circular cut

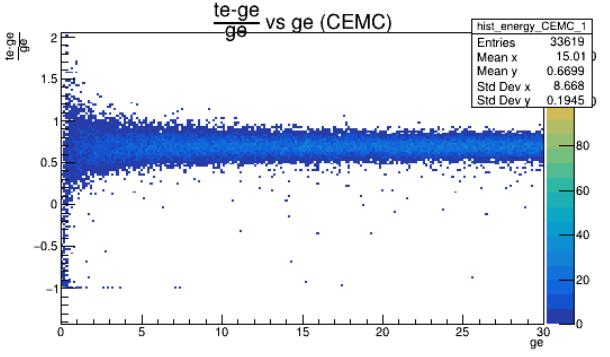
After circular cut (radius = 0.6)

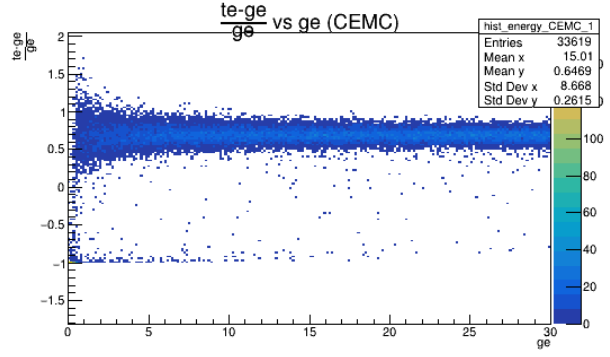
After circular cut (radius =0.35)

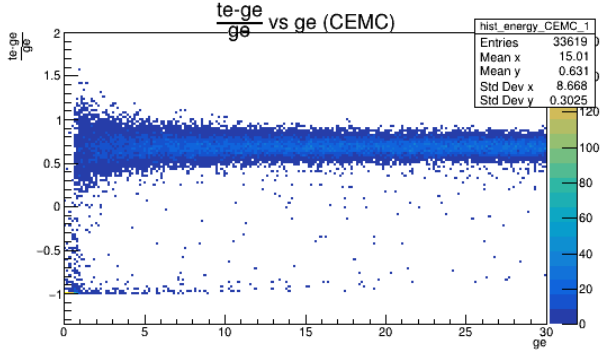






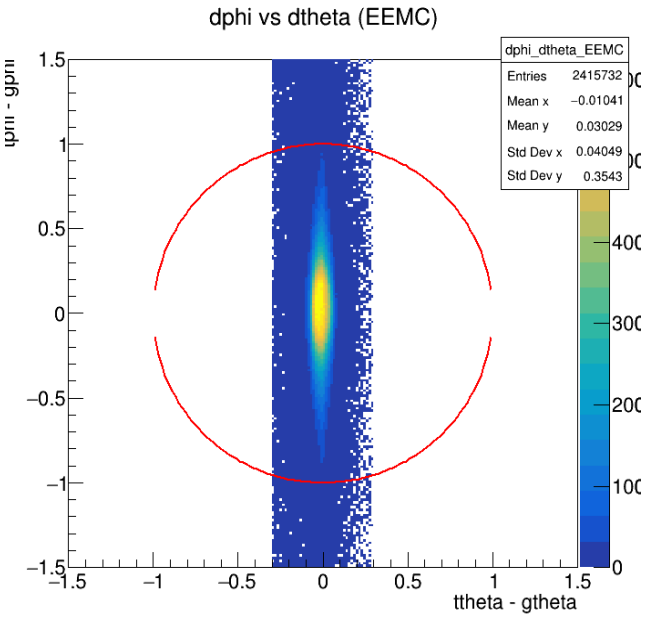




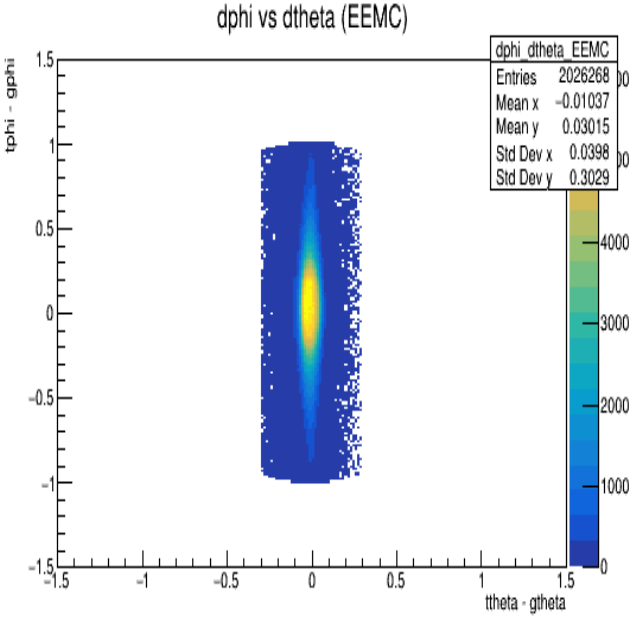


Electron – EEMC (η = -3.5 to -1.7)

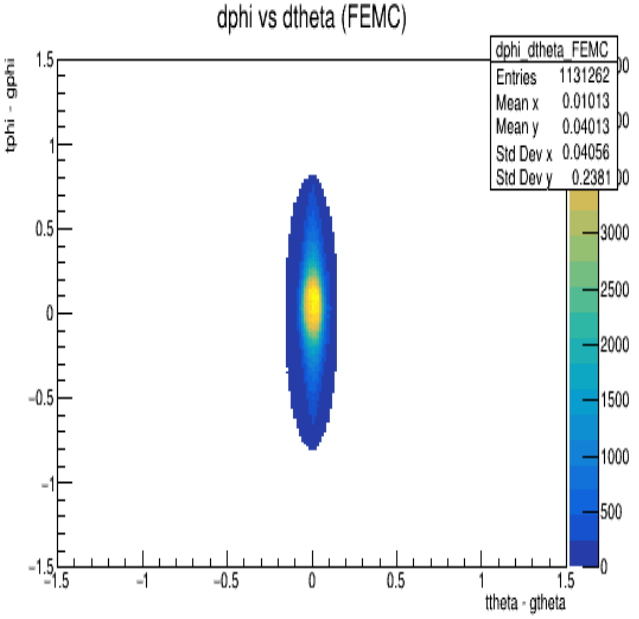
Before circular cut



After circular cut (radius = 1)



After elliptical cut

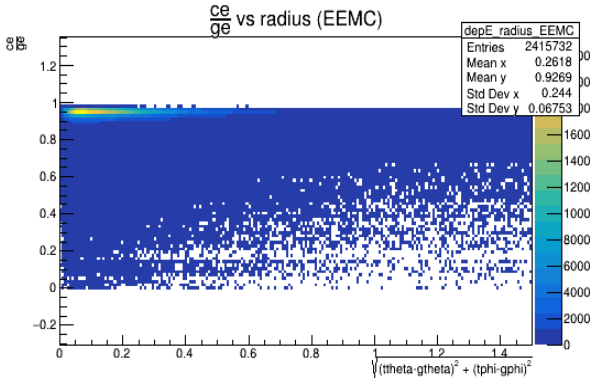


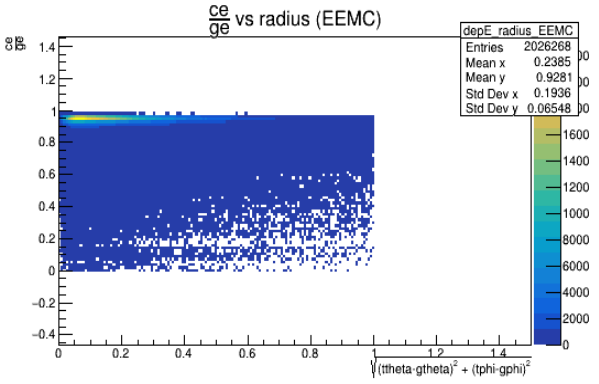
Electron – EEMC (η = -3.5 to -1.7)

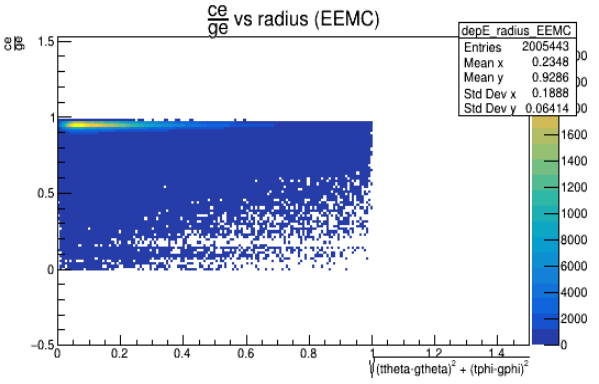
Before circular cut

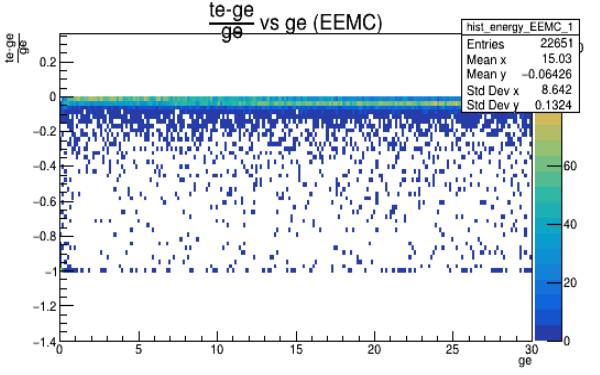
After circular cut (radius = 1)

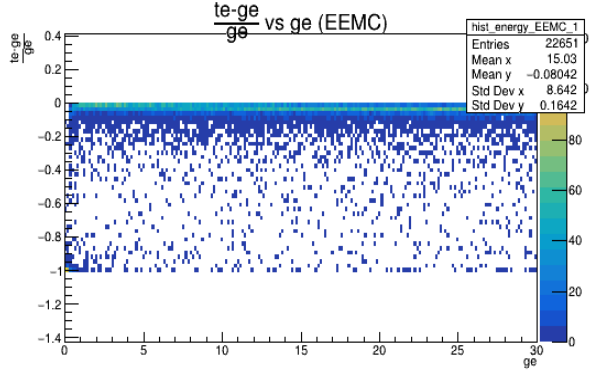
After elliptical cut

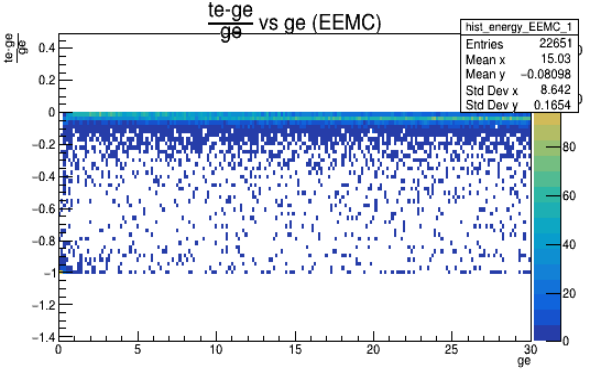






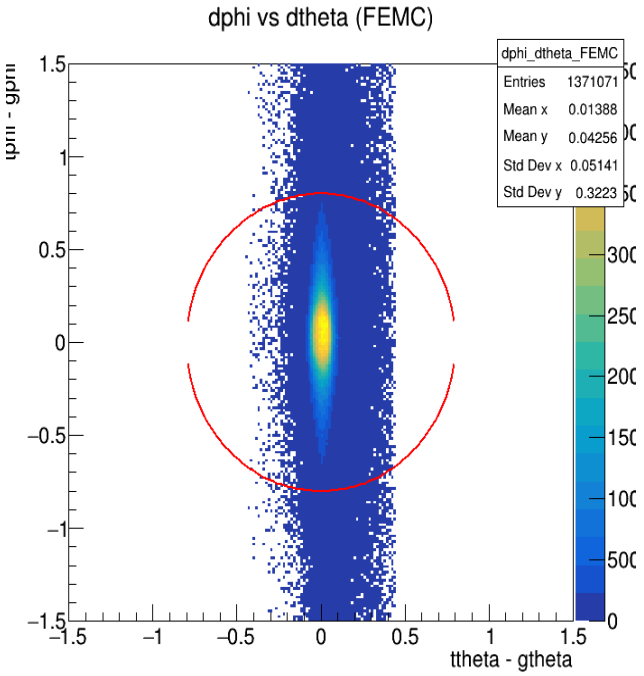




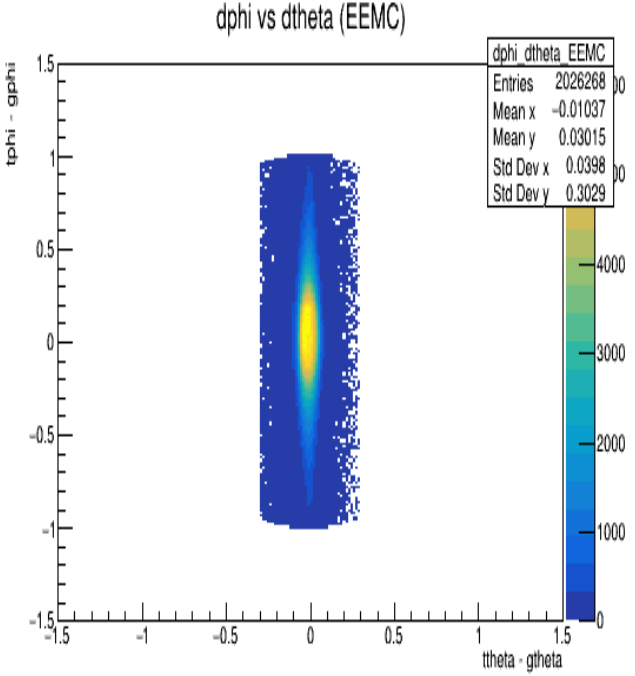


Electron – FEMC (η = 1.3 to 3.3)

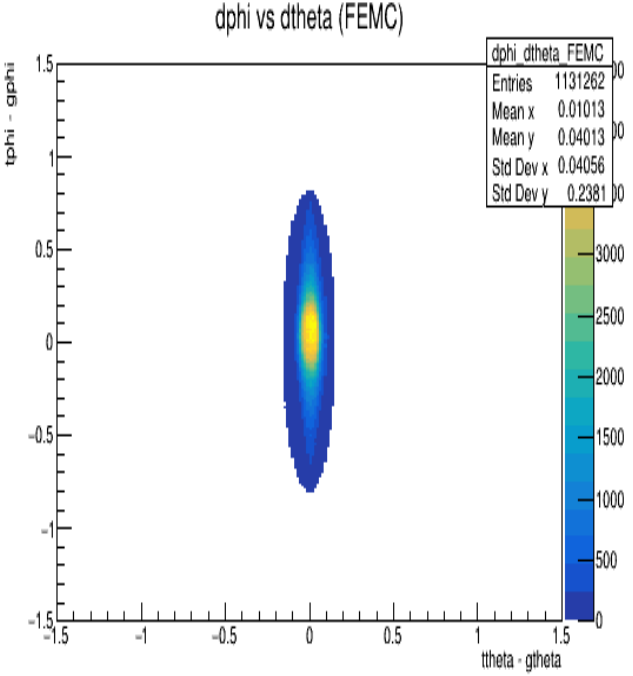
Before circular cut



After circular cut (radius = 0.8)



After elliptical cut

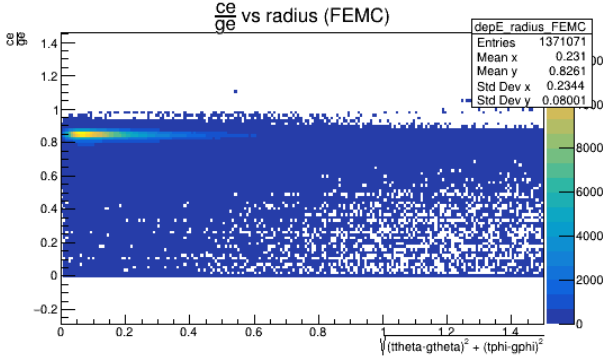


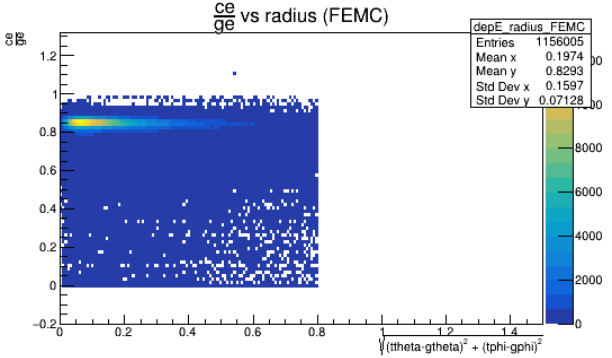
Electron – FEMC (η = 1.3 to 3.3)

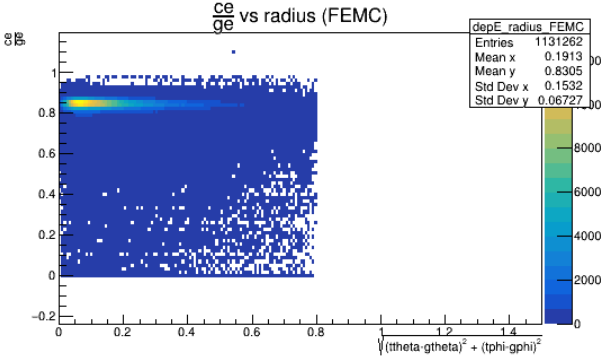
Before circular cut

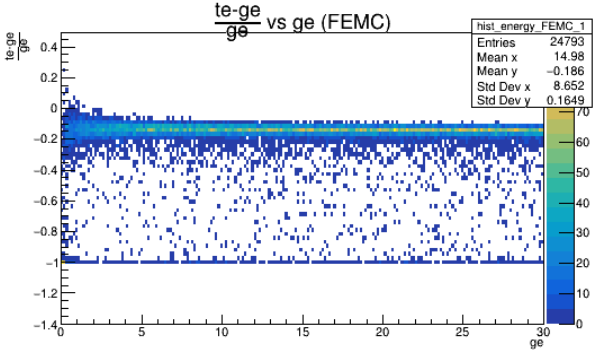
After circular cut (radius = 0.8)

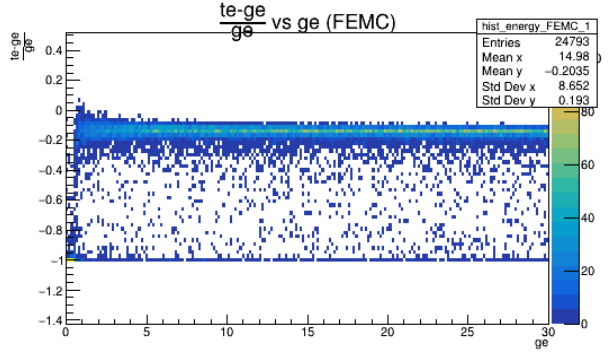
After elliptical cut

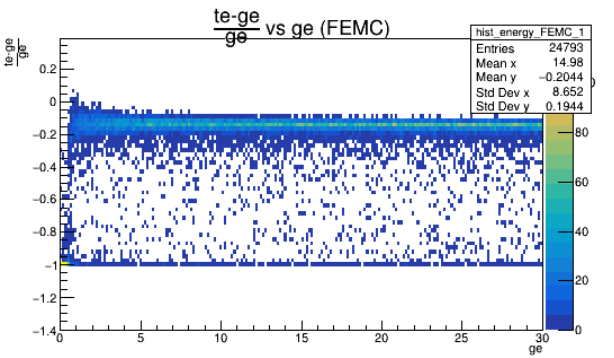






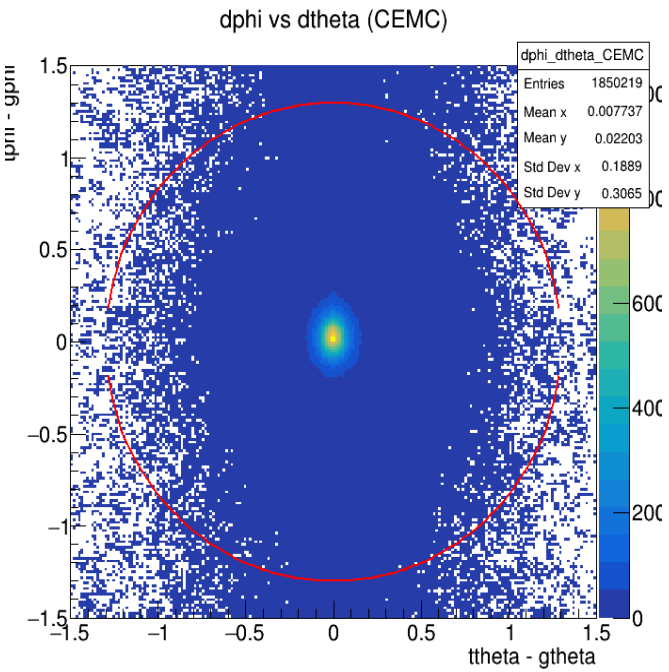




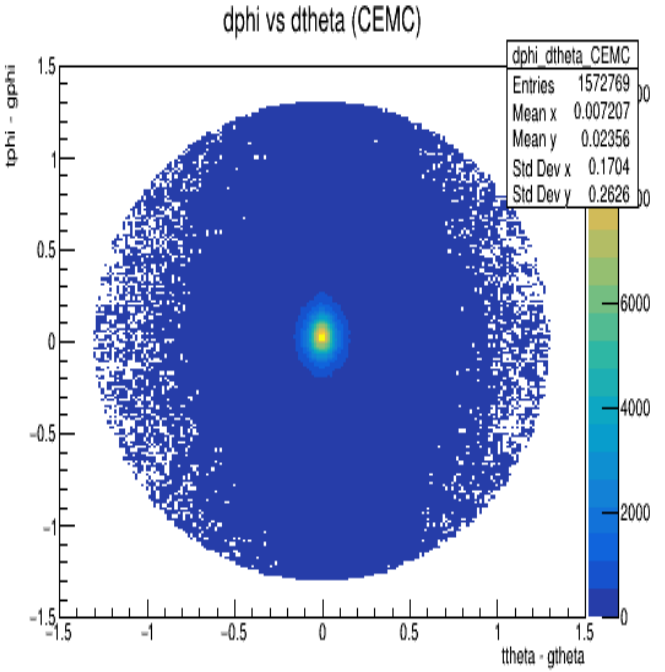


Pion – CEMC (η = -1.1 to 1.1)

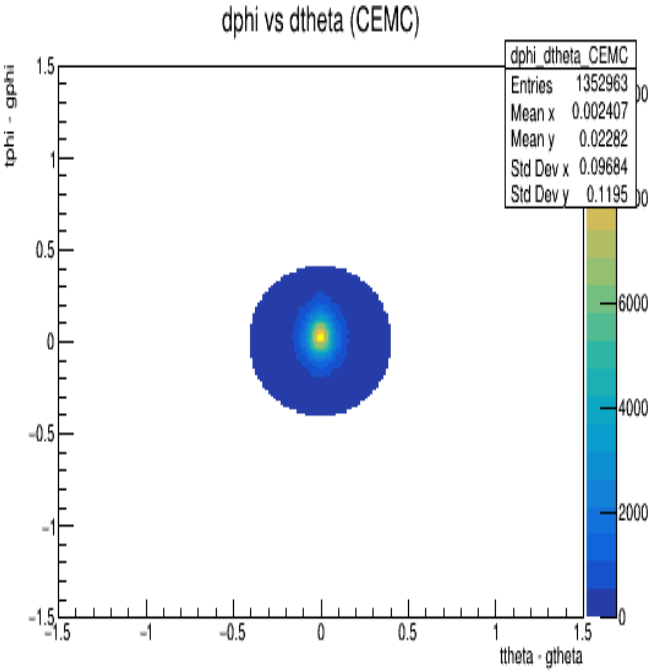
Before circular cut



After circular cut (radius = 1.3)

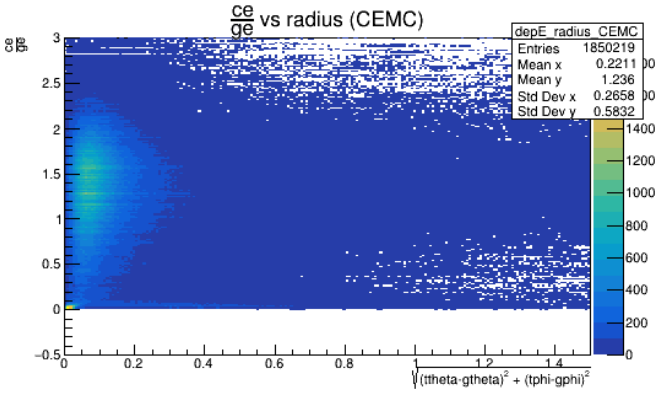


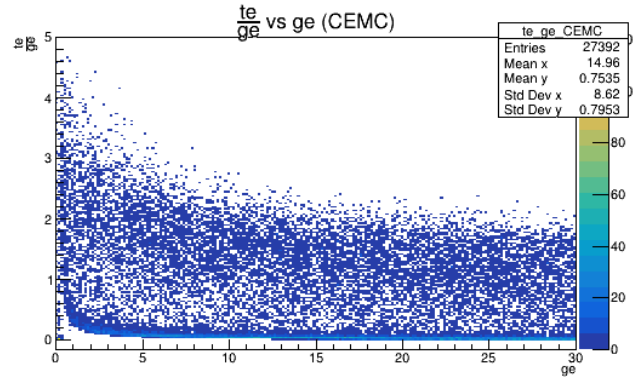
After circular cut (radius = 0.4)



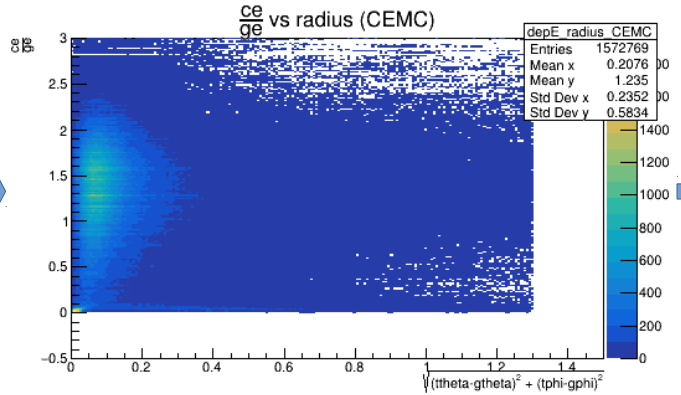
Pion – CEMC (η = -1.1 to 1.1)

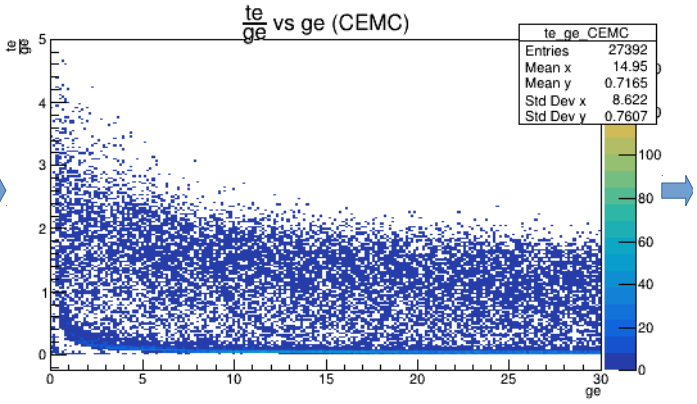
Before circular cut



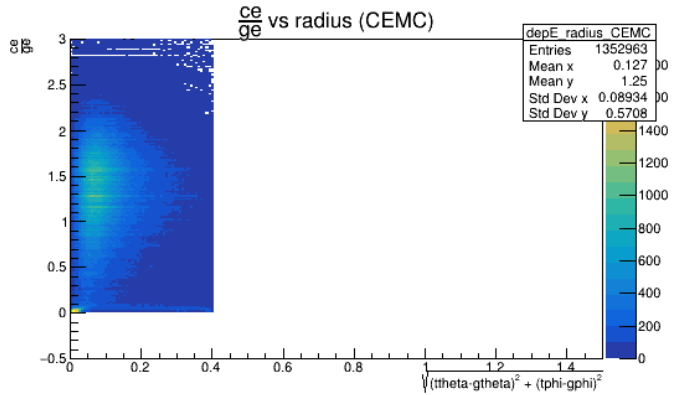


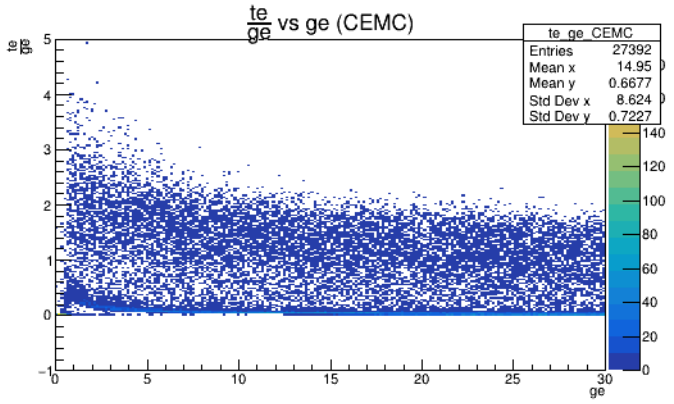
After circular cut (radius = 1.3)





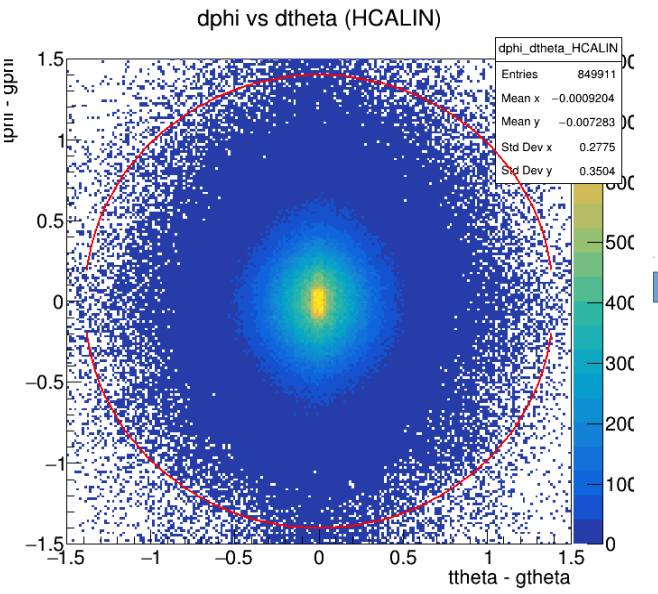
After circular cut (radius = 0.4)



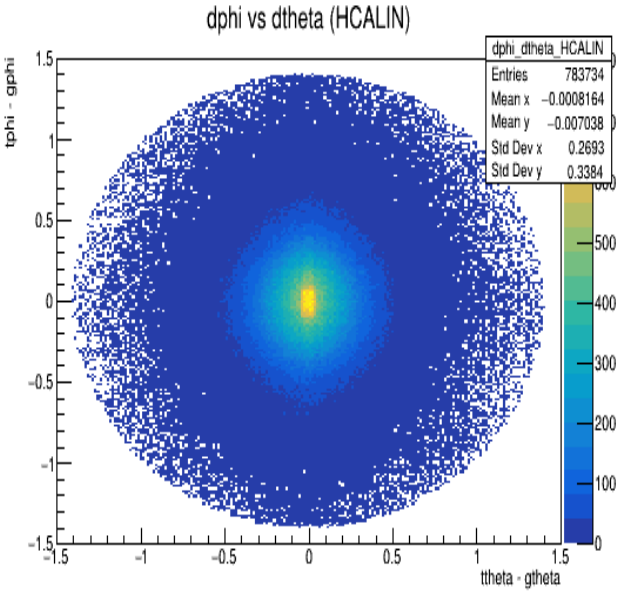


Pion – HCALIN (η = -1.1 to 1.1)

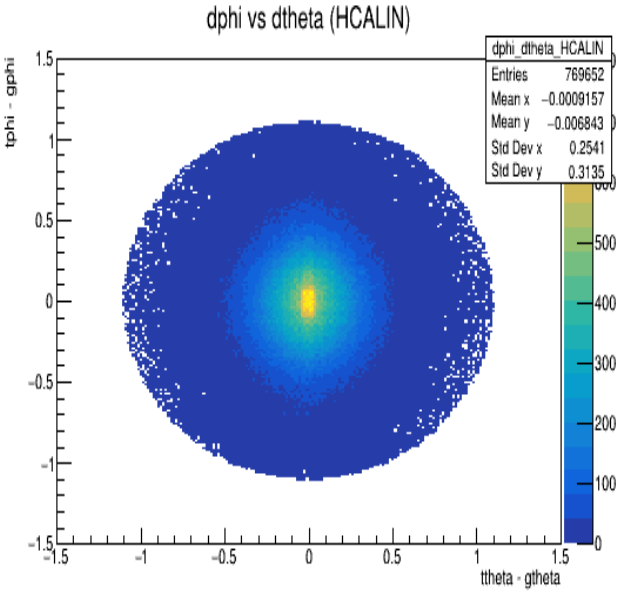
Before circular cut



After circular cut (radius = 1.4)



After circular cut (radius = 1.1)

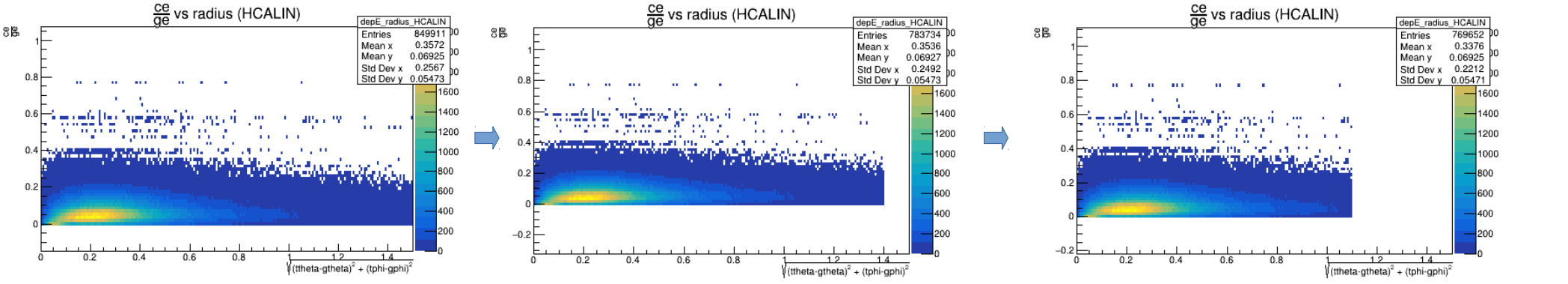


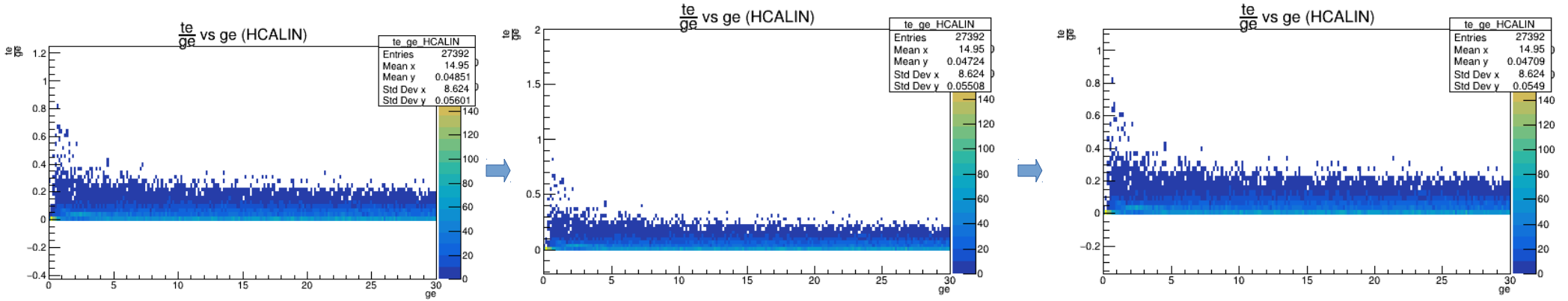
Pion – HCALIN (η = -1.1 to 1.1)

Before circular cut

After circular cut (radius = 1.4)

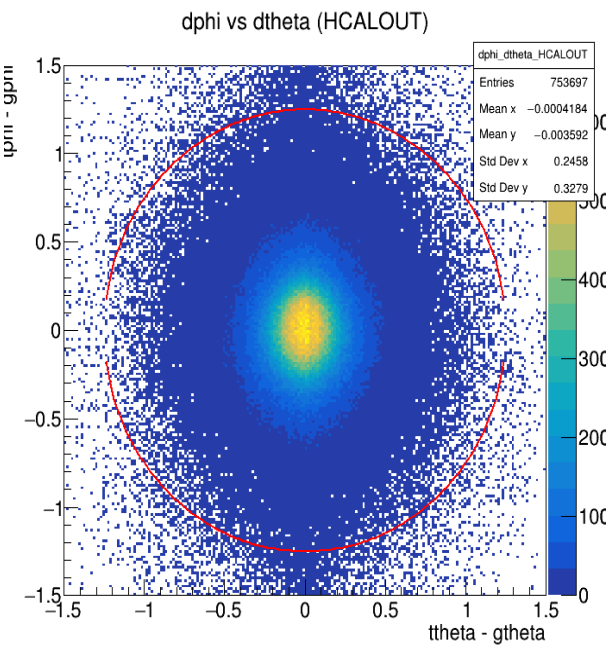
After circular cut (radius = 1.1)



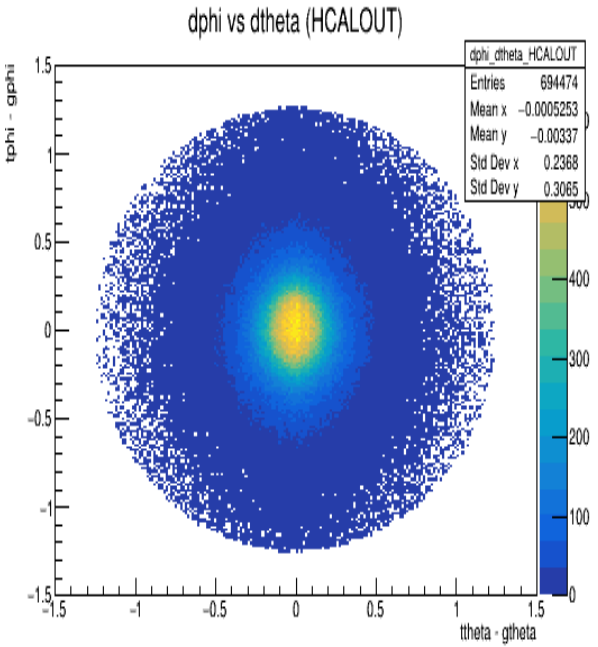


Pion – HCALOUT (η = -1.1 to 1.1)

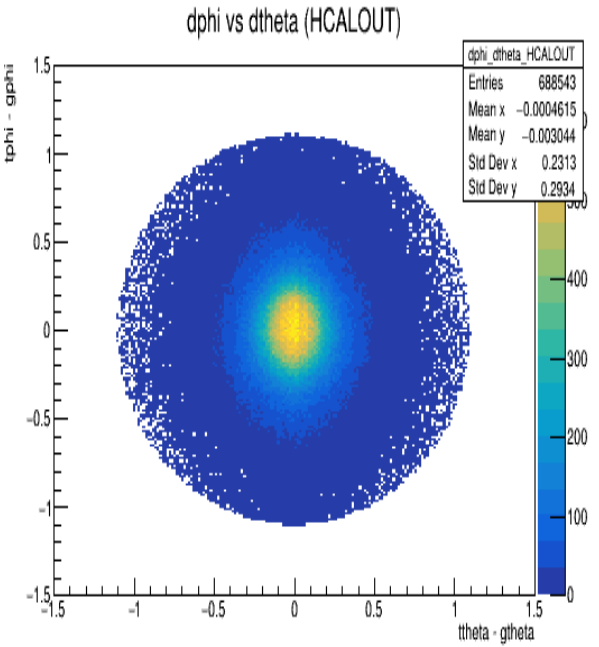
Before circular cut



After circular cut (radius = 1.25)



After circular cut (radius = 1.1)

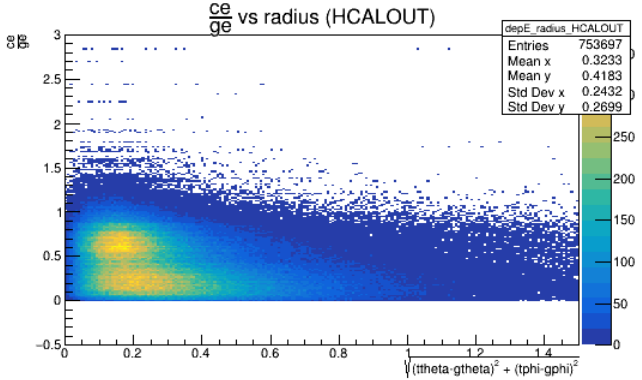


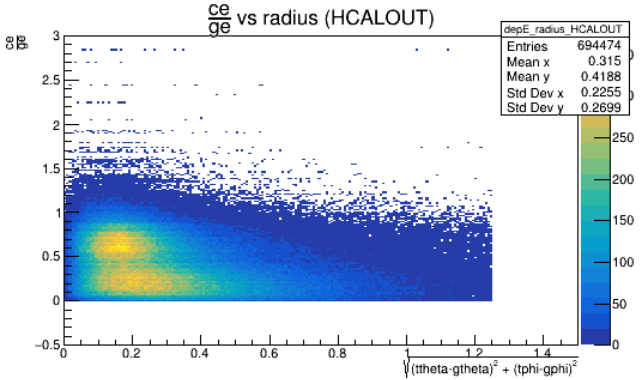
Pion – HCALOUT (η = -1.1 to 1.1)

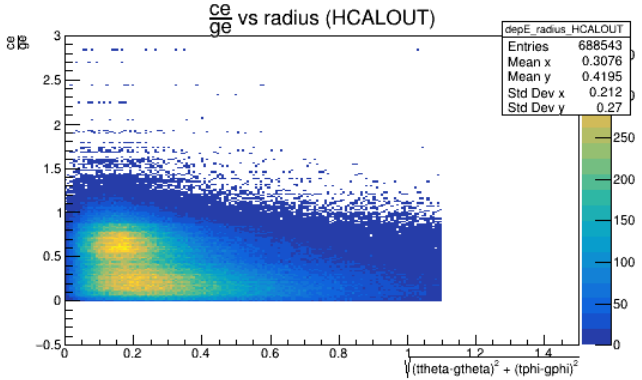
Before circular cut

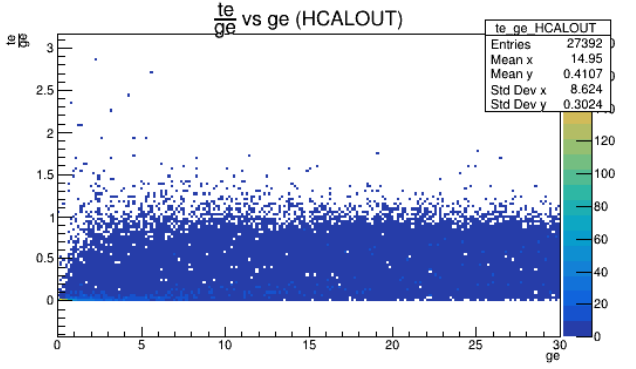
After circular cut (radius = 1.25)

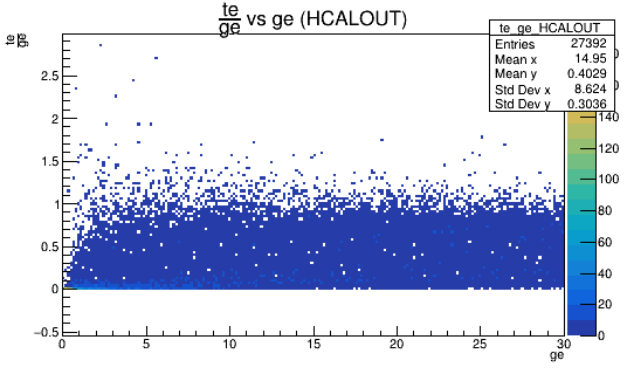
After circular cut (radius = 1.1)

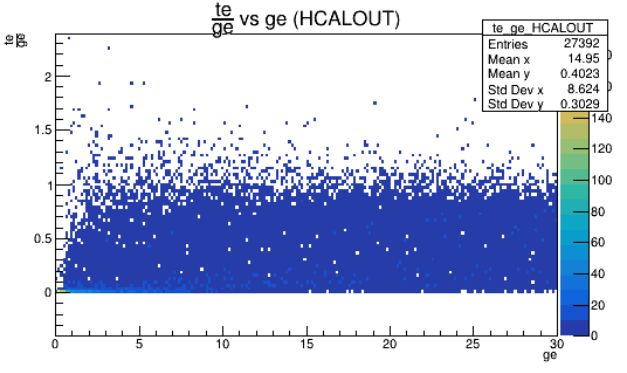






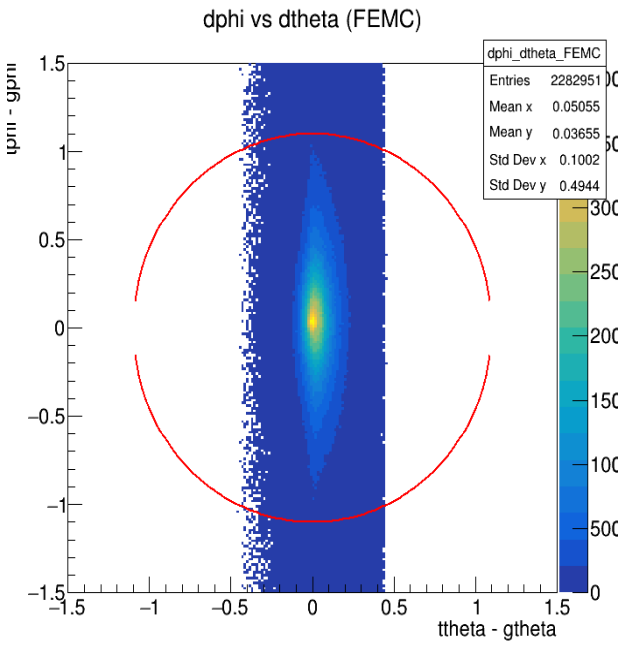




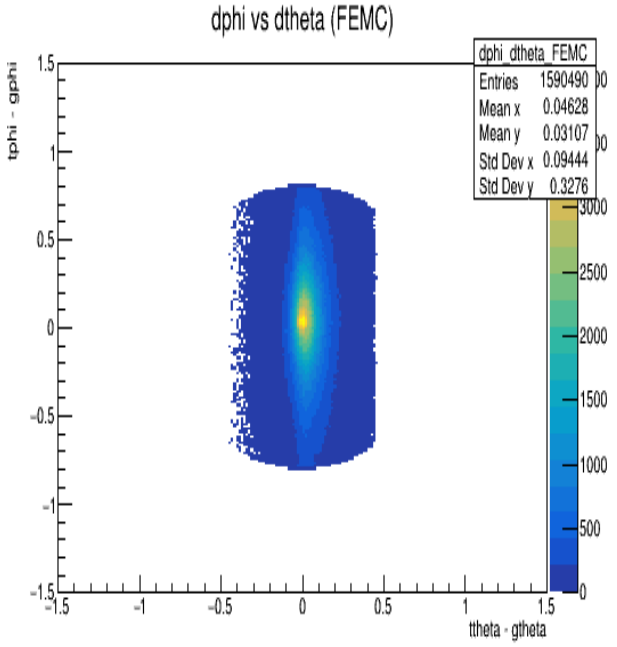


Pion - FEMC(η=1.3 to 3.3)

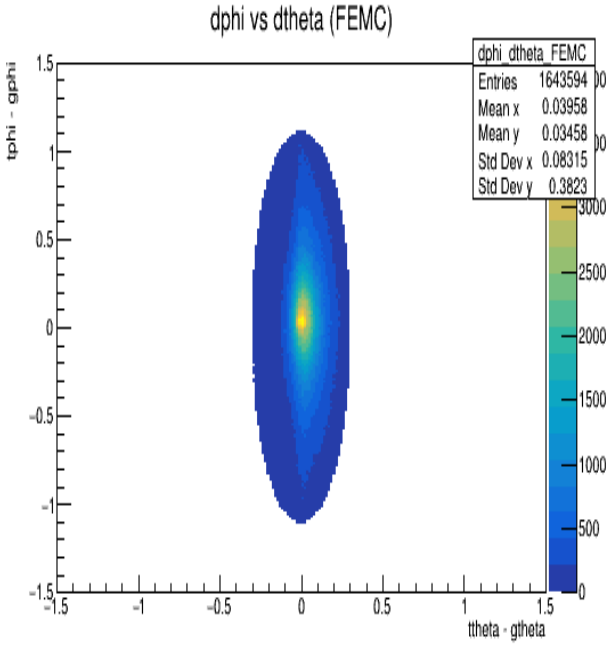
Before circular cut



After circular cut (radius = 1.1)

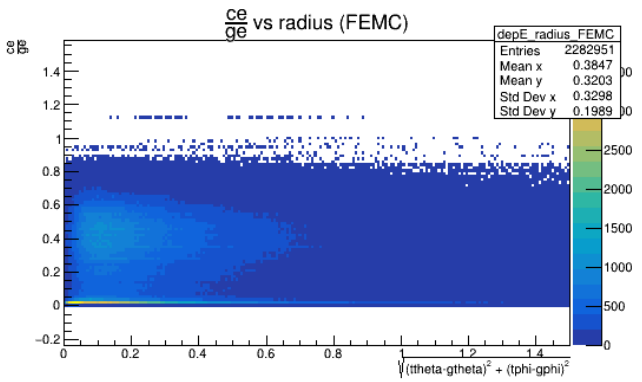


After elliptical cut

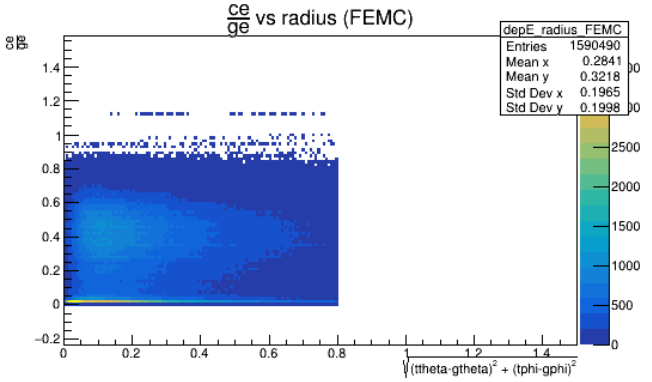


Pion - FEMC(η=1.3 to 3.3)

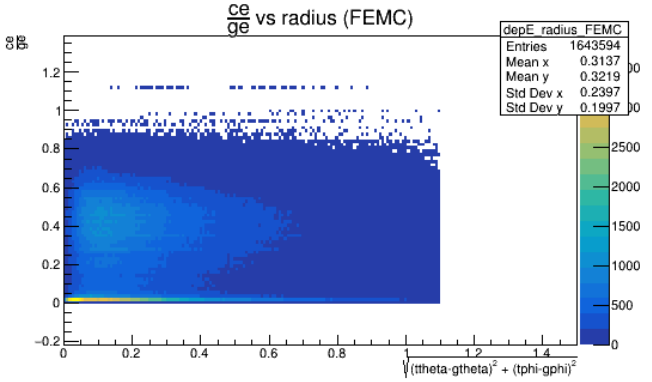
Before circular cut

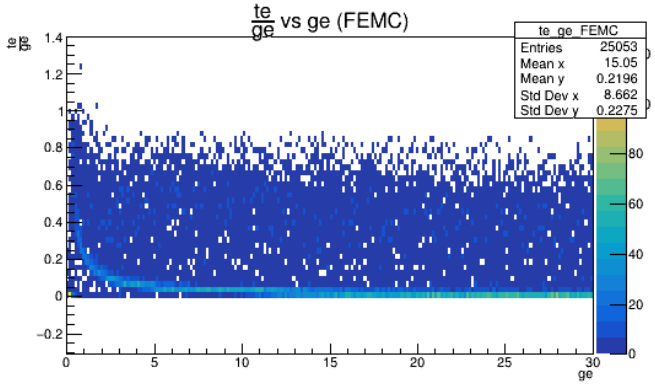


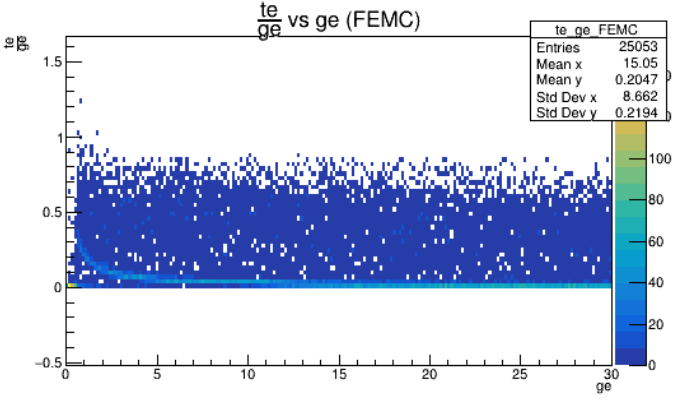
After circular cut (radius = 1.1)

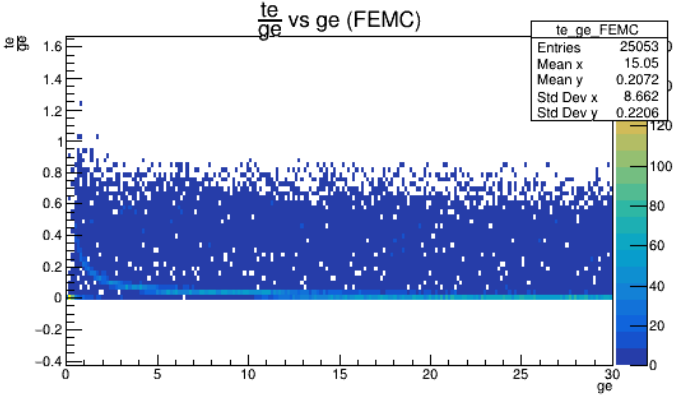


After elliptical cut



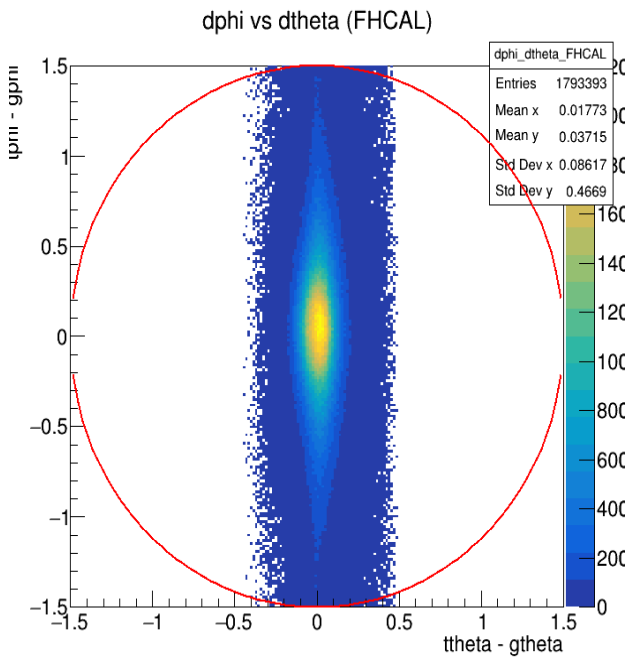




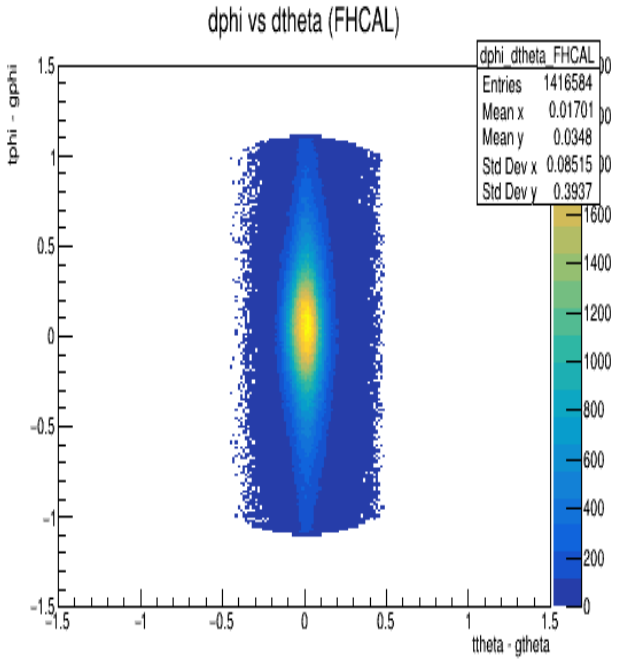


Pion - FHCAL(η=1.3 to 3.3)

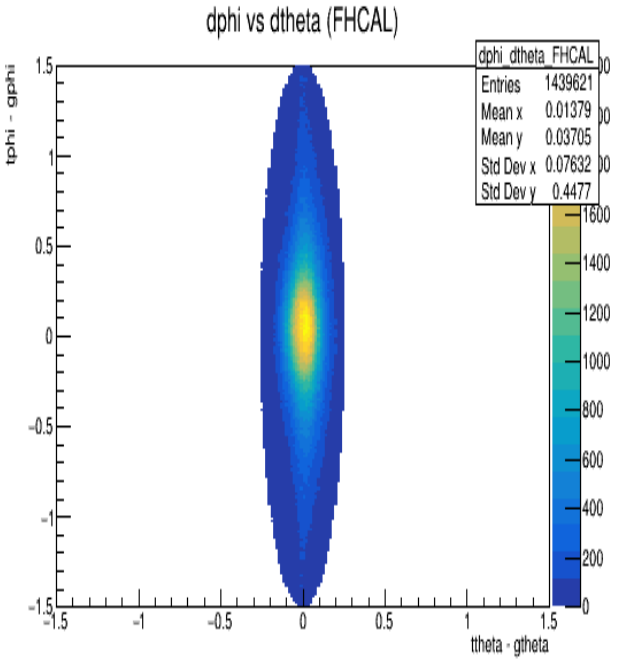
Before circular cut



After circular cut (radius = 1.5)

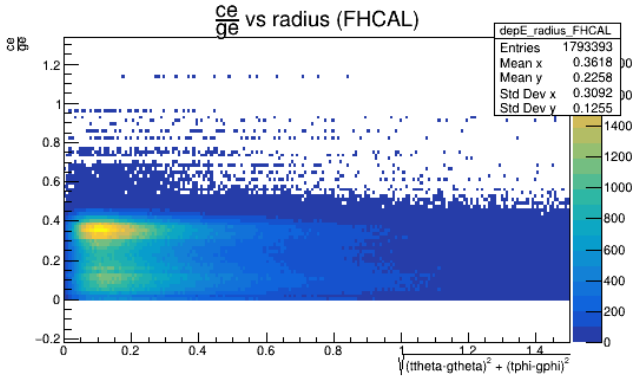


After elliptical cut

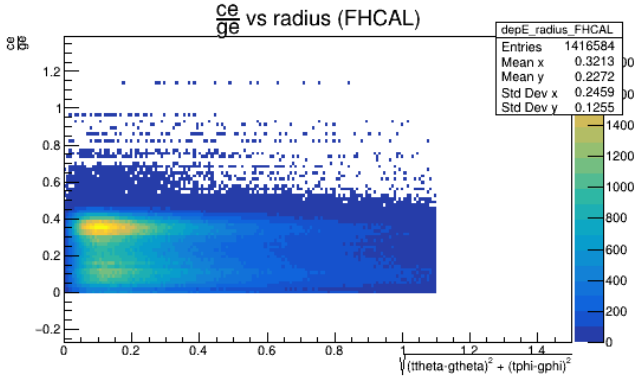


Pion - FHCAL(η=1.3 to 3.3)

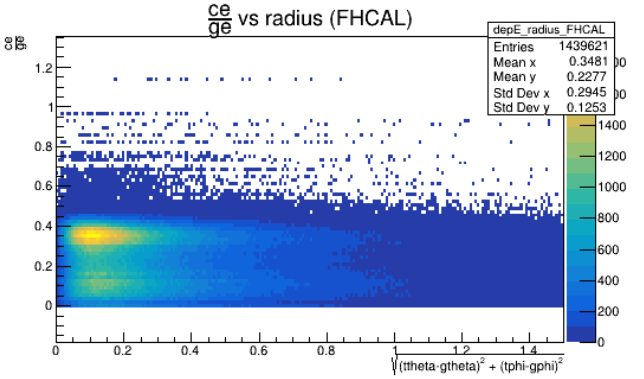
Before circular cut

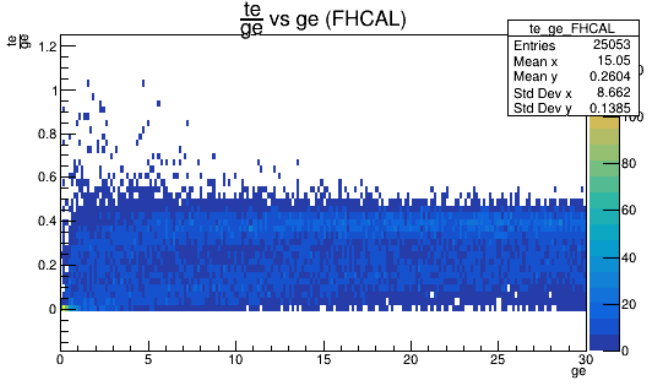


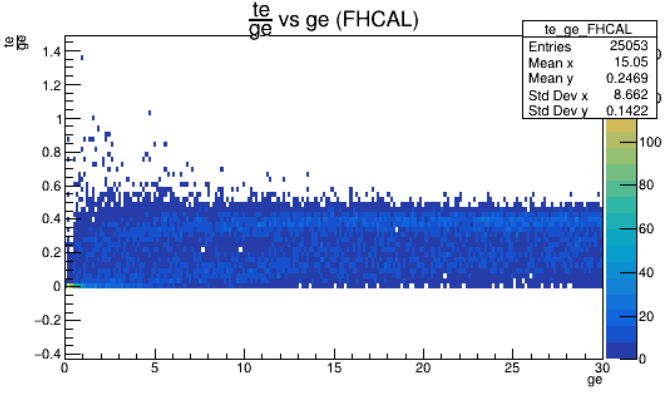
After circular cut (radius = 1.5)

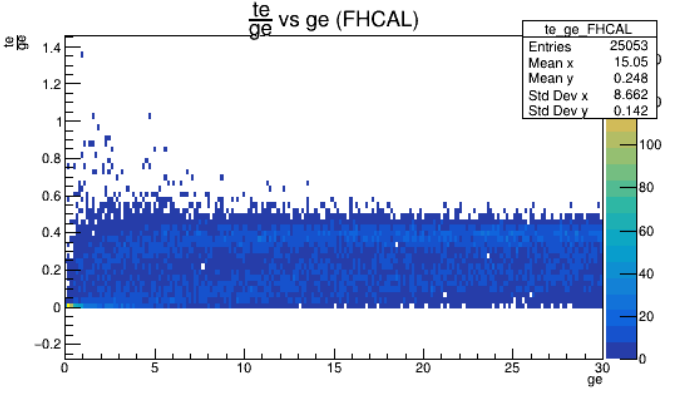


After circular cut (radius = 1.1)



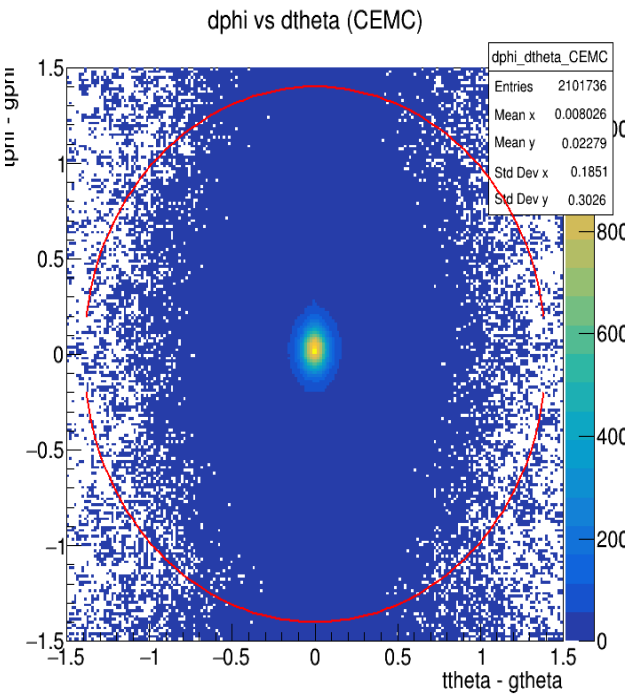




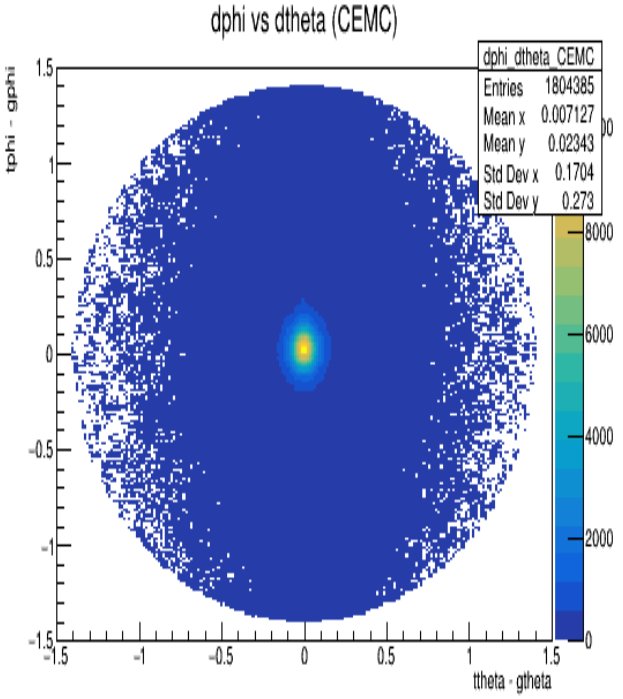


Kaon – CEMC (η = -1.1 to 1.1)

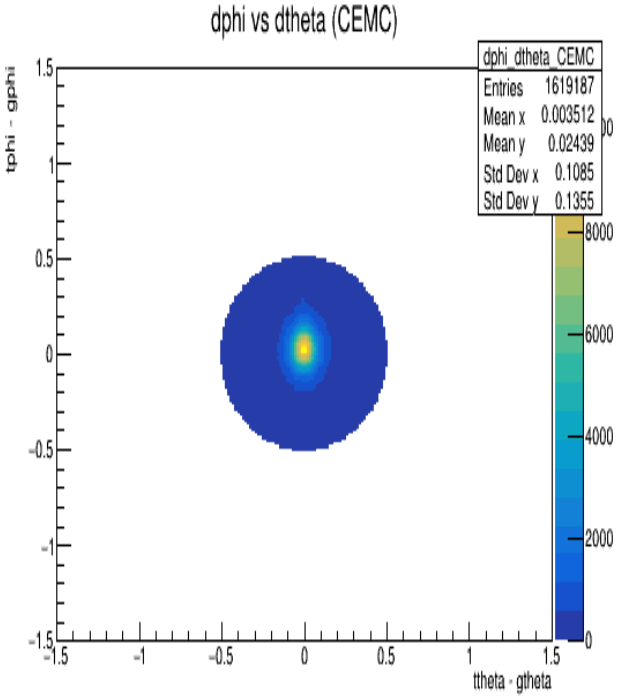
Before circular cut



After circular cut (radius = 1.4)



After circular cut (radius = 0.5)

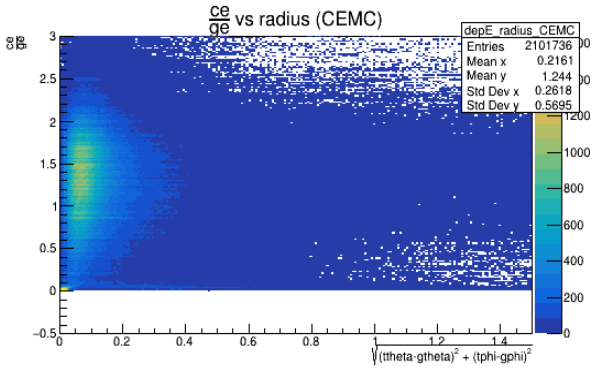


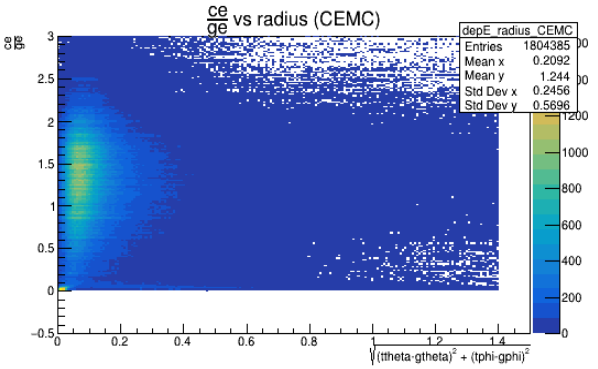
Kaon – CEMC (η = -1.1 to 1.1)

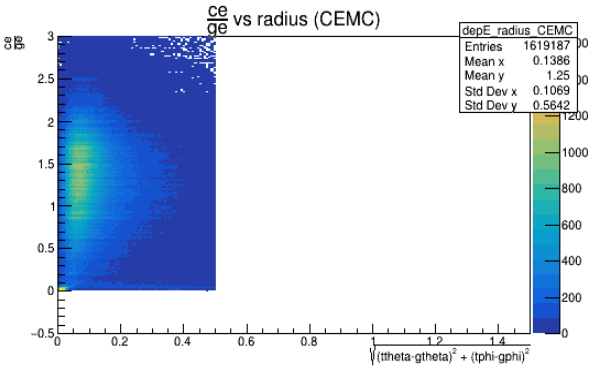
Before circular cut

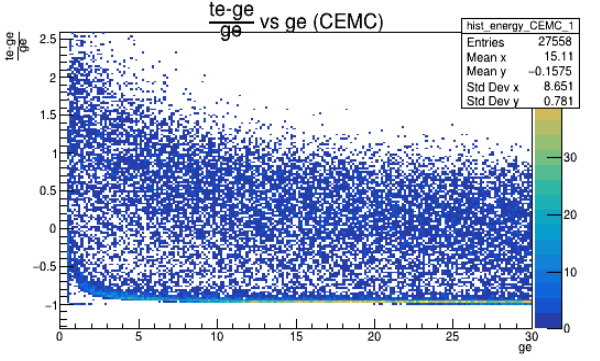
After circular cut (radius = 1.4)

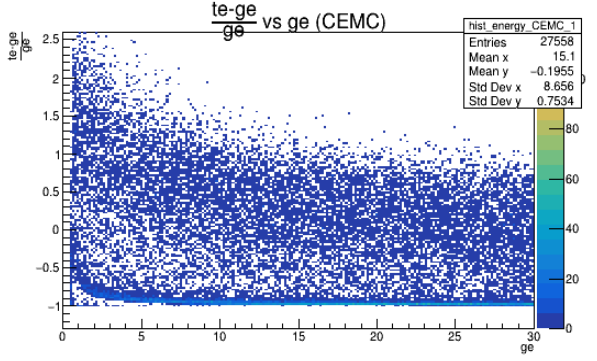
After circular cut (radius = 0.5)

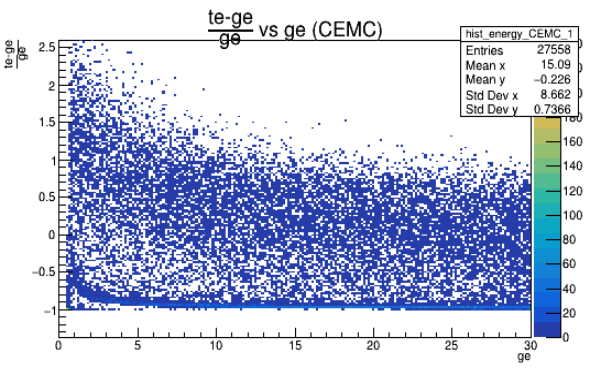






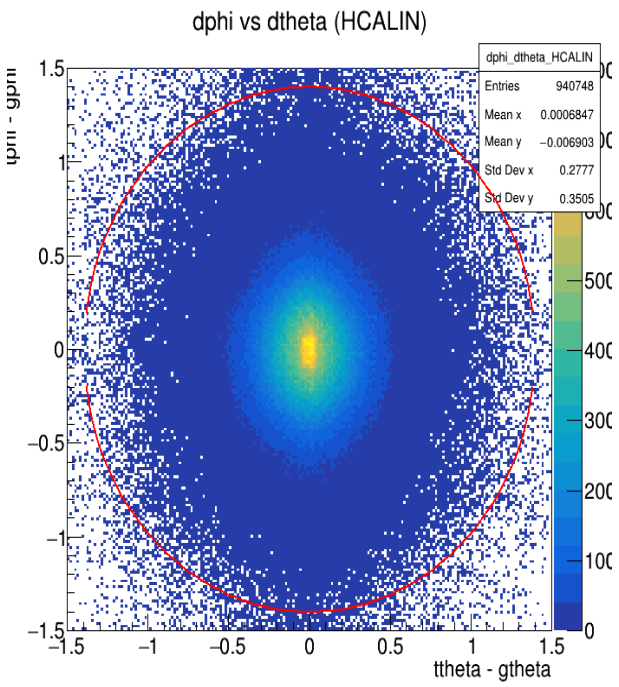




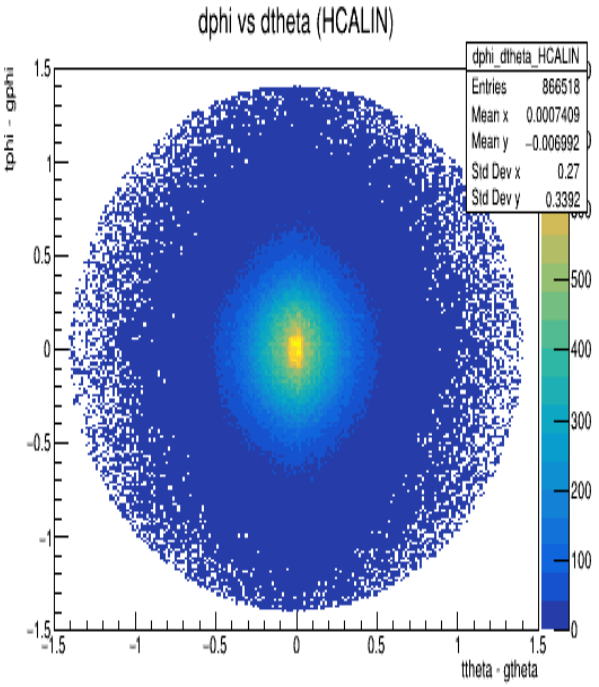


Kaon – HCALIN (η = -1.1 to 1.1)

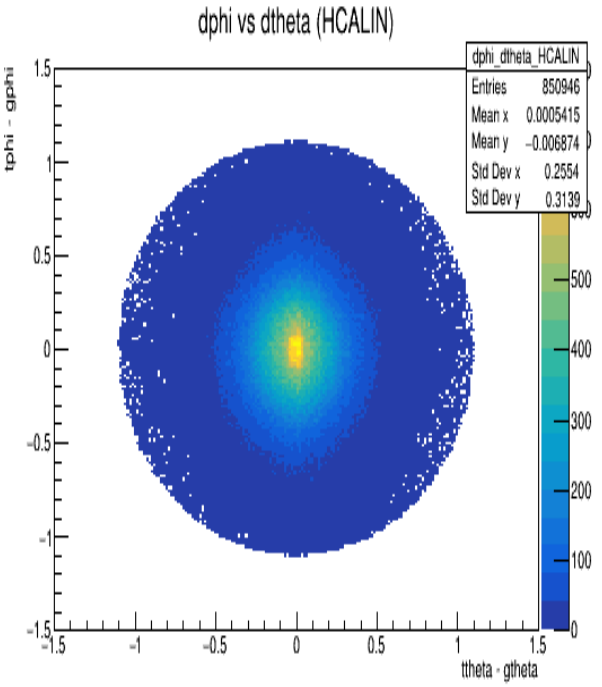
Before circular cut



After circular cut (radius = 1.4)



After circular cut (radius = 1.1)

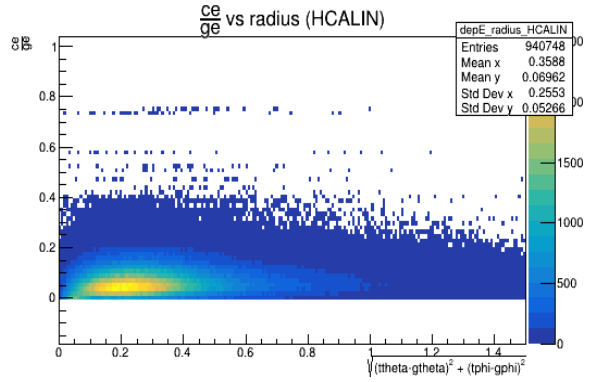


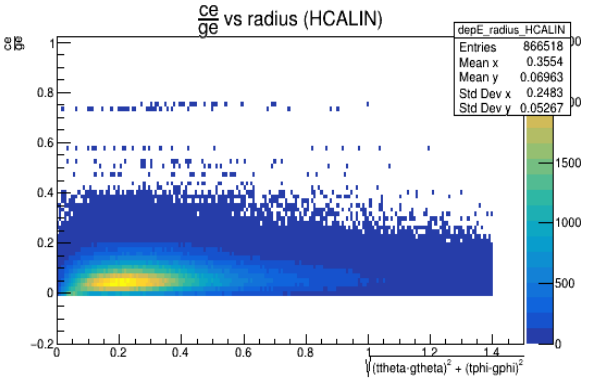
Kaon – HCALIN (η = -1.1 to 1.1)

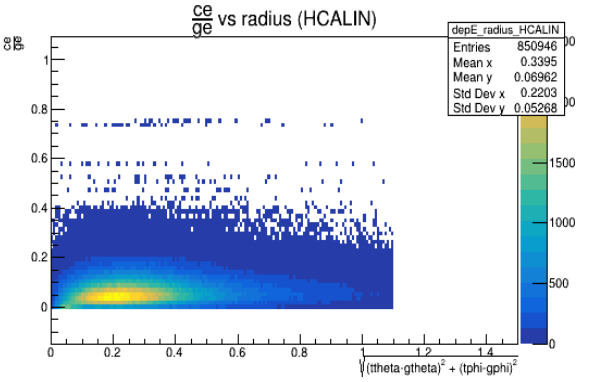
Before circular cut

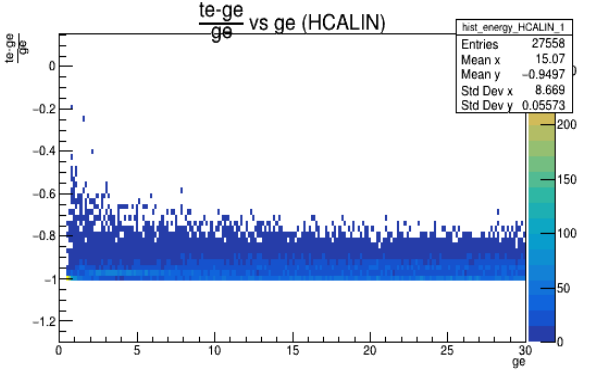
After circular cut (radius = 1.4)

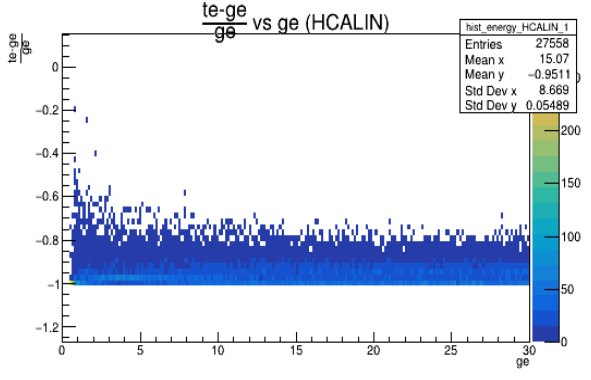
After circular cut (radius = 1.1)

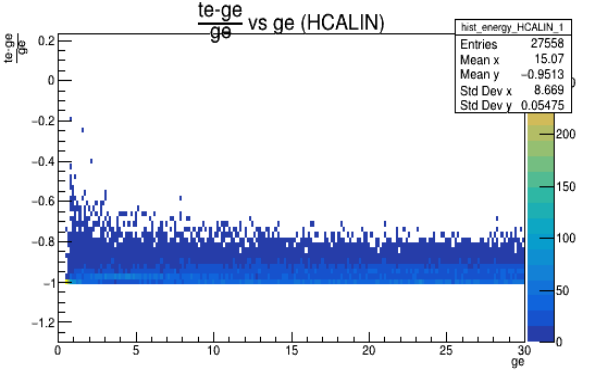






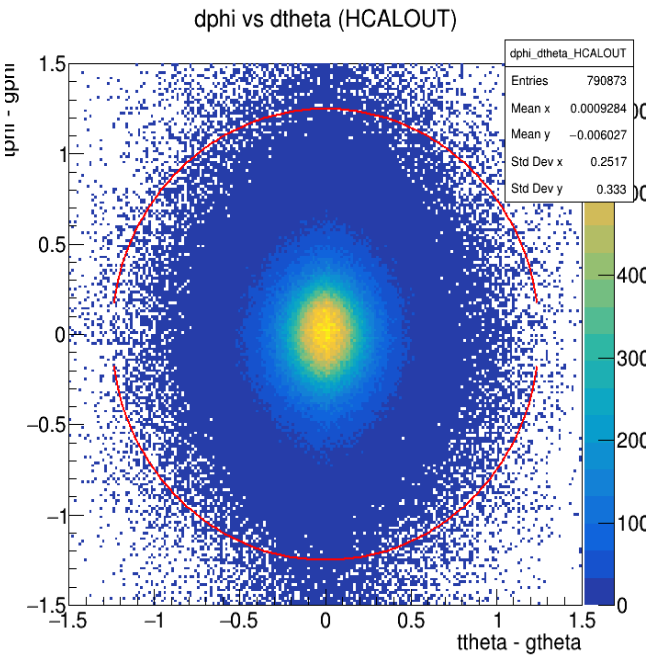




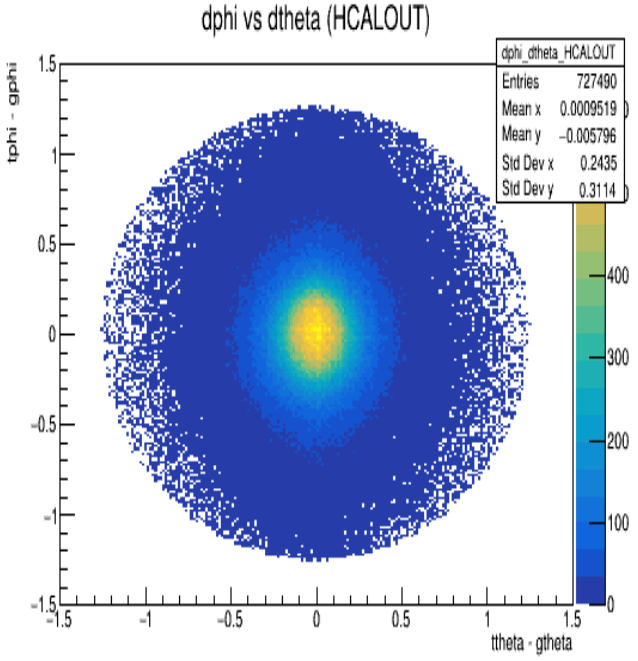


Kaon – HCALOUT (η = -1.1 to 1.1)

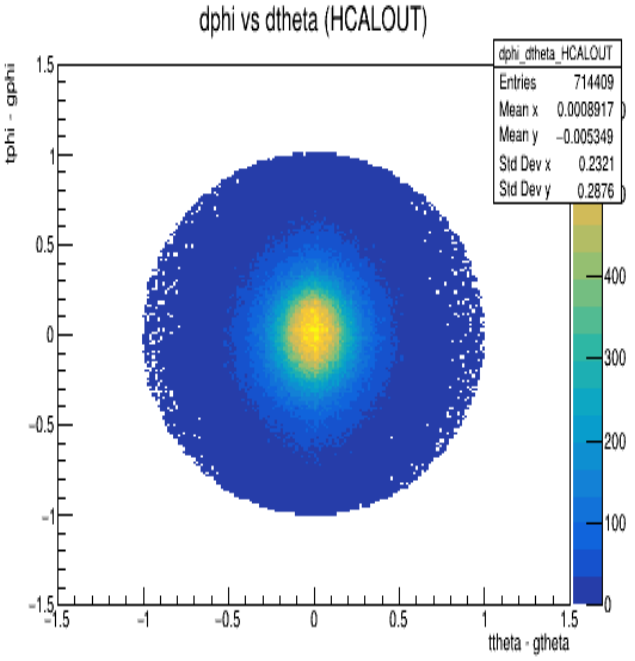
Before circular cut



After circular cut (radius = 1.25)



After circular cut (radius = 1)

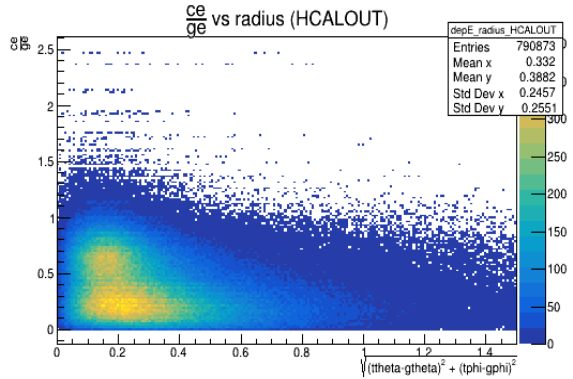


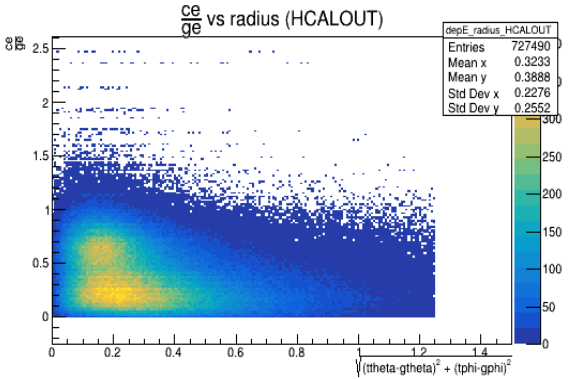
Kaon – HCALOUT (η = -1.1 to 1.1)

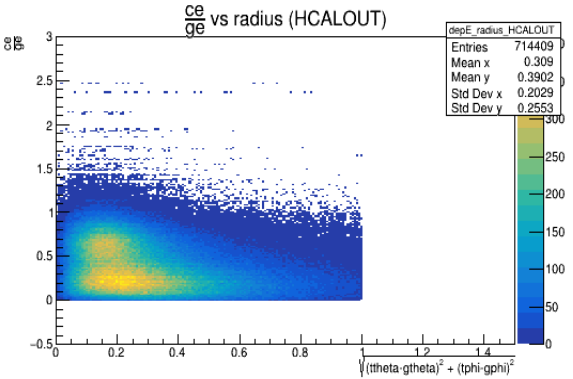
Before circular cut

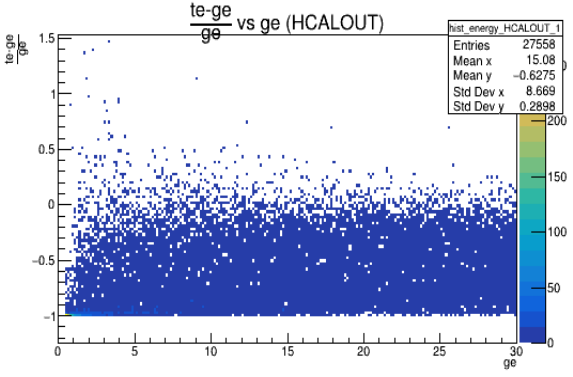
After circular cut (radius = 1.25)

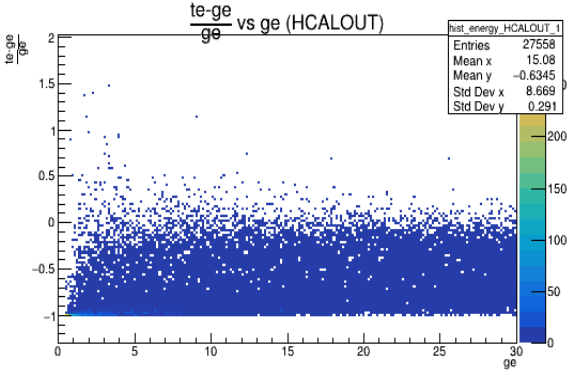
After circular cut (radius = 1)

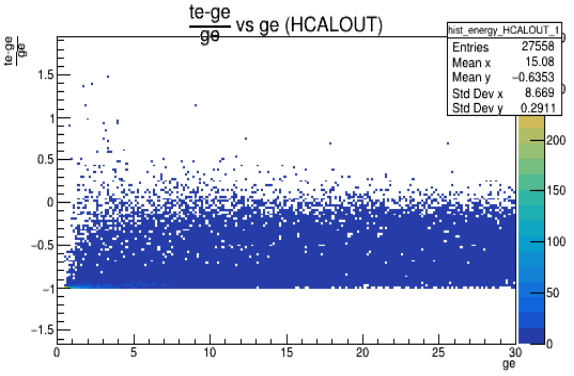






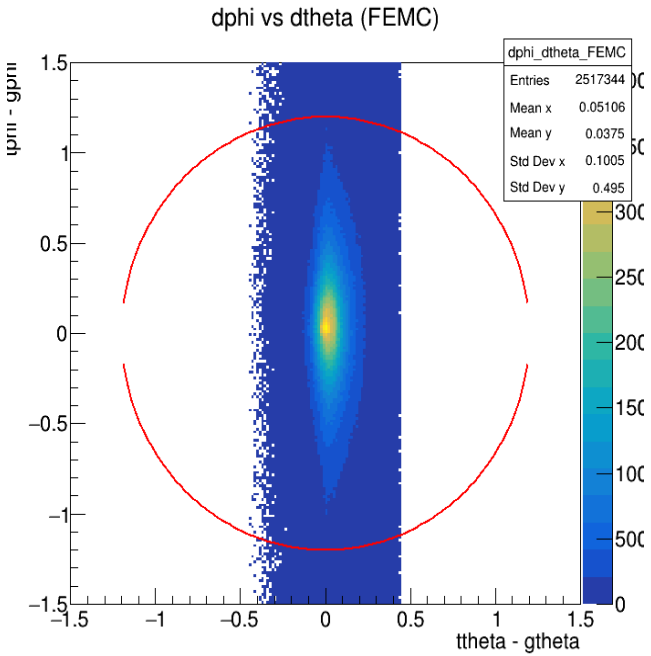




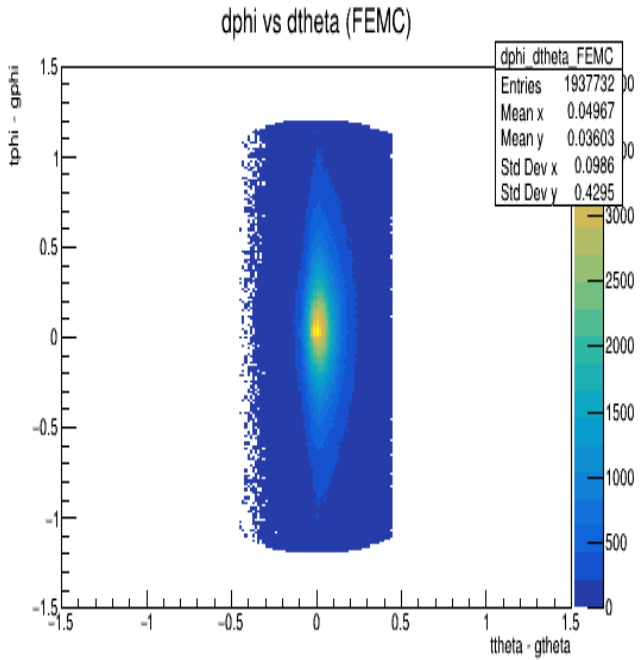


Kaon – FEMC (η=1.3 to 3.3)

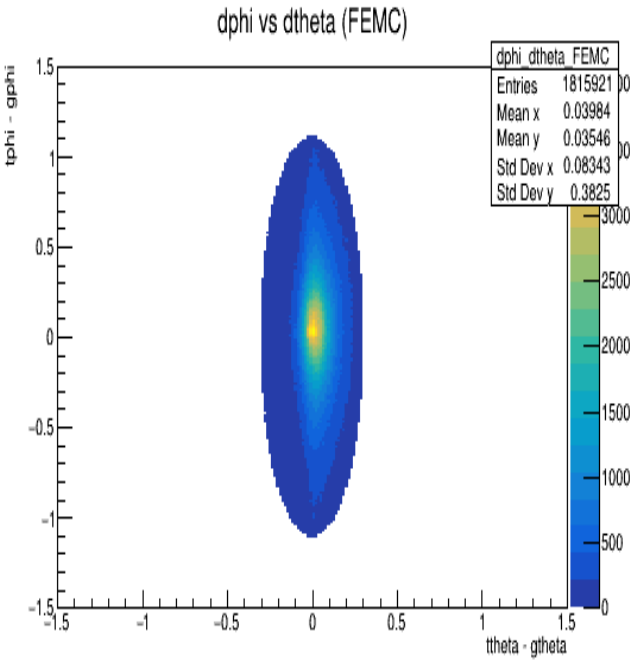
Before circular cut



After circular cut (radius = 1.2)



After elliptical cut

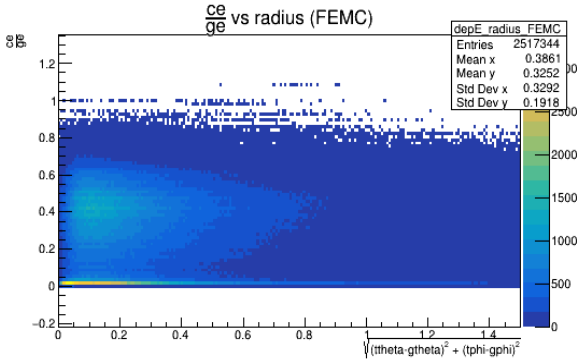


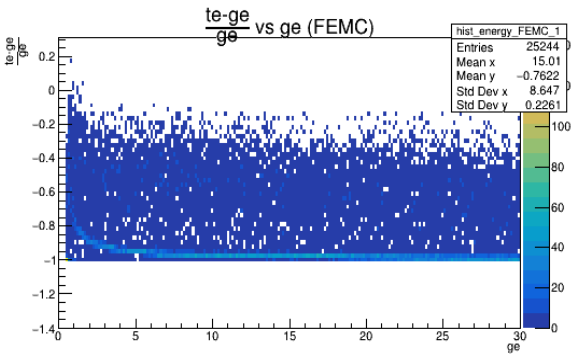
Kaon - FEMC(η=1.3 to 3.3)

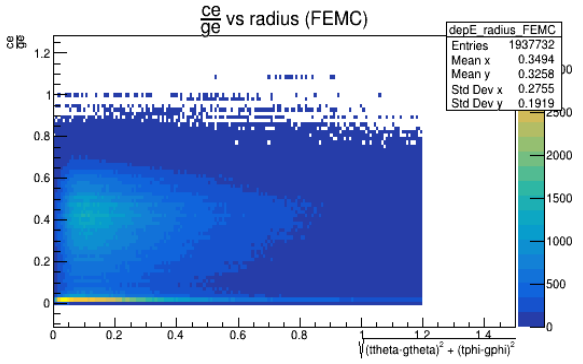
Before circular cut

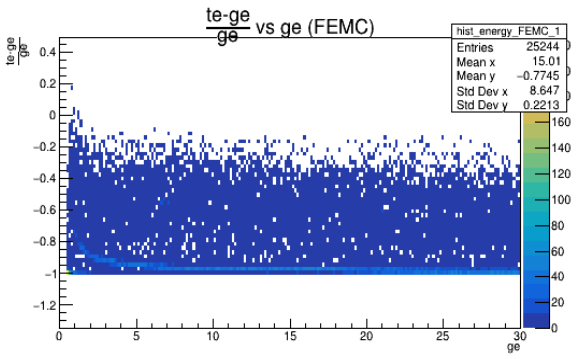
After circular cut (radius = 1.2)

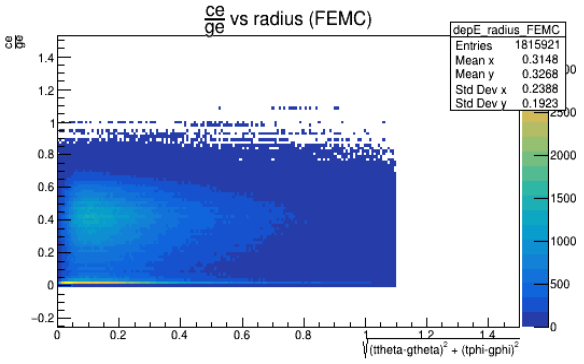
After elliptical cut

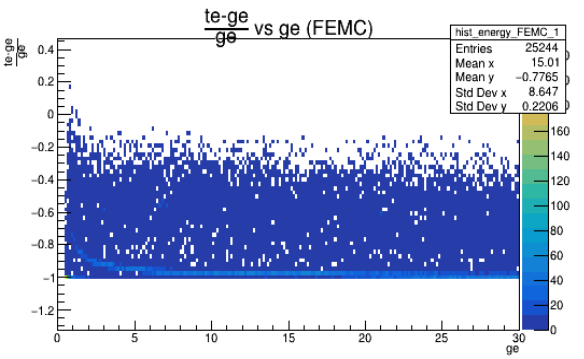






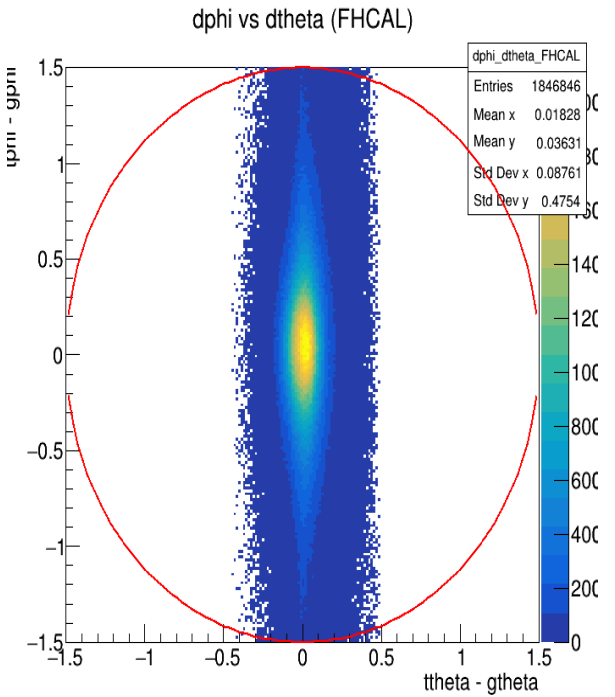




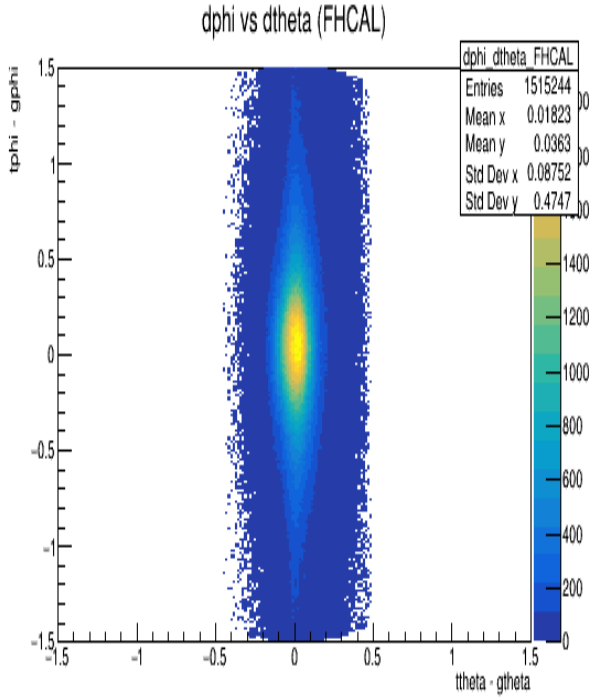


Kaon - FHCAL(η=1.3 to 3.3)

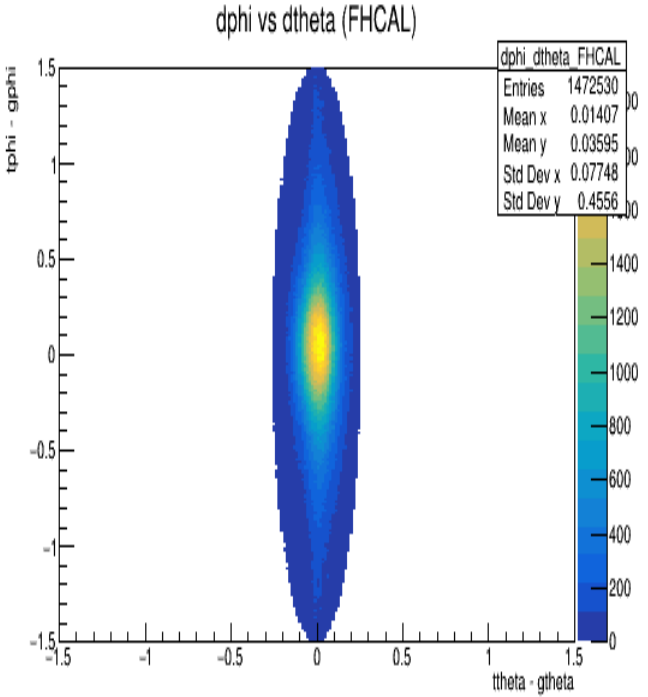
Before circular cut



After circular cut (radius = 1.5)



After elliptical cut

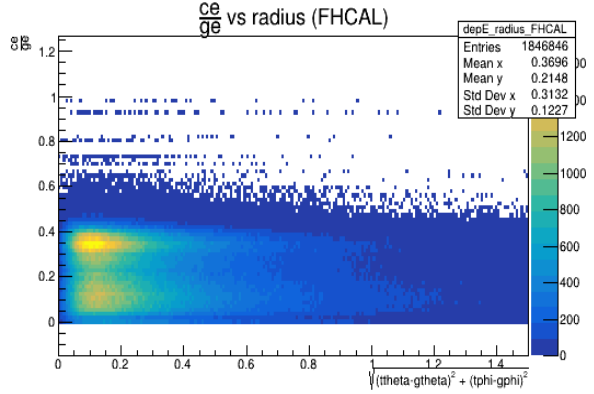


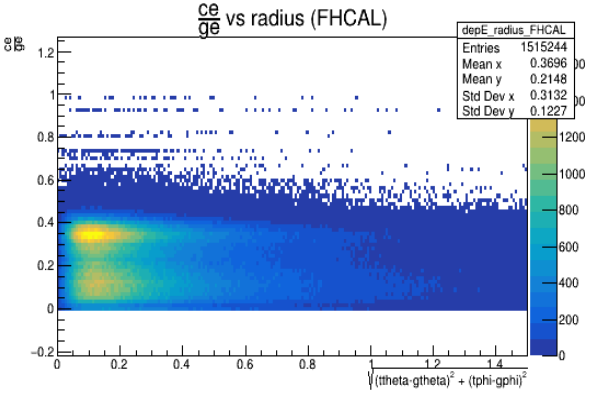
Kaon – FHCAL (η=1.3 to 3.3)

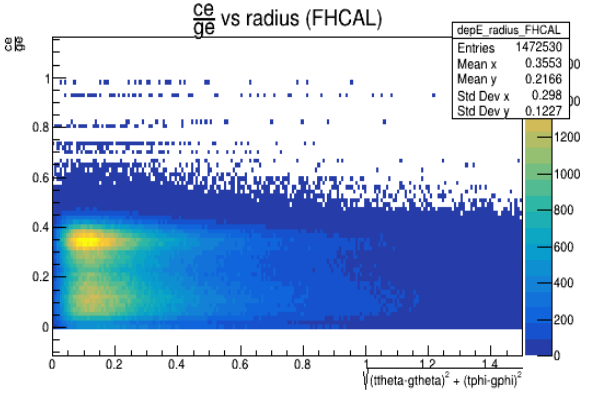
Before circular cut

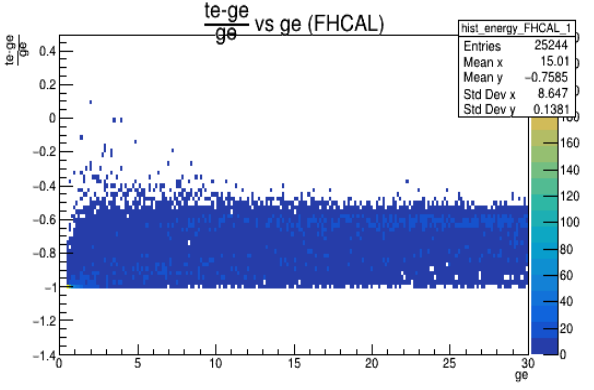
After circular cut (radius = 1.5)

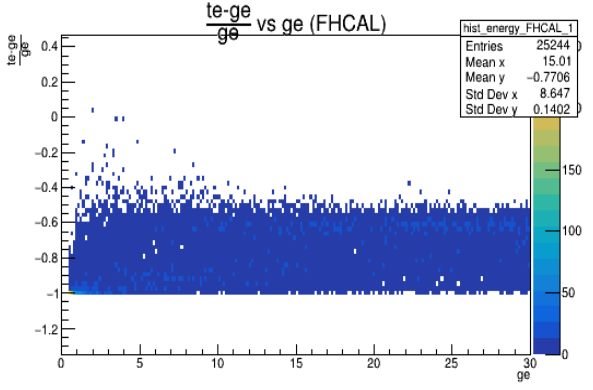
After elliptical cut

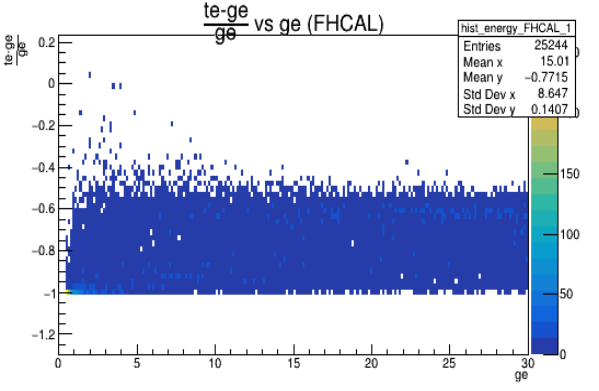




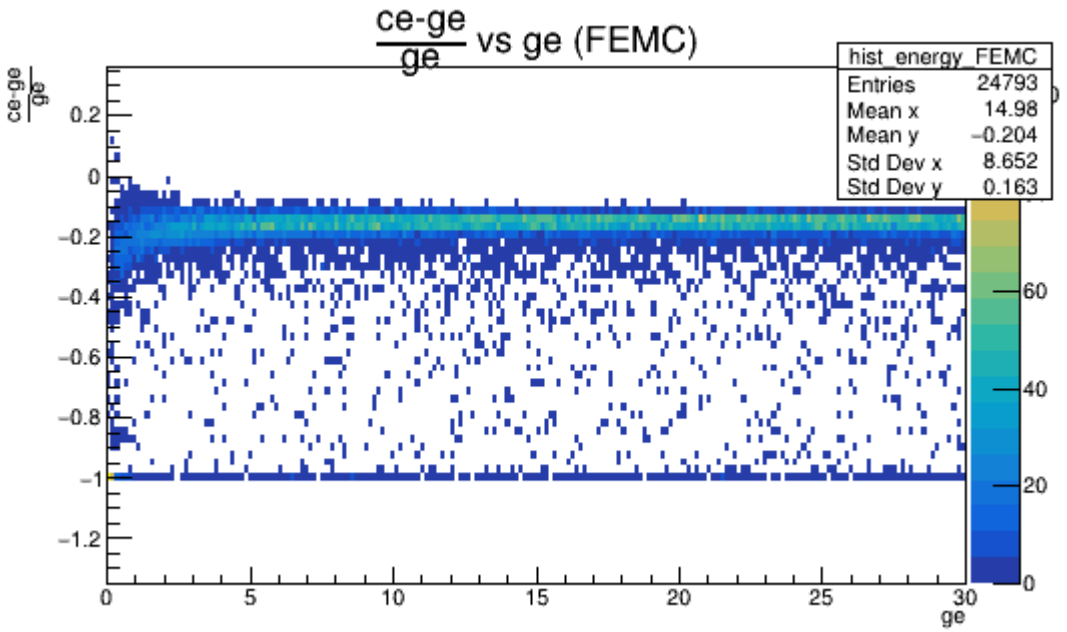


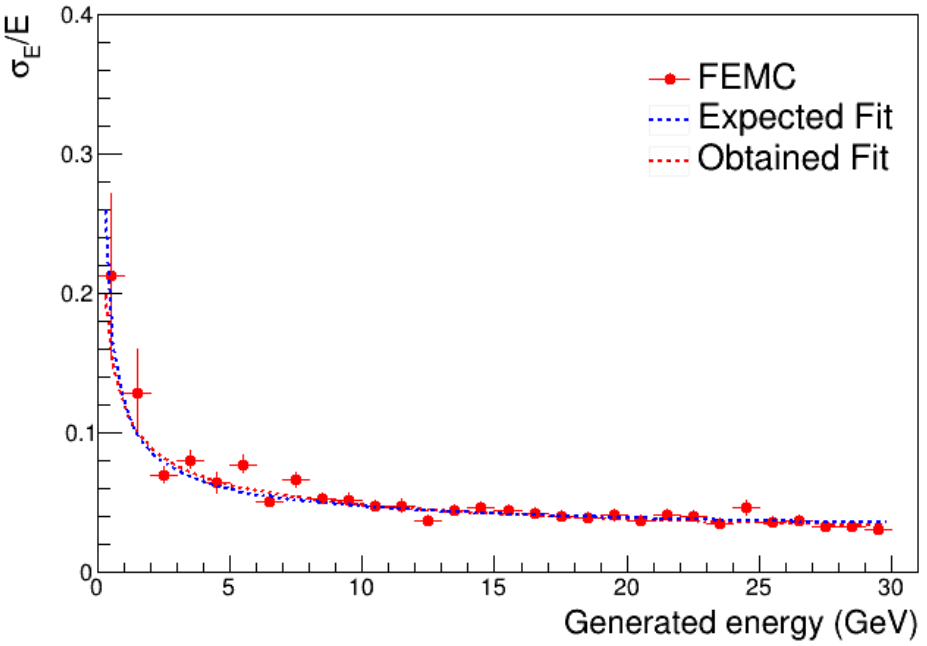






Electron – FEMC Cluster Energy resolution (η = 1.3 to 3.3)





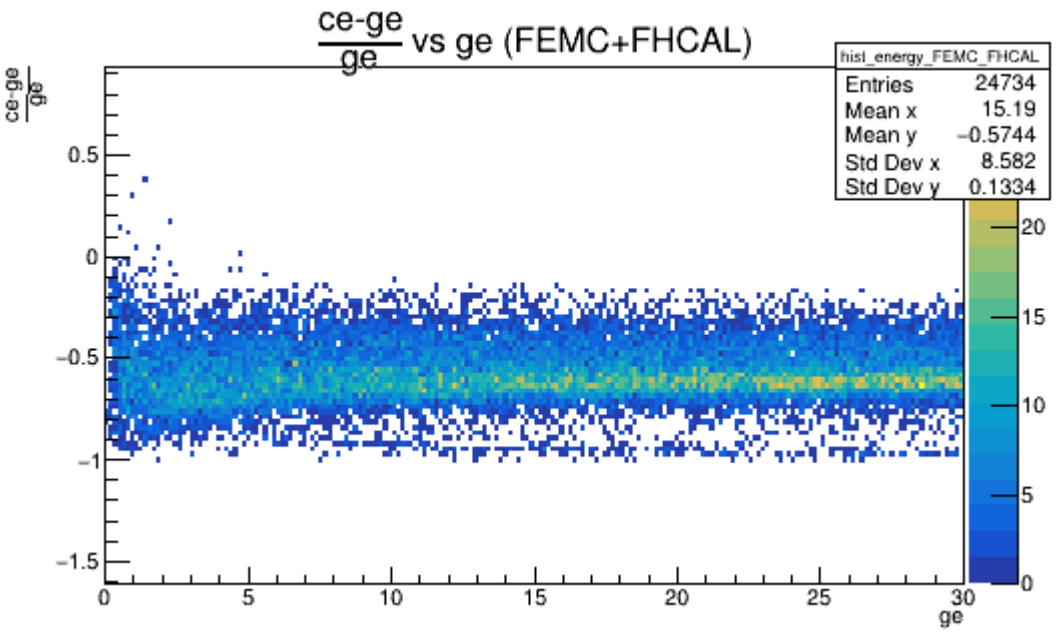
Expected:

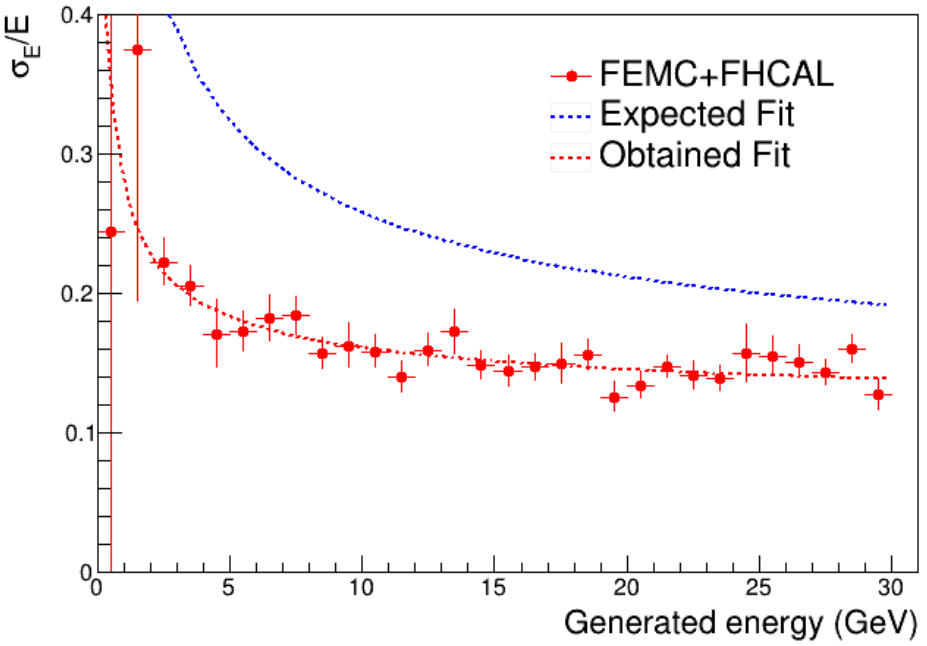
$\sigma_E/E = 2\%/E \oplus (4\text{*-}12)\%/\sqrt{E} \oplus 2\%$

Obtained:

$\sigma_E/E = 1.27\%/E \oplus 16.79\%/\sqrt{E} \oplus 1.8\%$

Pion – FEMC+FHCAL Cluster Energy resolution (η=1.3 to 3.3)

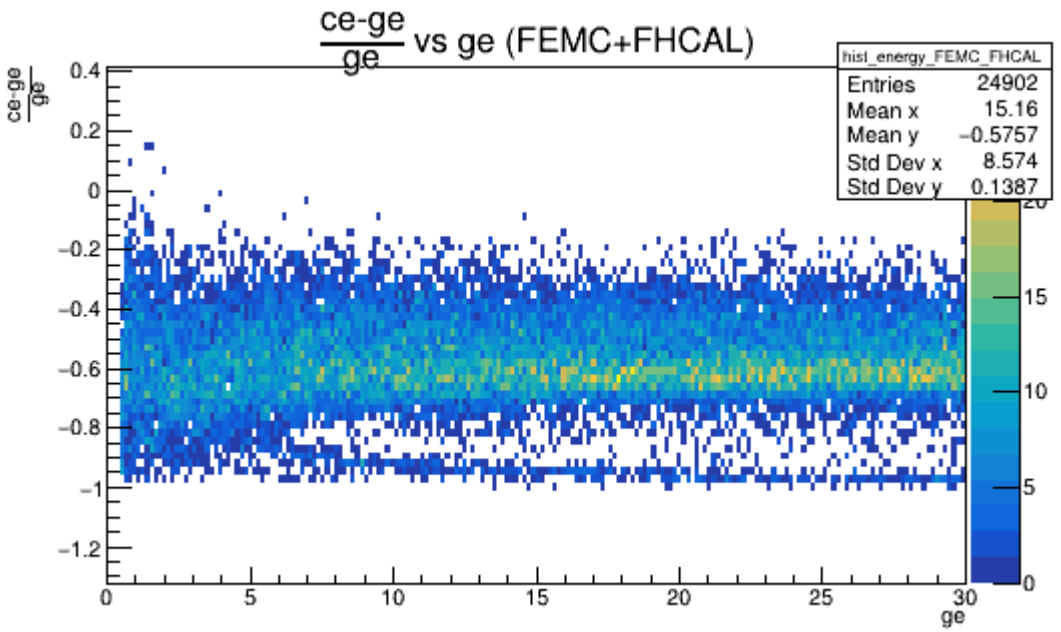




Expected:
σ_E/E = 50% / sqrt(E) + 10%

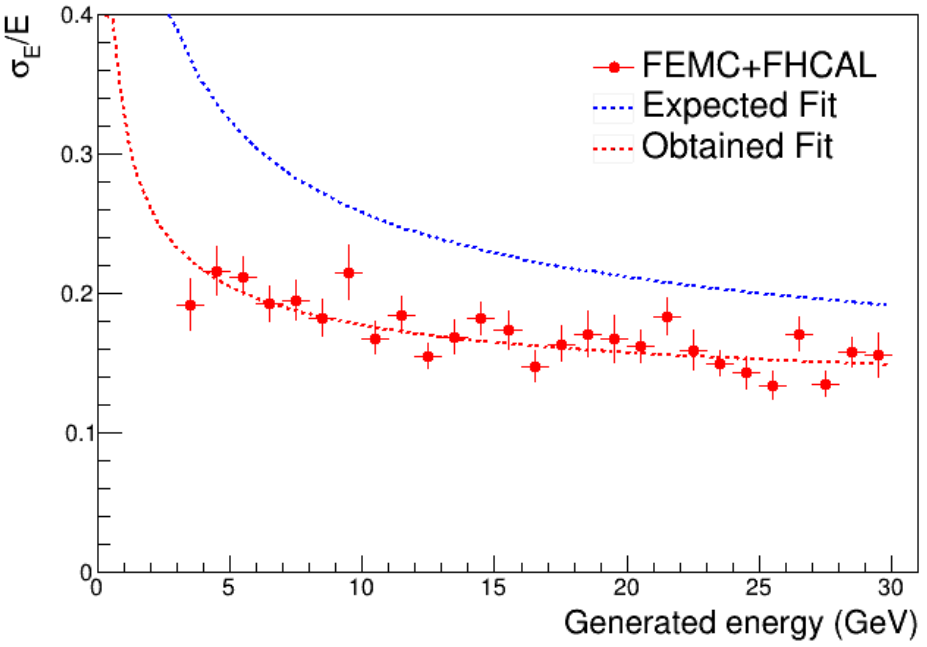
Obtained:
σ_E/E = 16.97% / sqrt(E) + 10.74%

Kaon – FEMC+FHCAL Cluster Energy resolution (η=1.3 to 3.3)



Expected:

σ_E/E = 50% / sqrt(E) + 10%



Obtained:

σ_E/E = 21.236% / sqrt(E) + 11%

THE END