

Cherenkov angle resolution

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Data with Direct Light setup

8 GeV beam

refractive index (1.04 , 1.05, 1.06)

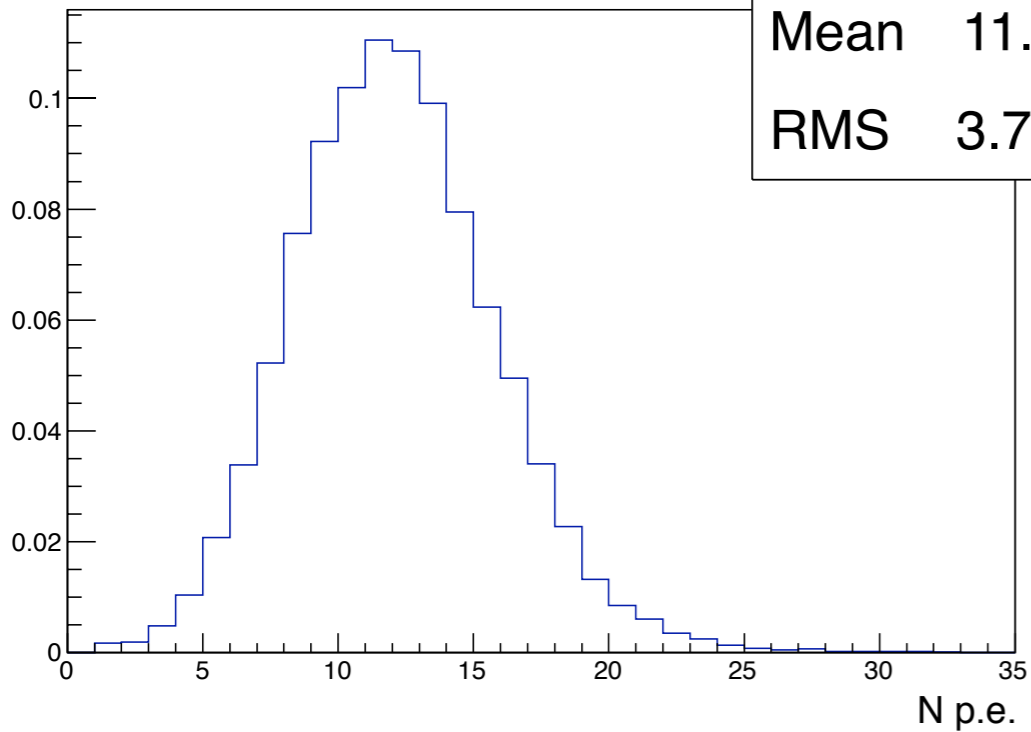
ring reconstruction with and w/o fixing the center

resolution for PMTs with and w/o UV window

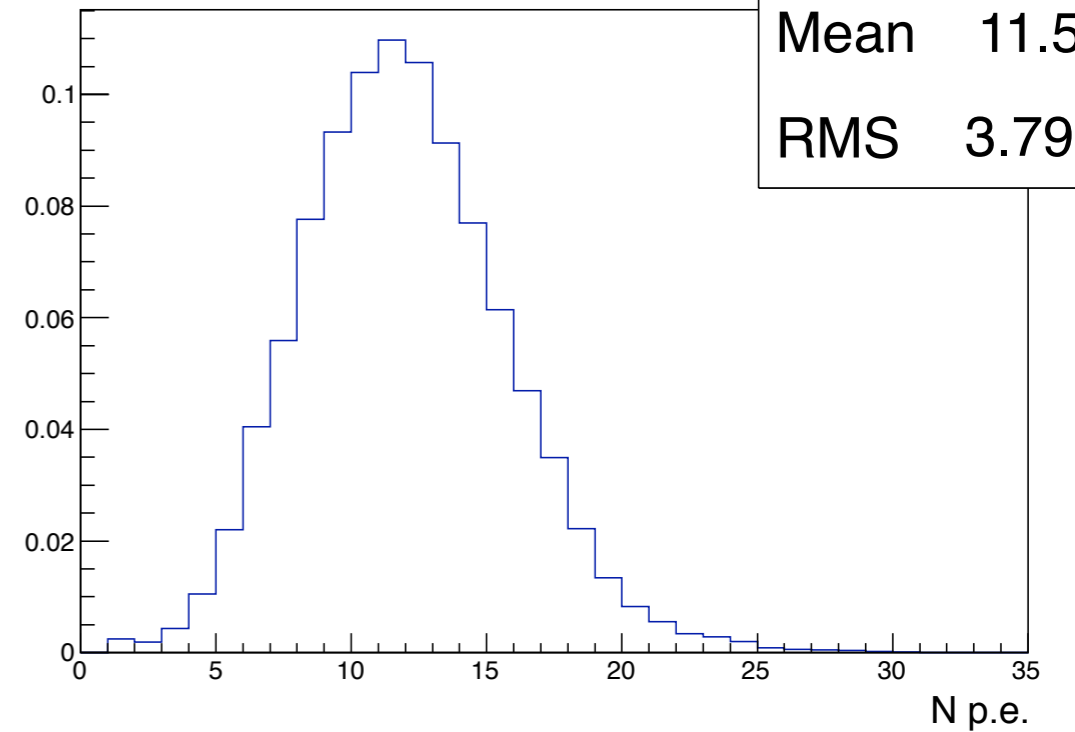
sensitivity to the alignment

of photoelectrons vs Refractive index

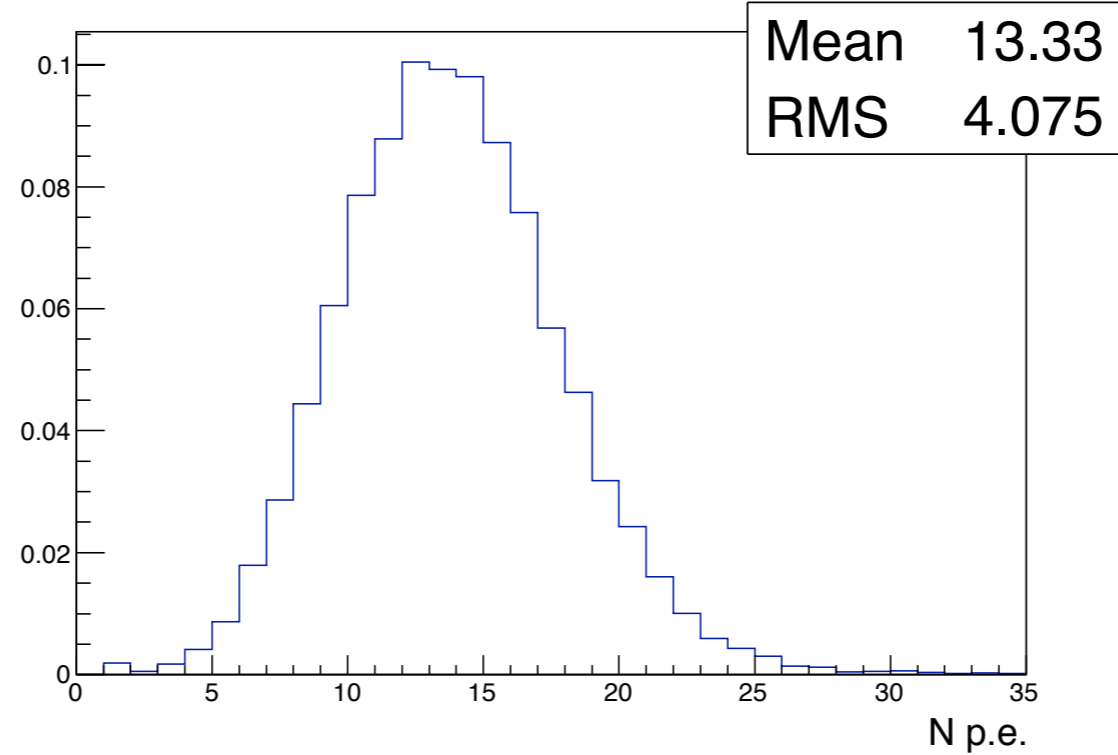
n = 1.04 2 cm



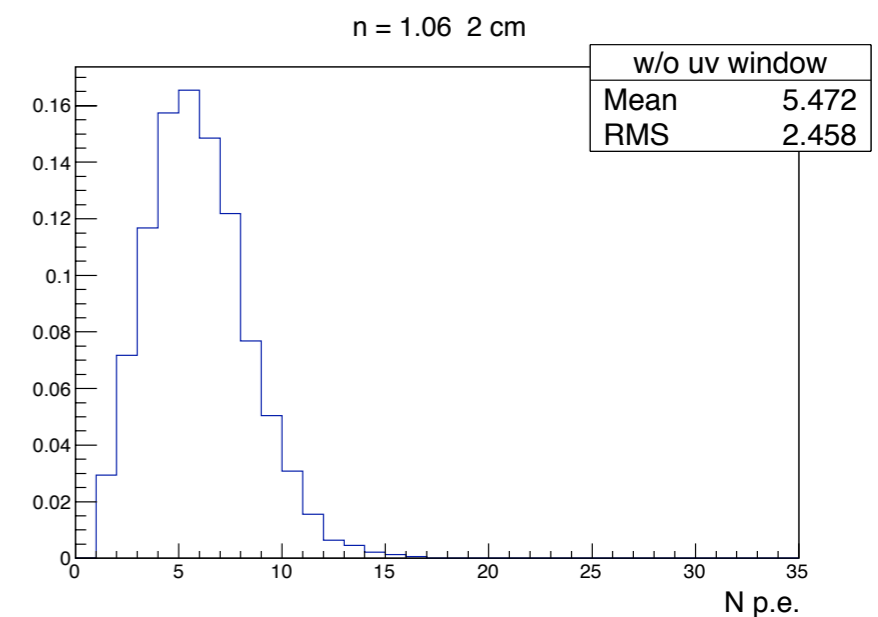
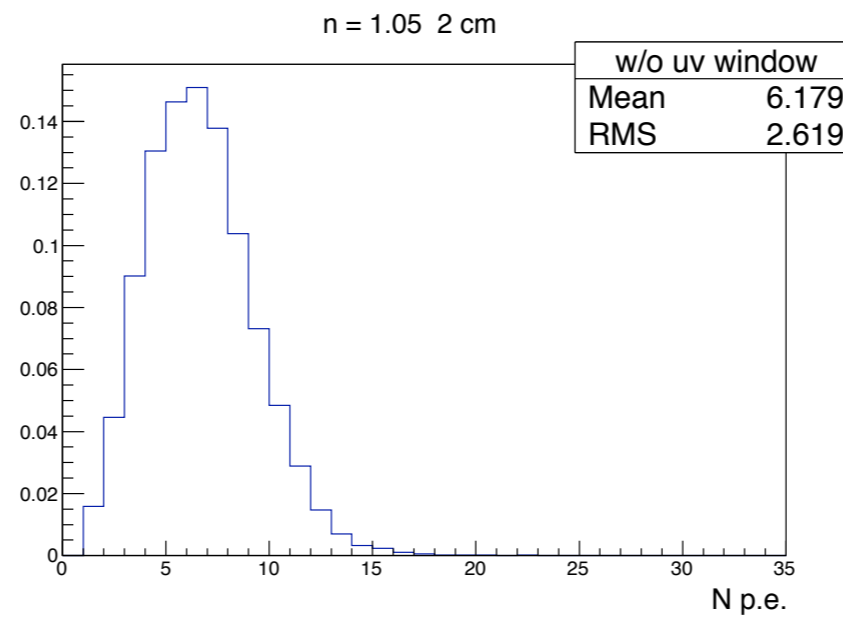
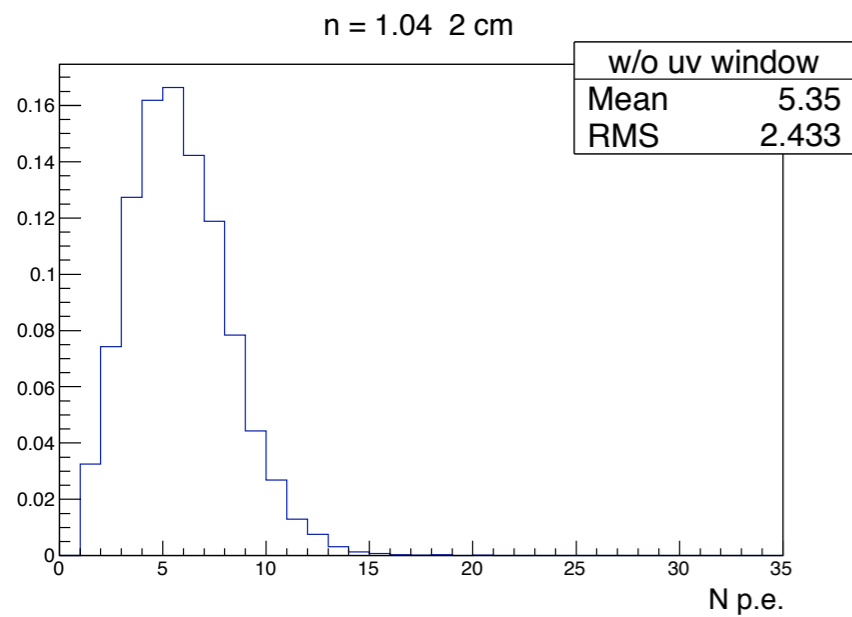
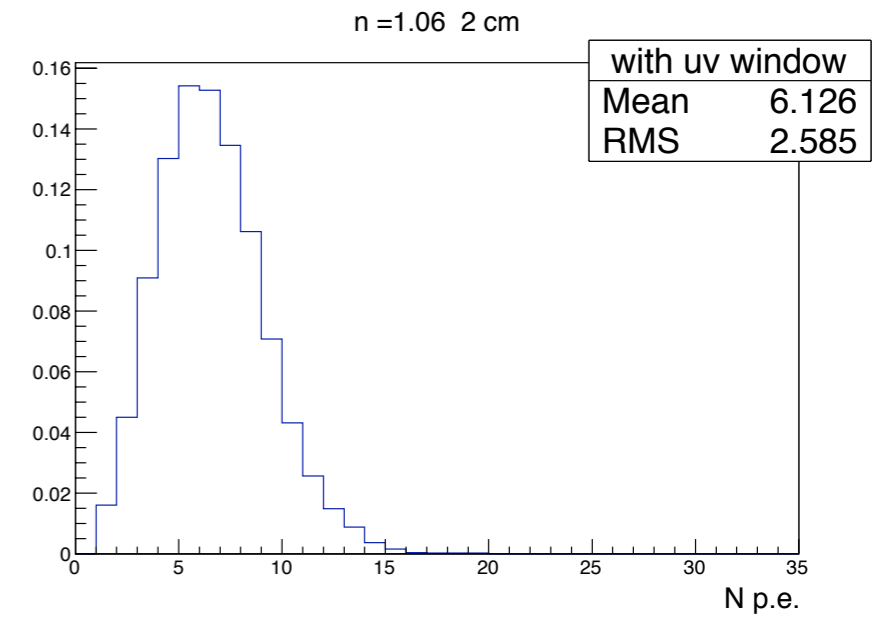
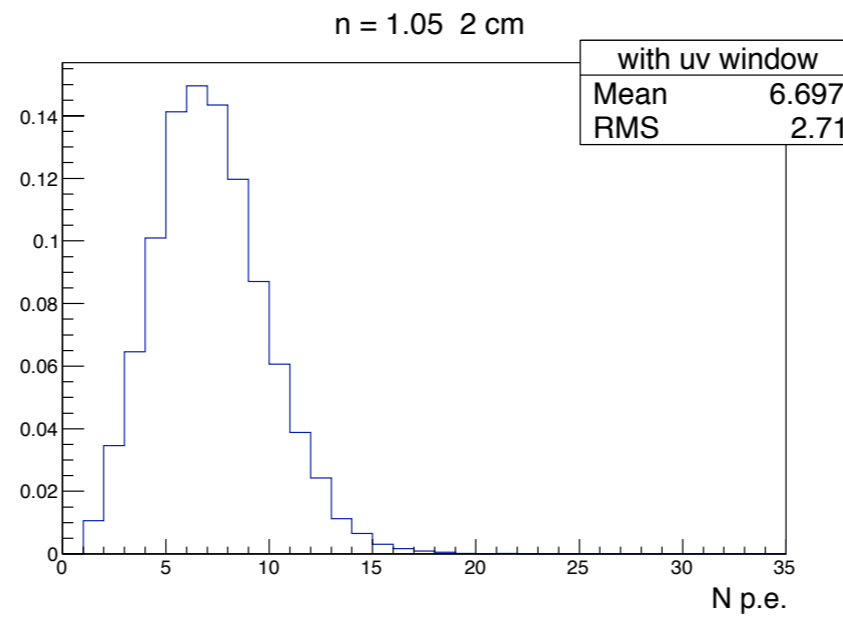
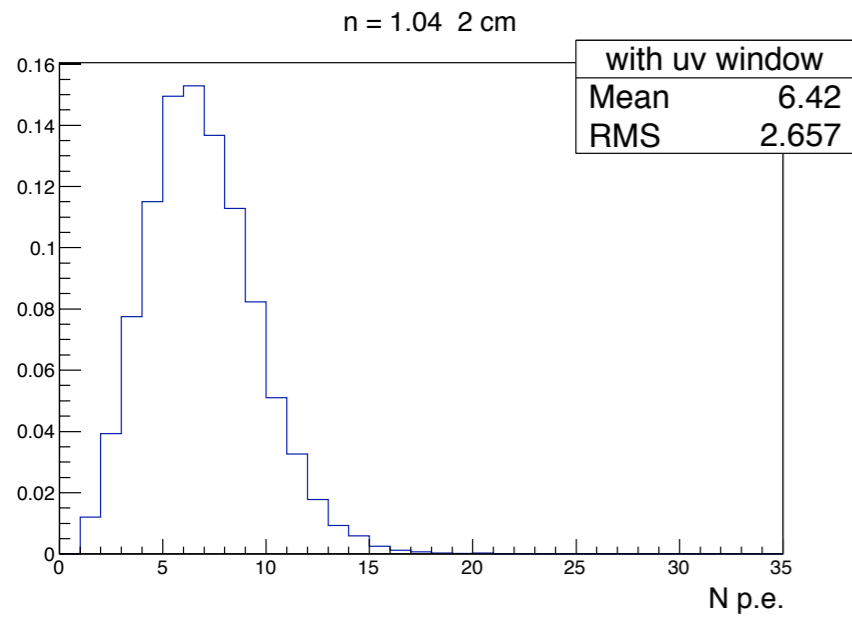
n = 1.06 2 cm



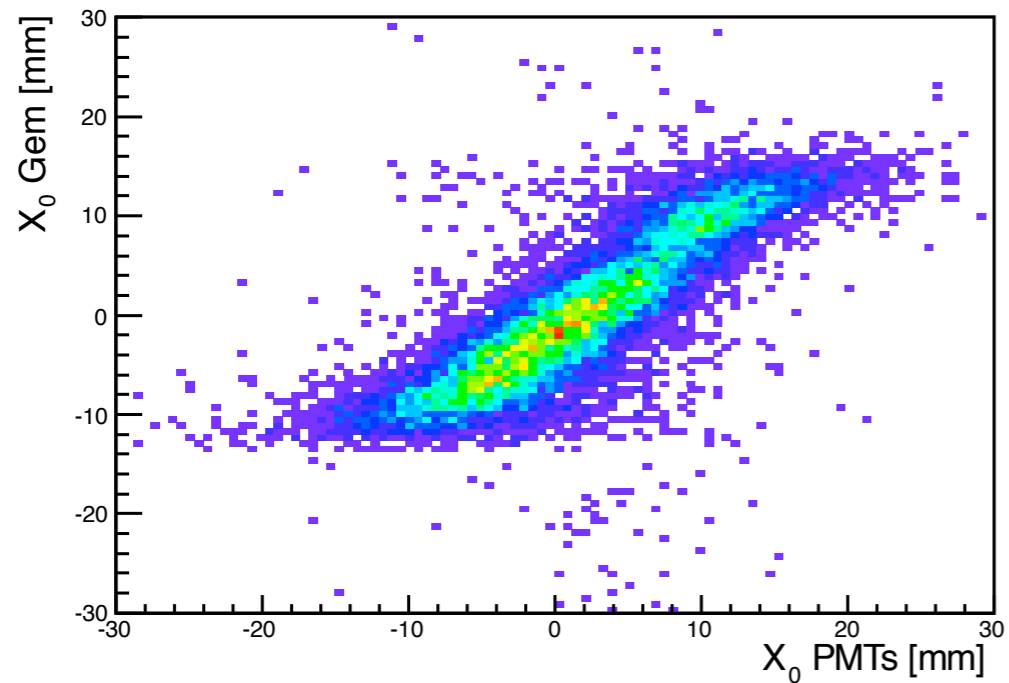
n = 1.05 2 cm



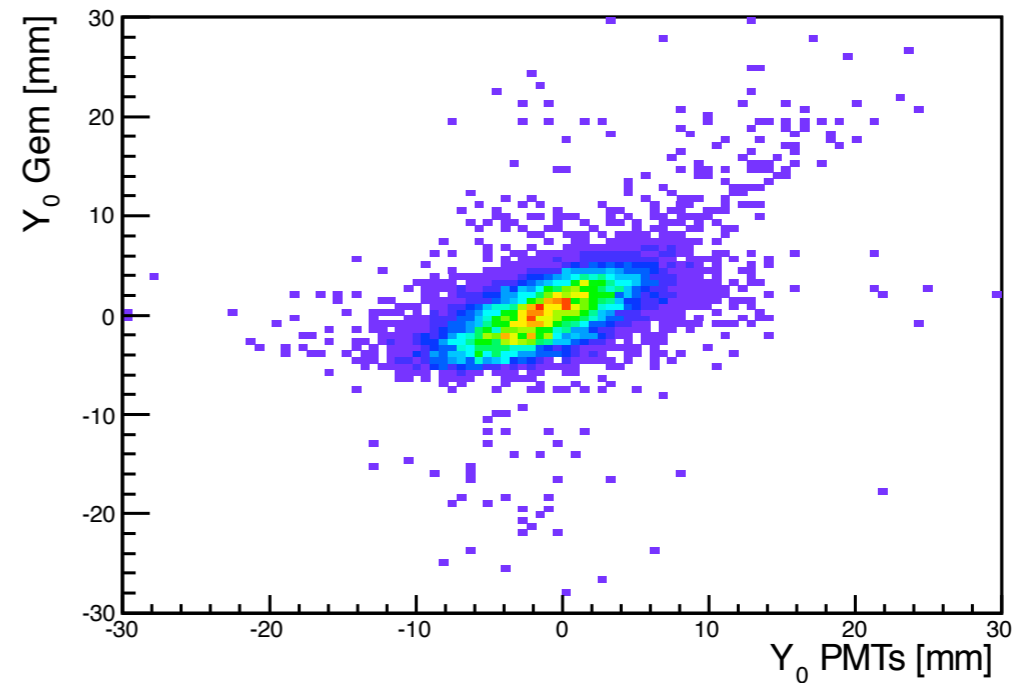
of photoelectrons vs Refractive index



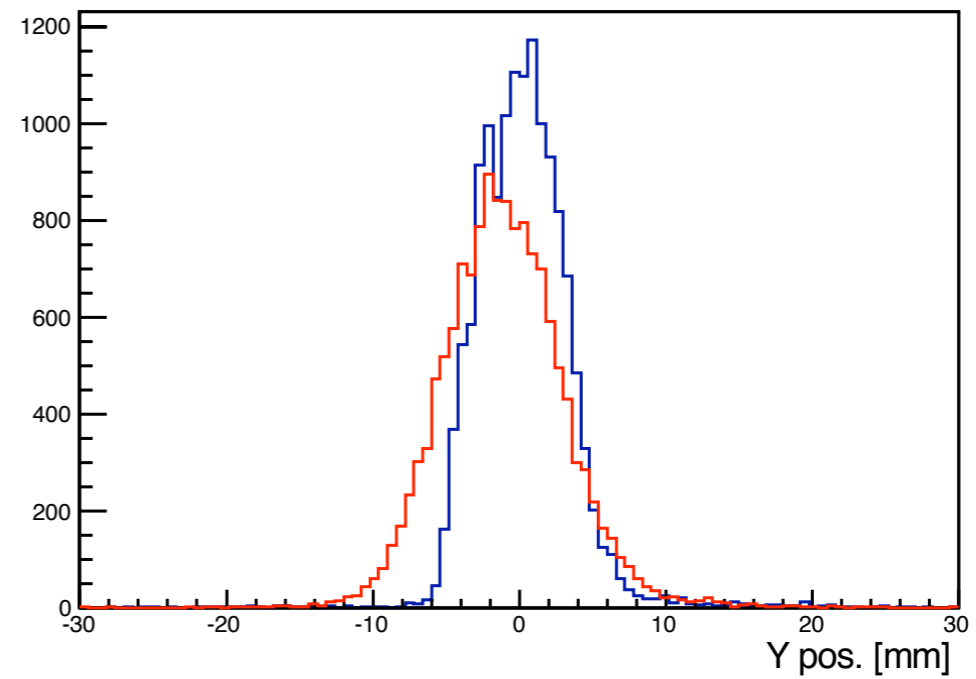
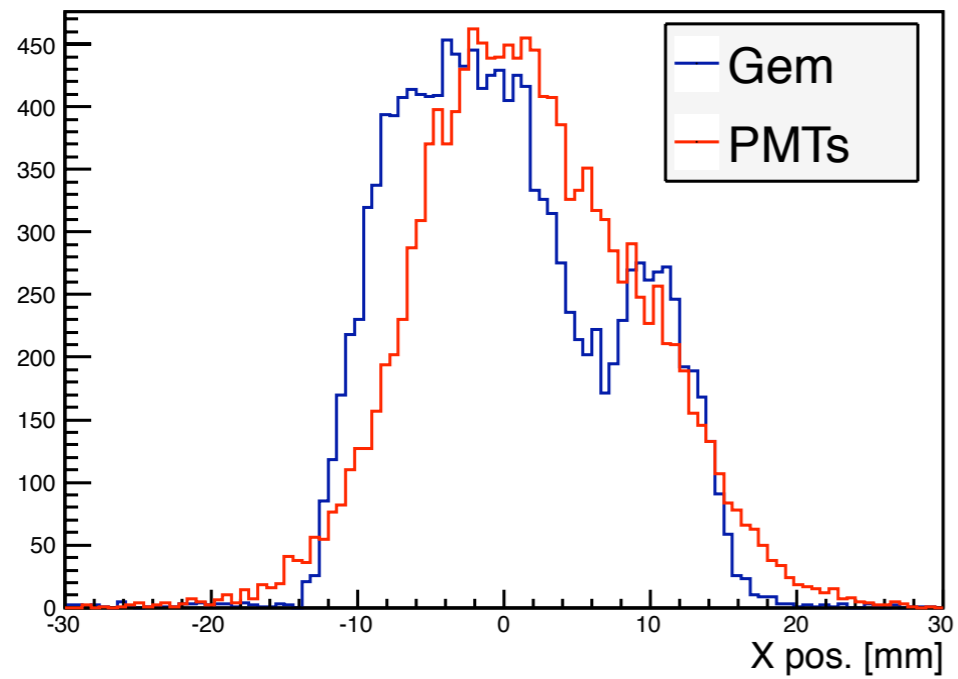
GEM reconstruction



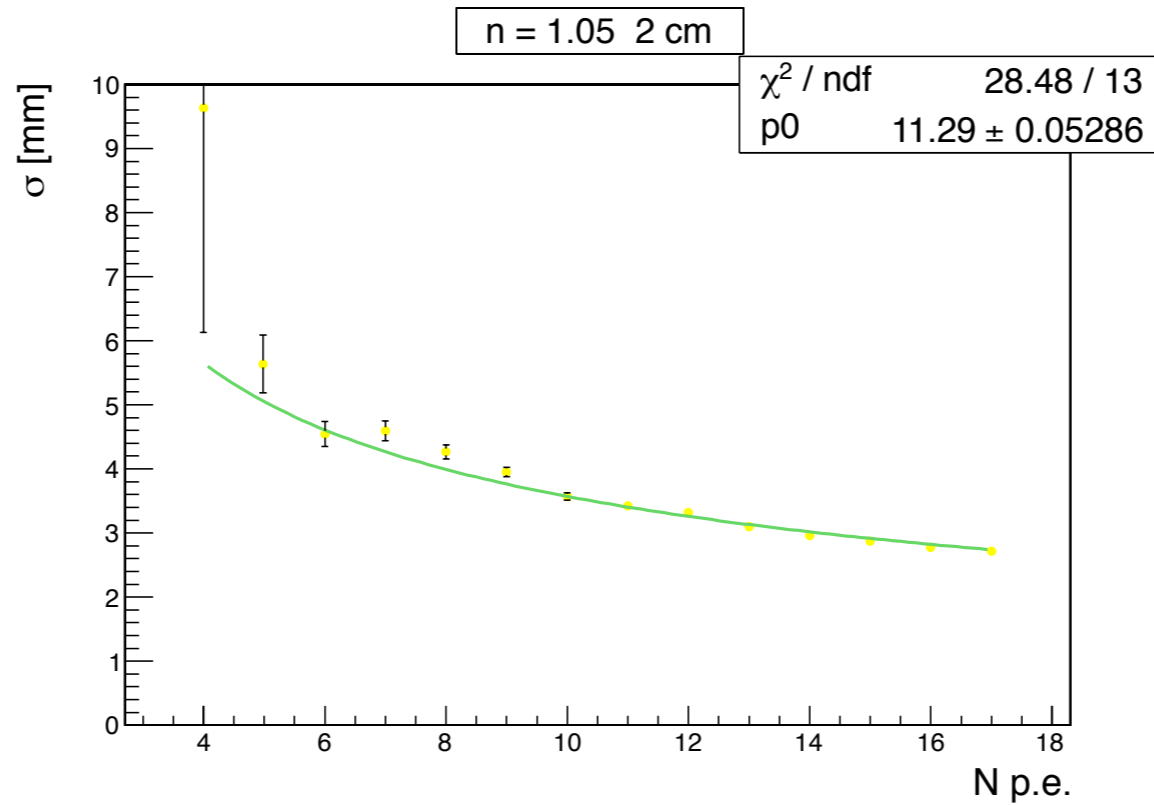
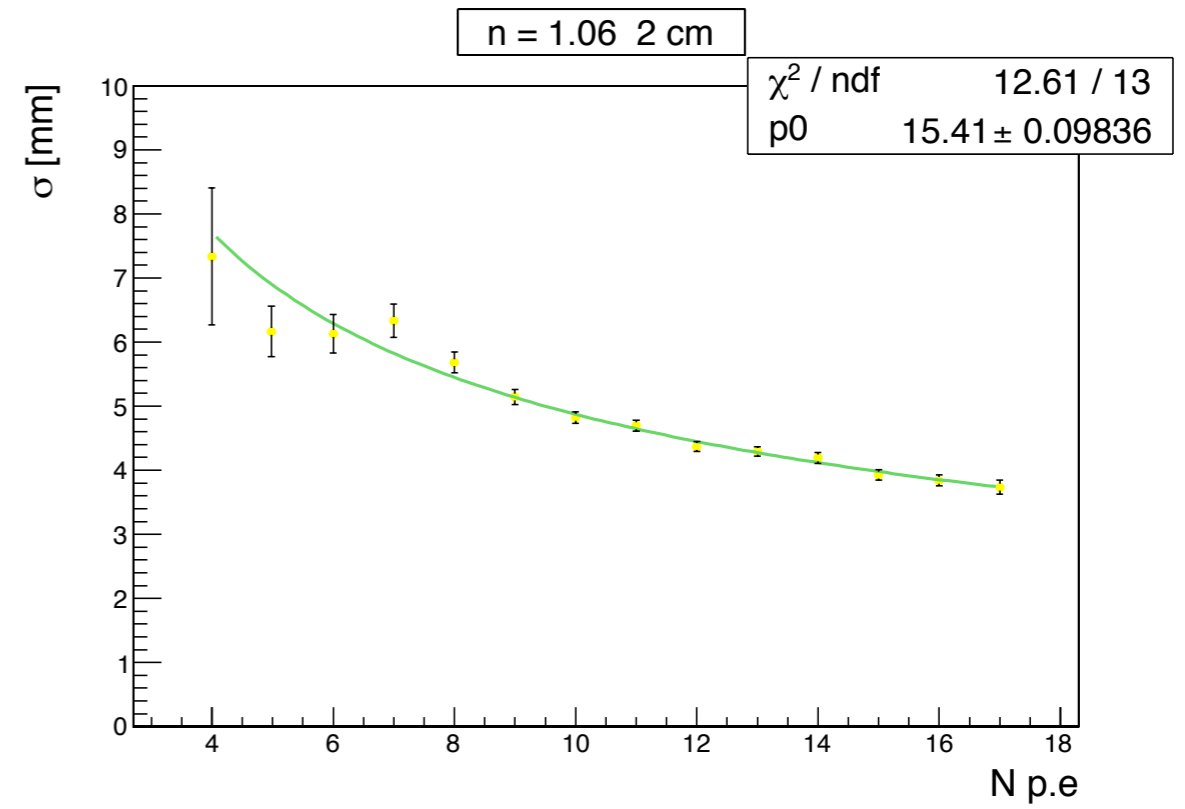
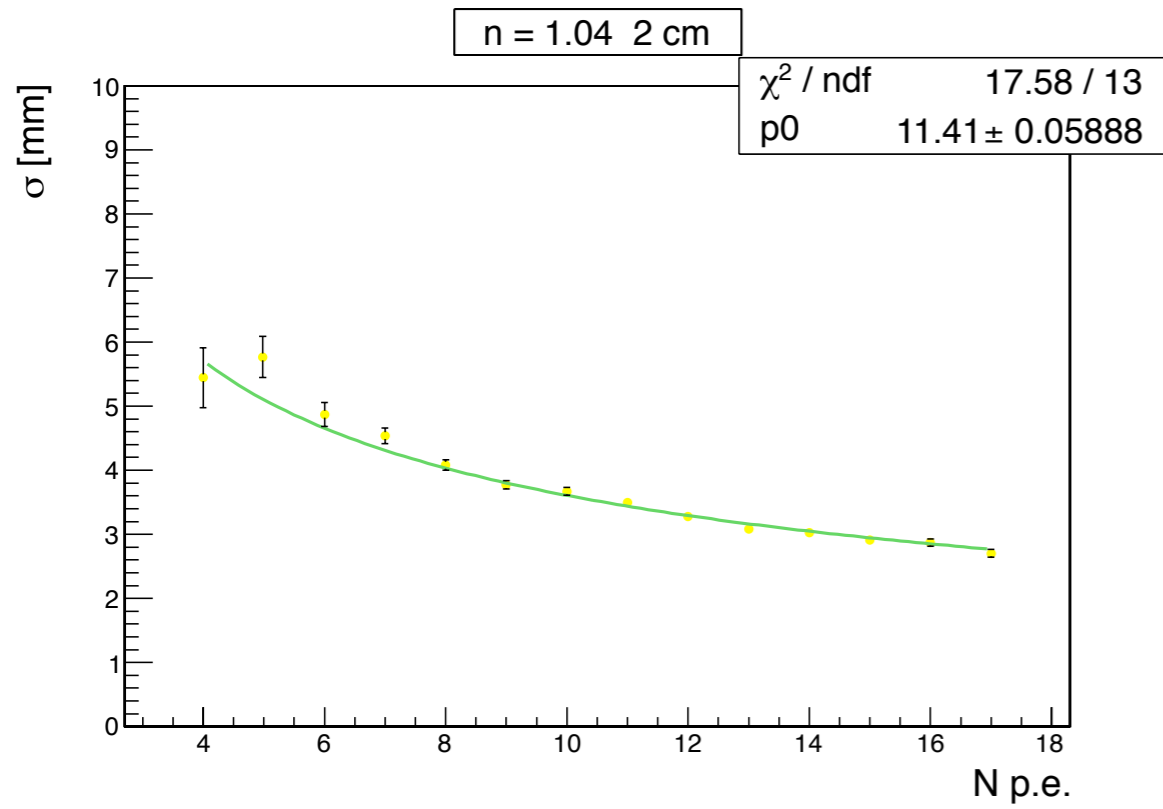
X Center



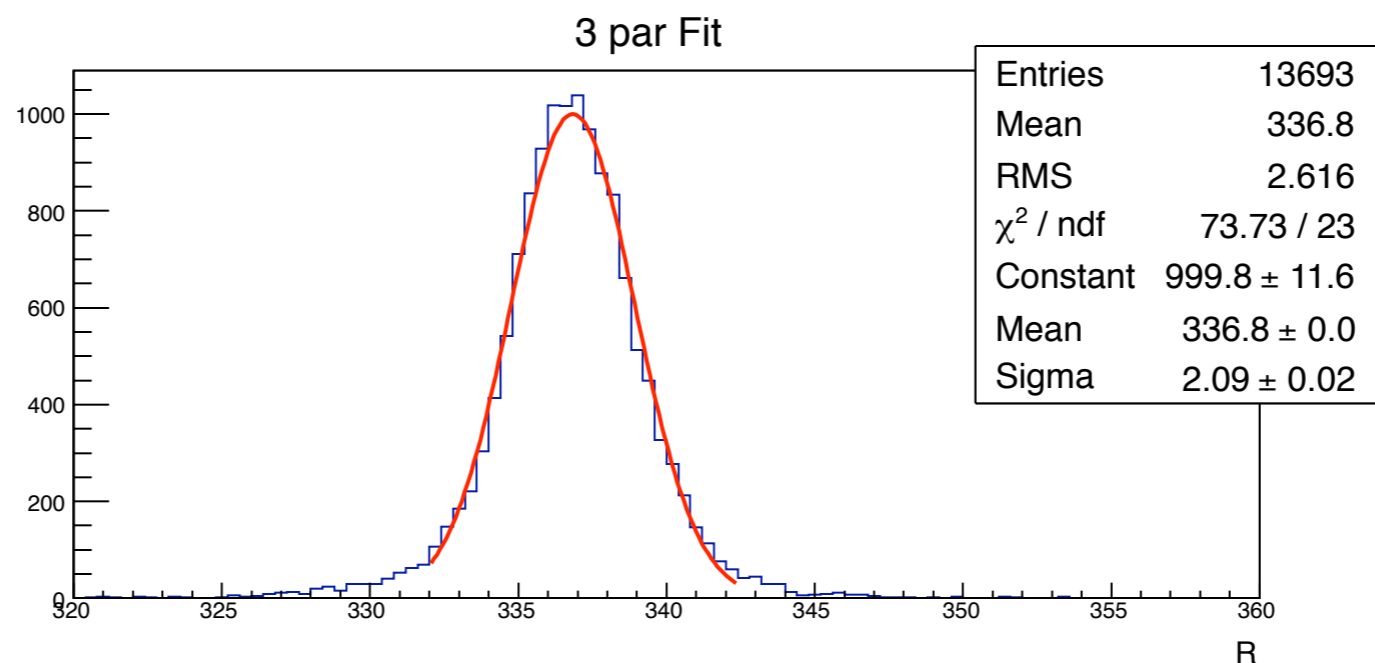
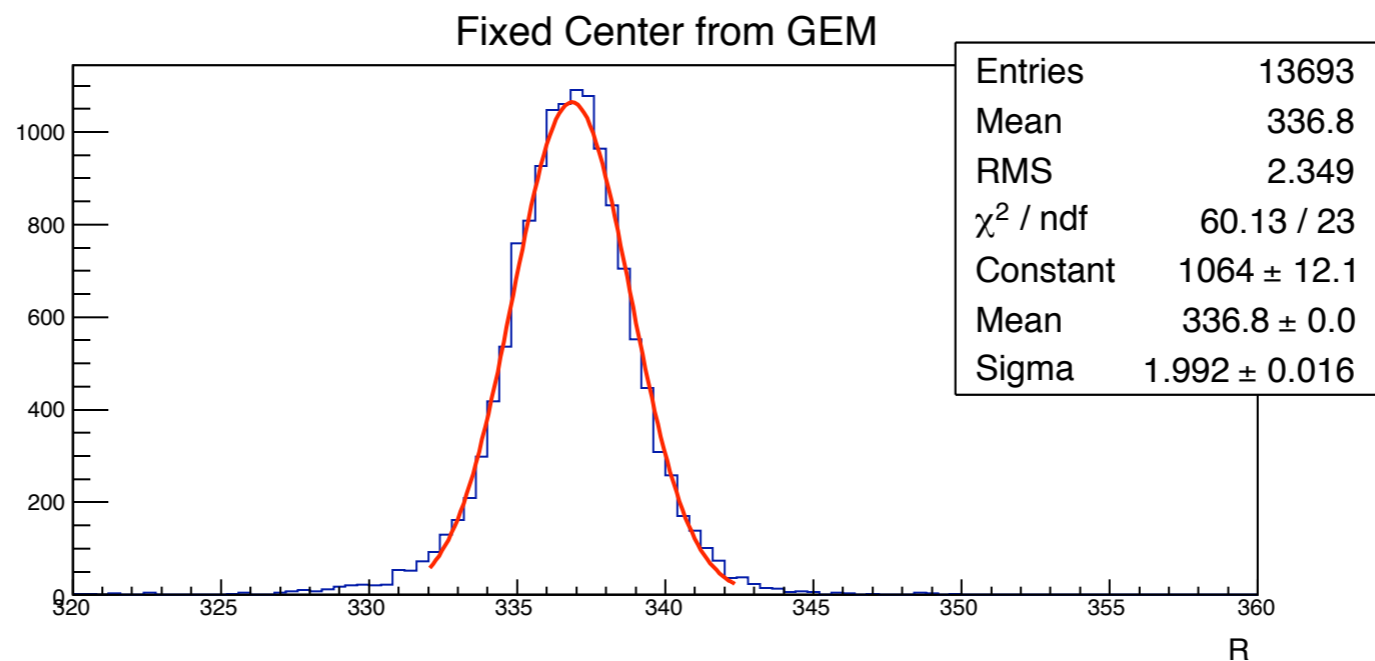
Y Center



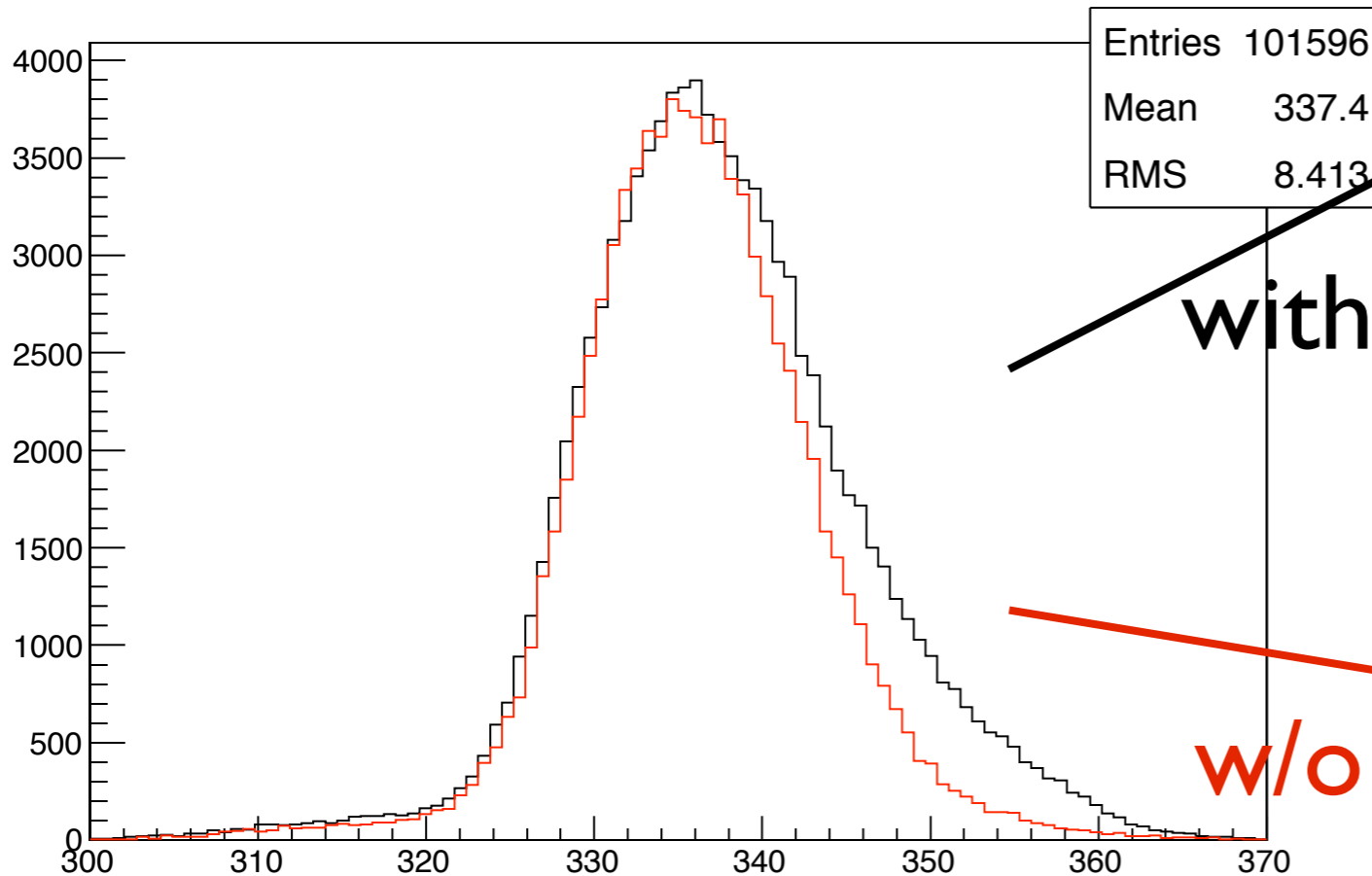
Ring Center from GEM and PMT's



Comparison of 1 and 3 parameter fit

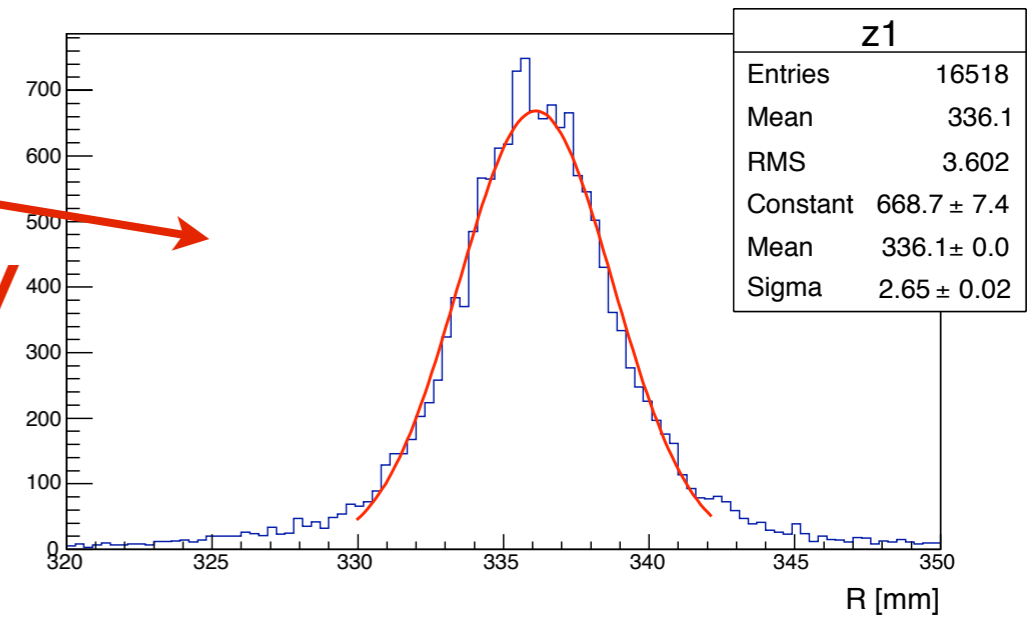
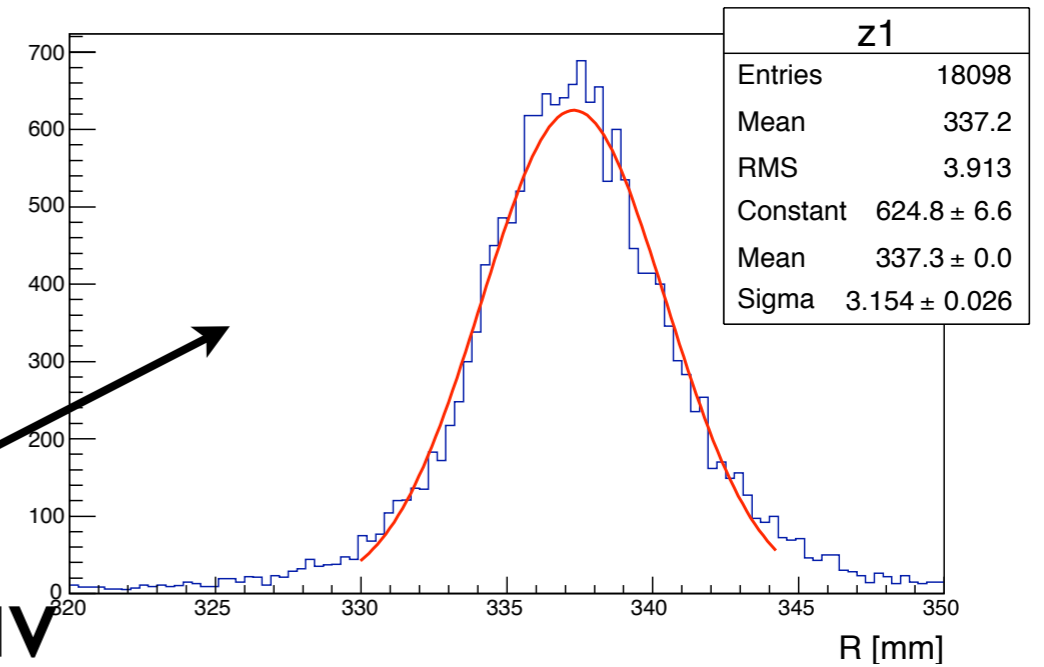


Hit(x,y) - Gem(x0,y0)



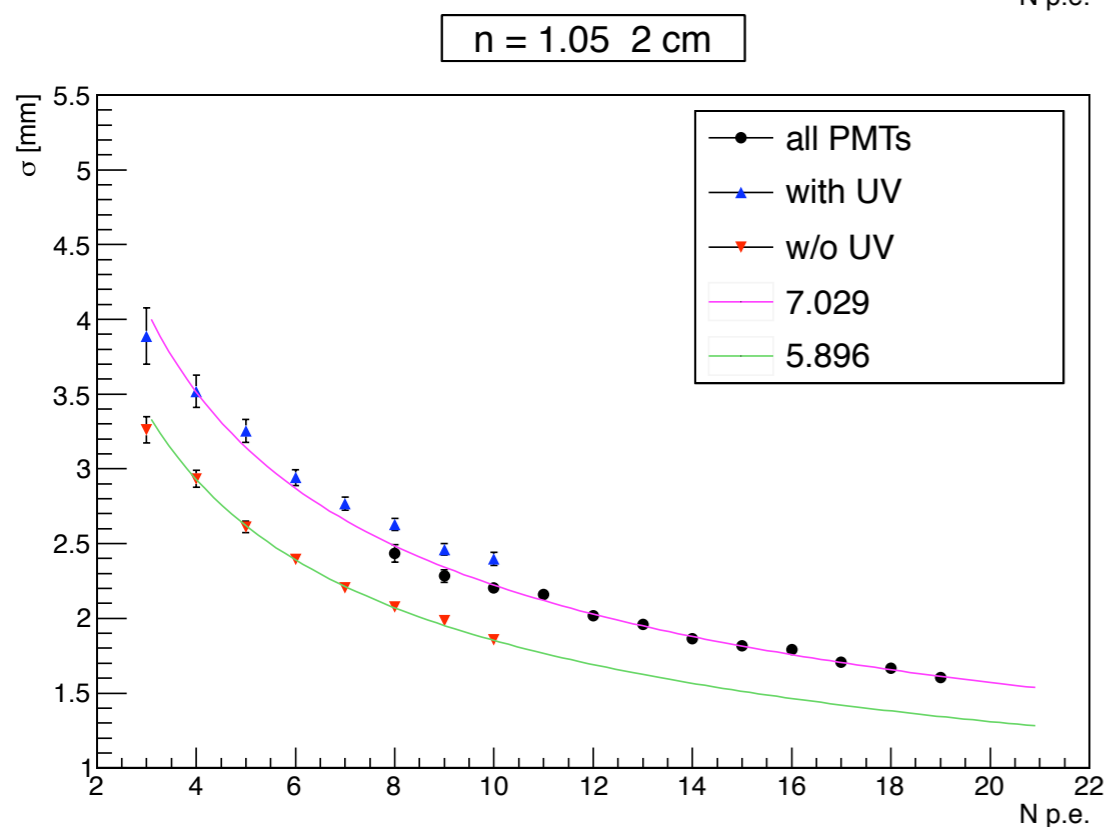
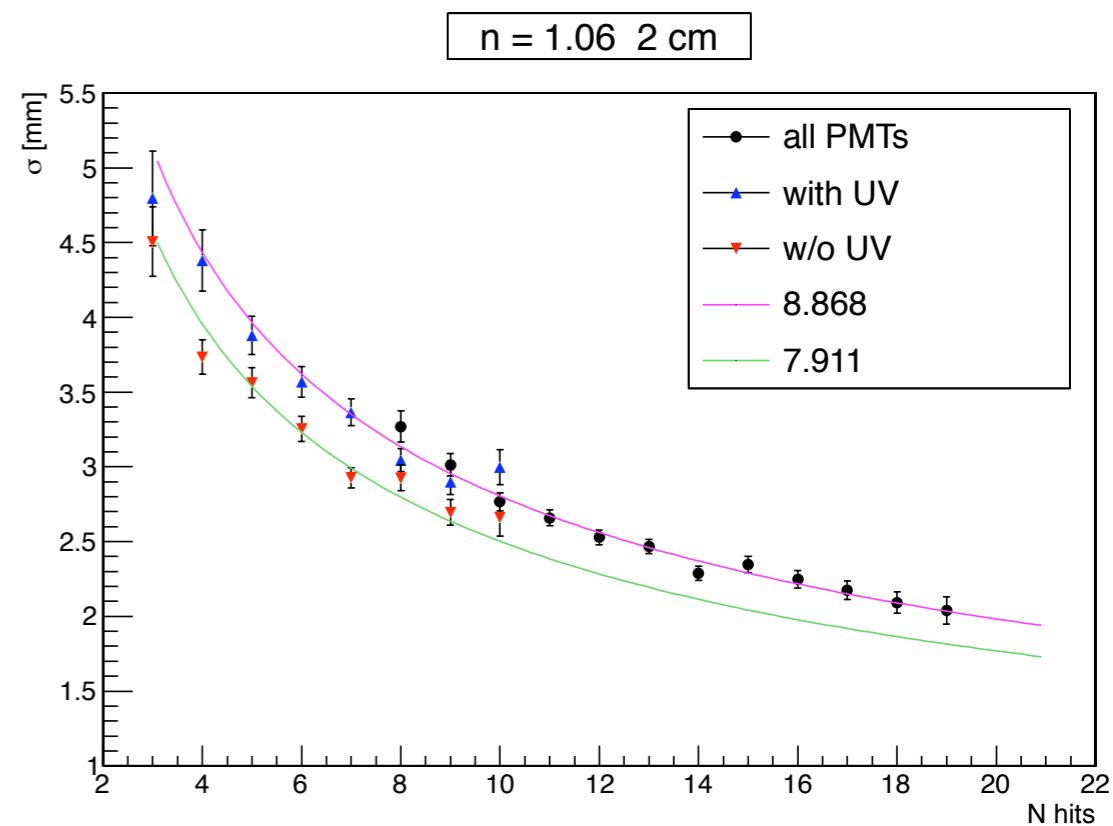
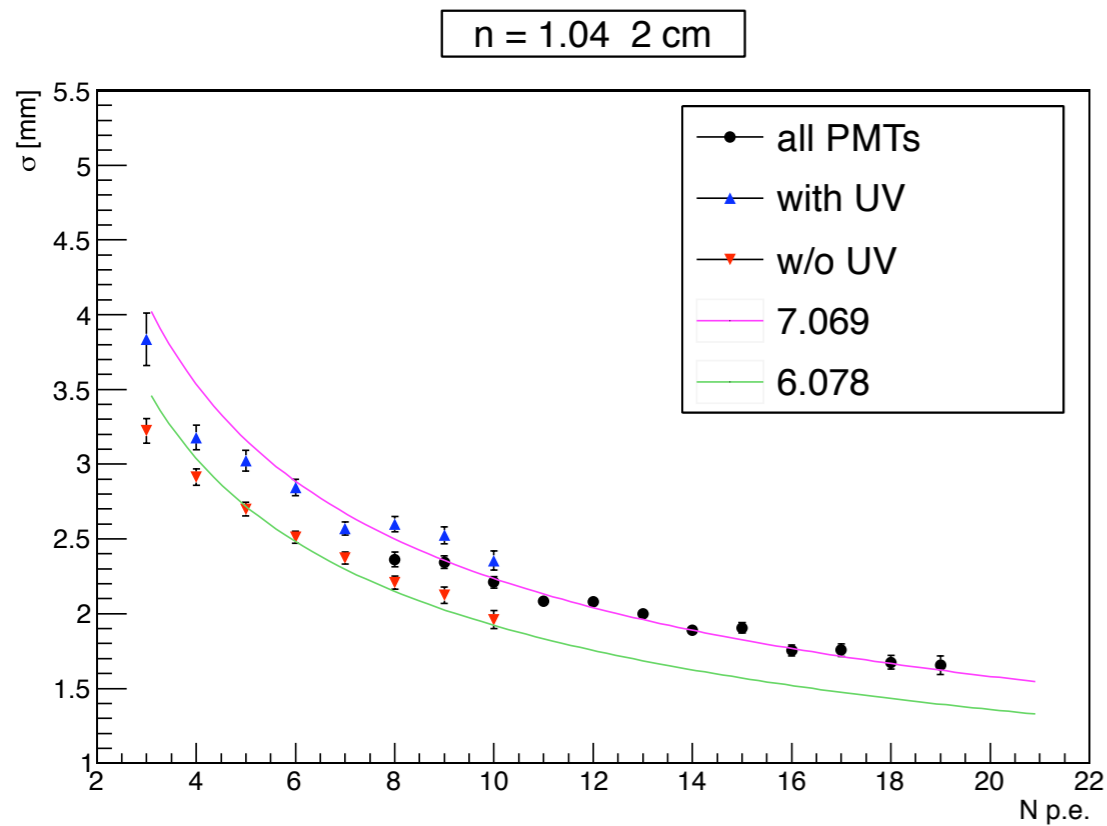
with uv

w/o uv



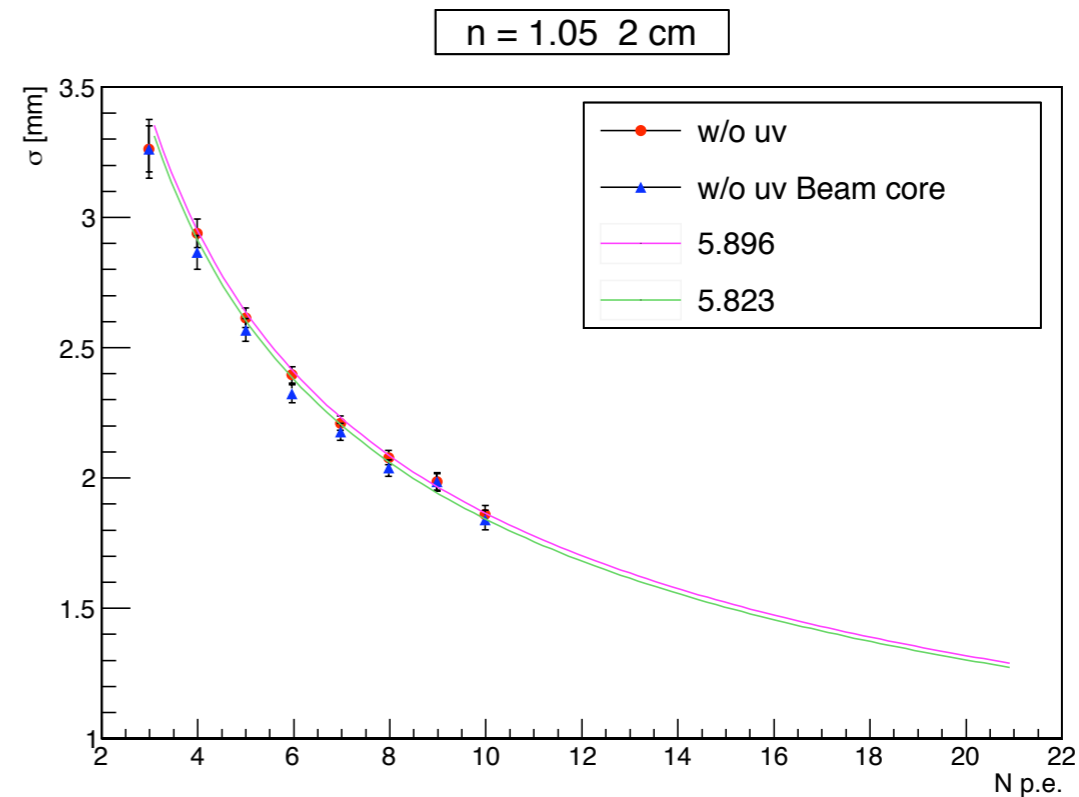
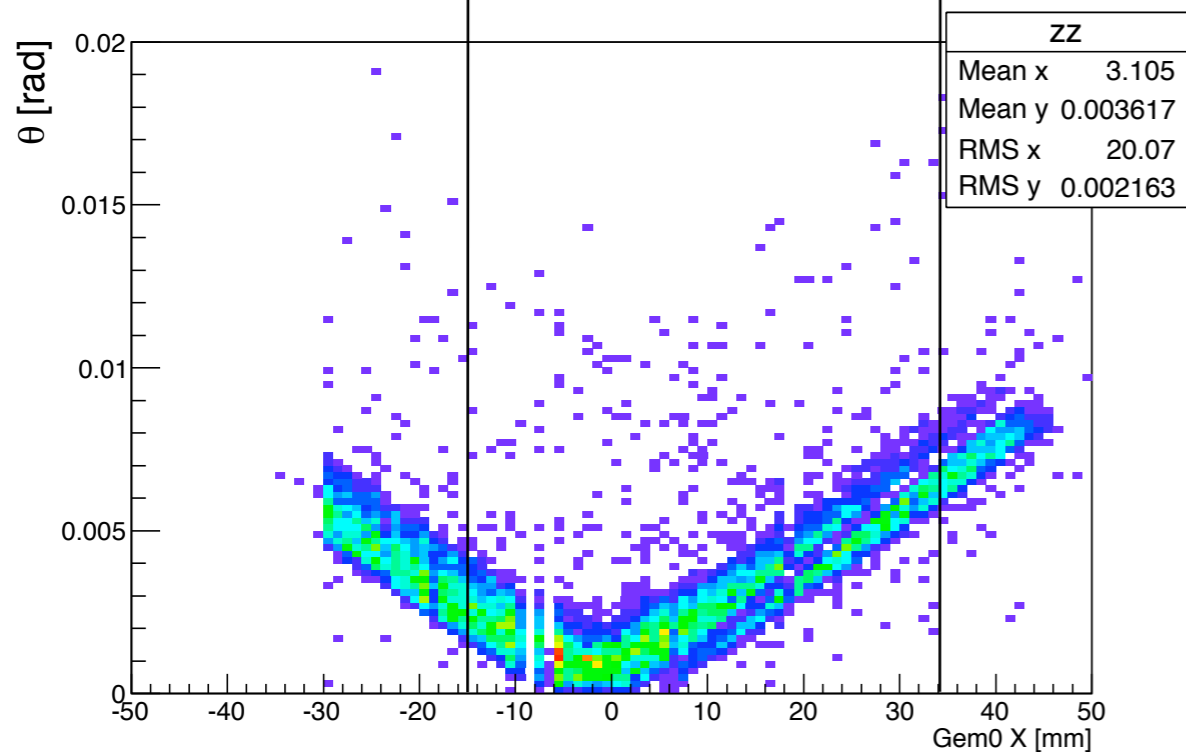
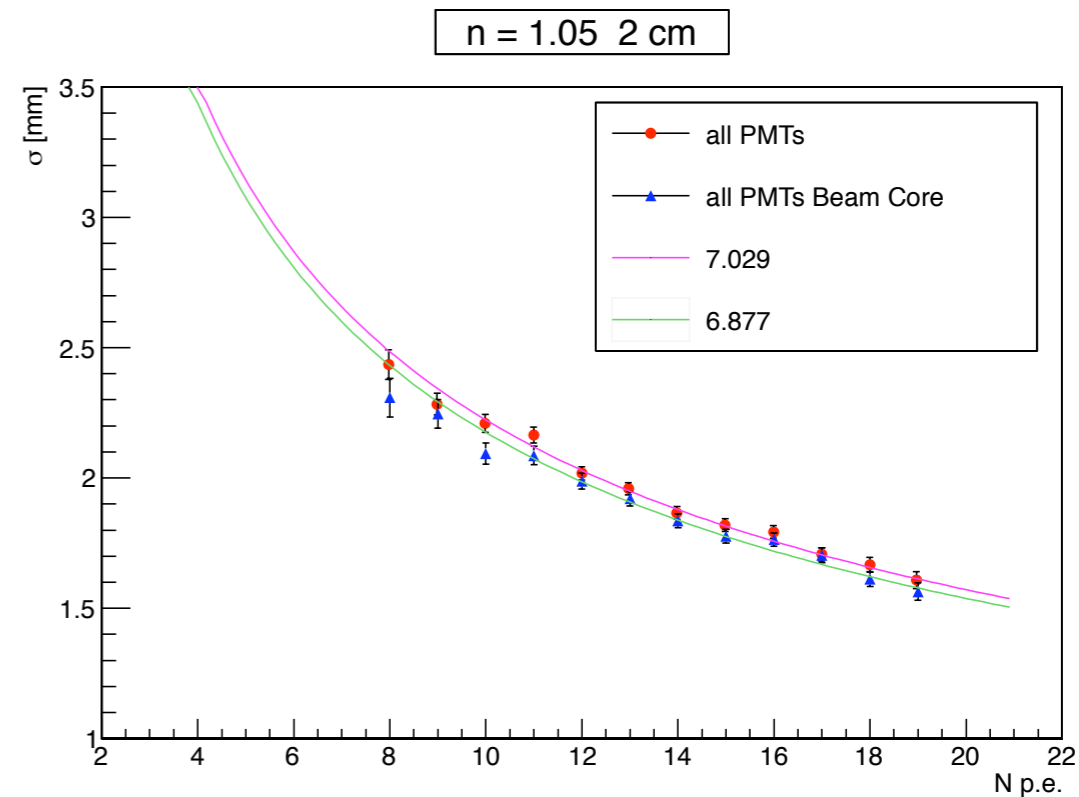
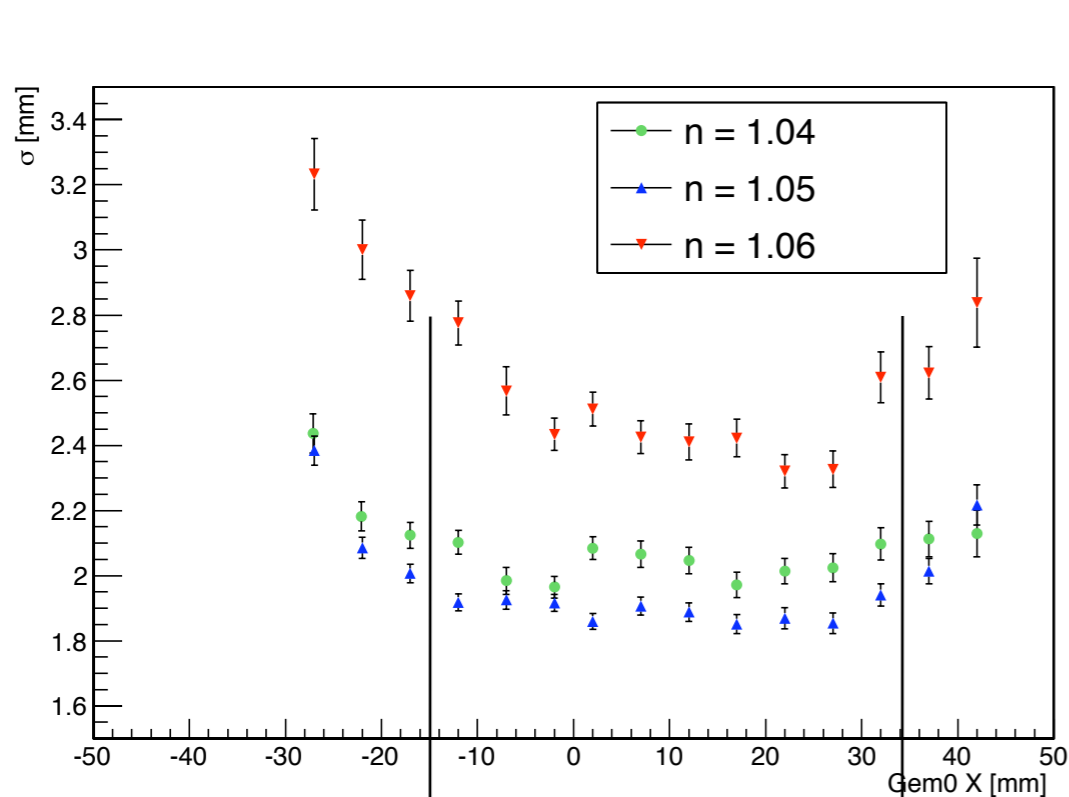
1 mm difference in the mean radius

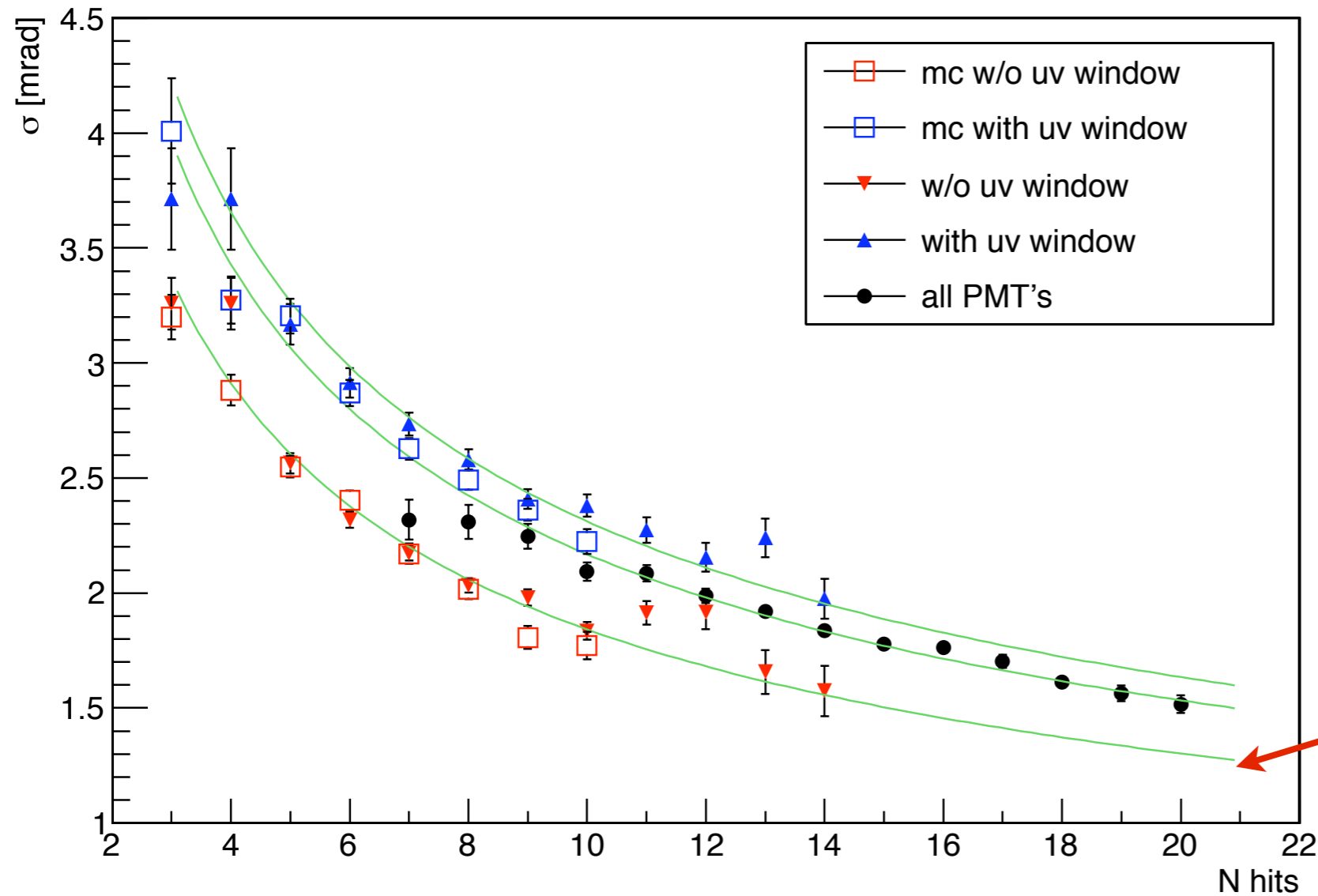
Resolution of the reconstructed ring radius



Fit function $\sim \text{par}[0]/(\sqrt{N})$
par[0] \sim single photon hit resolution

Sensitivity to the beam misalignment





Cherenkov photon
angular resolution

5.82 [mrad]