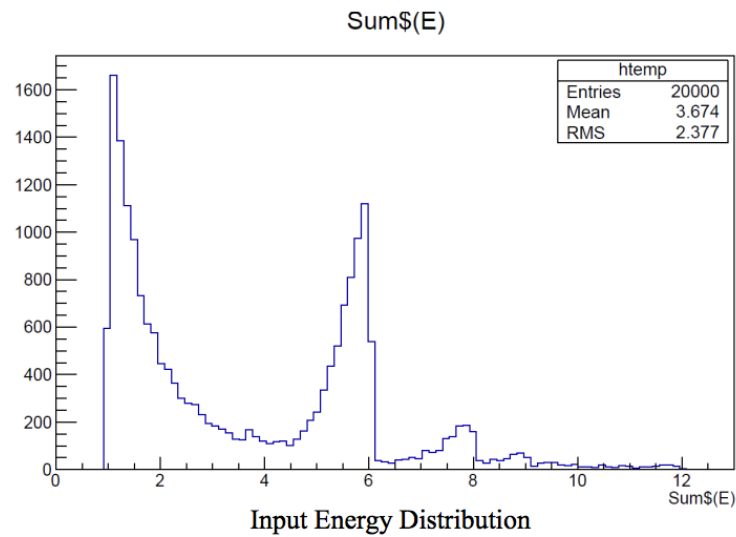


Classification with CPPsim + BDT

David L. JLab

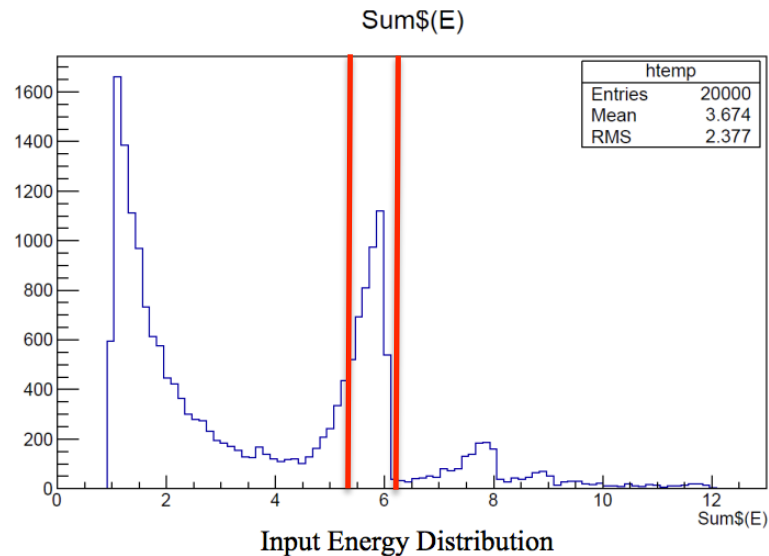
May 19, 2017

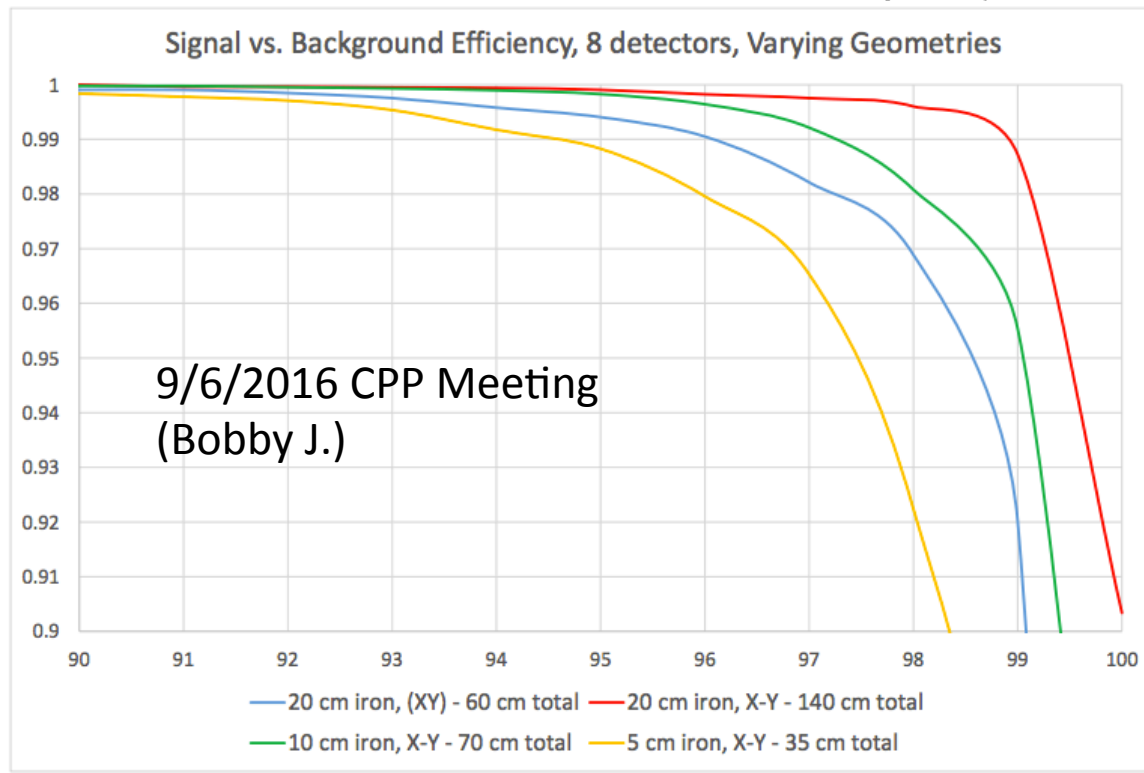
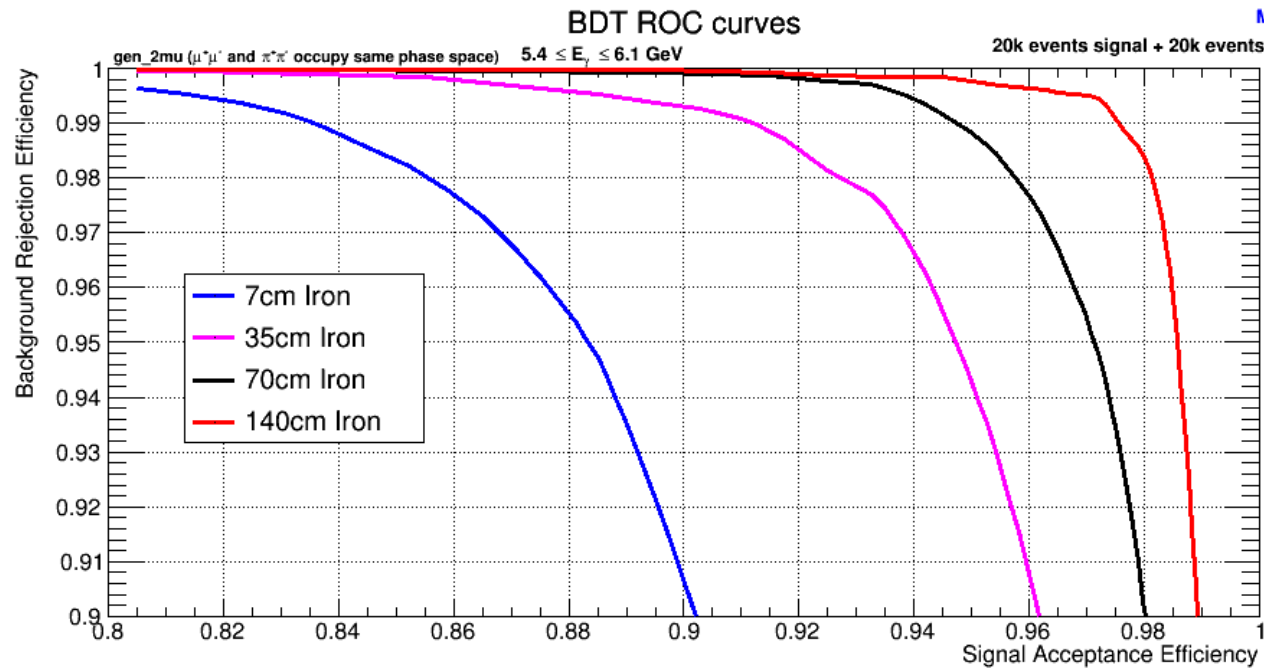
Simulation Parameters



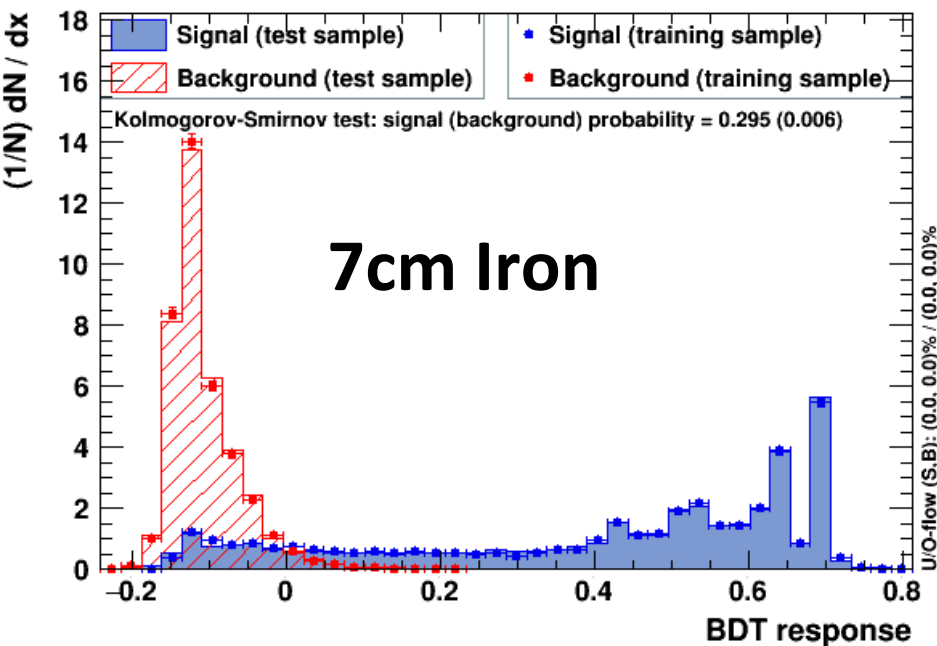
Simulation Parameters

- gen_2mu used to generate $\mu^+\mu^-$ and $\pi^+\pi^-$ events
 - 20k events of each type
 - Strong overlap in phase space of signal and background sets
 - $1^\circ < \theta < 14^\circ$ for both particles
 - $5.4 < E_\gamma < 6.1$ GeV

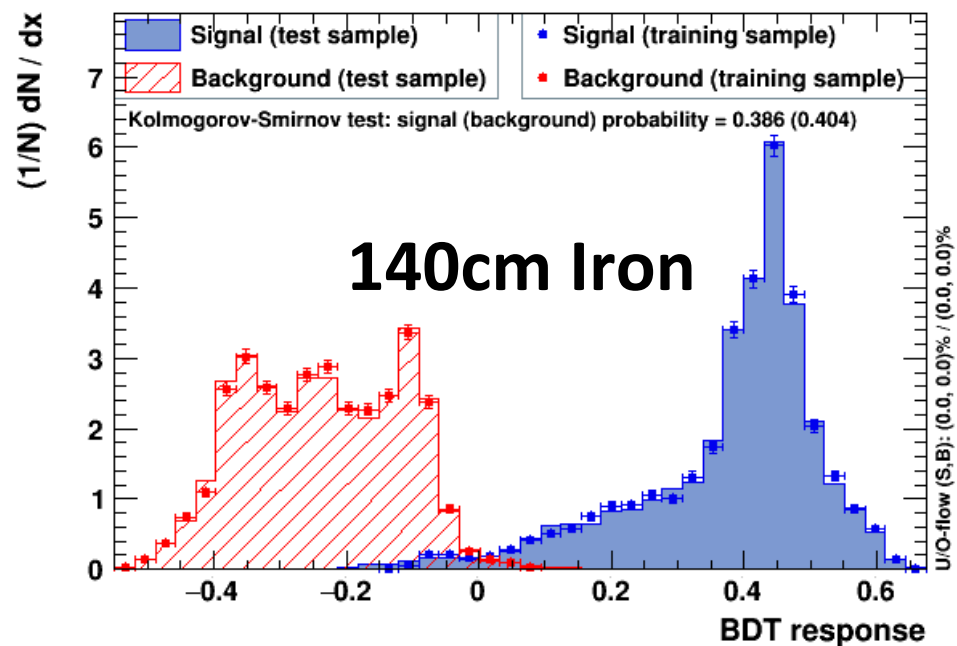




TMVA overtraining check for classifier: BDT



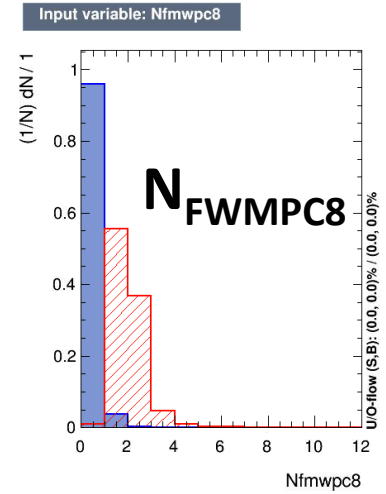
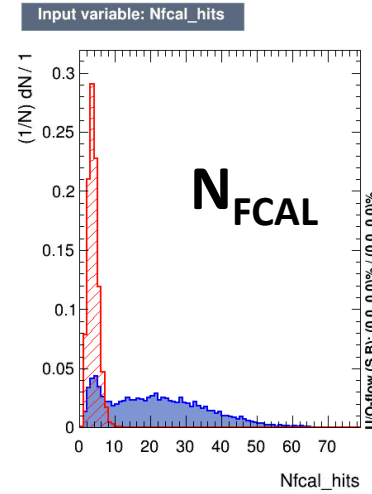
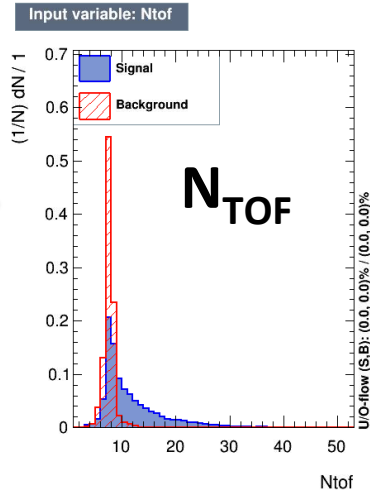
TMVA overtraining check for classifier: BDT



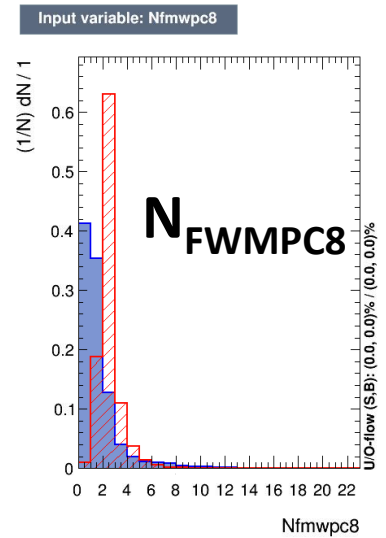
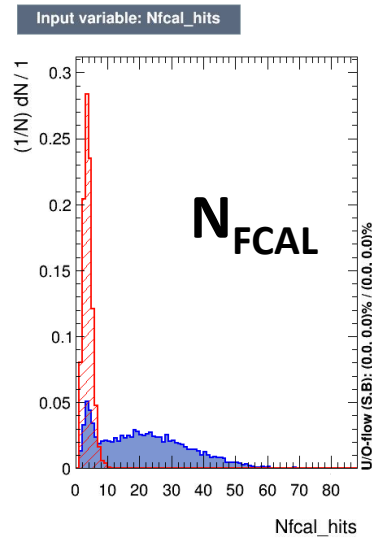
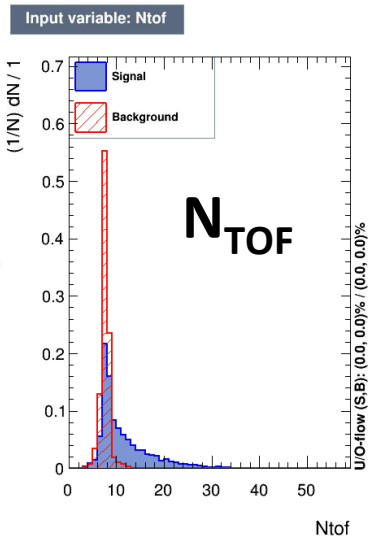
20cm Iron
absorbers
(140cm total)

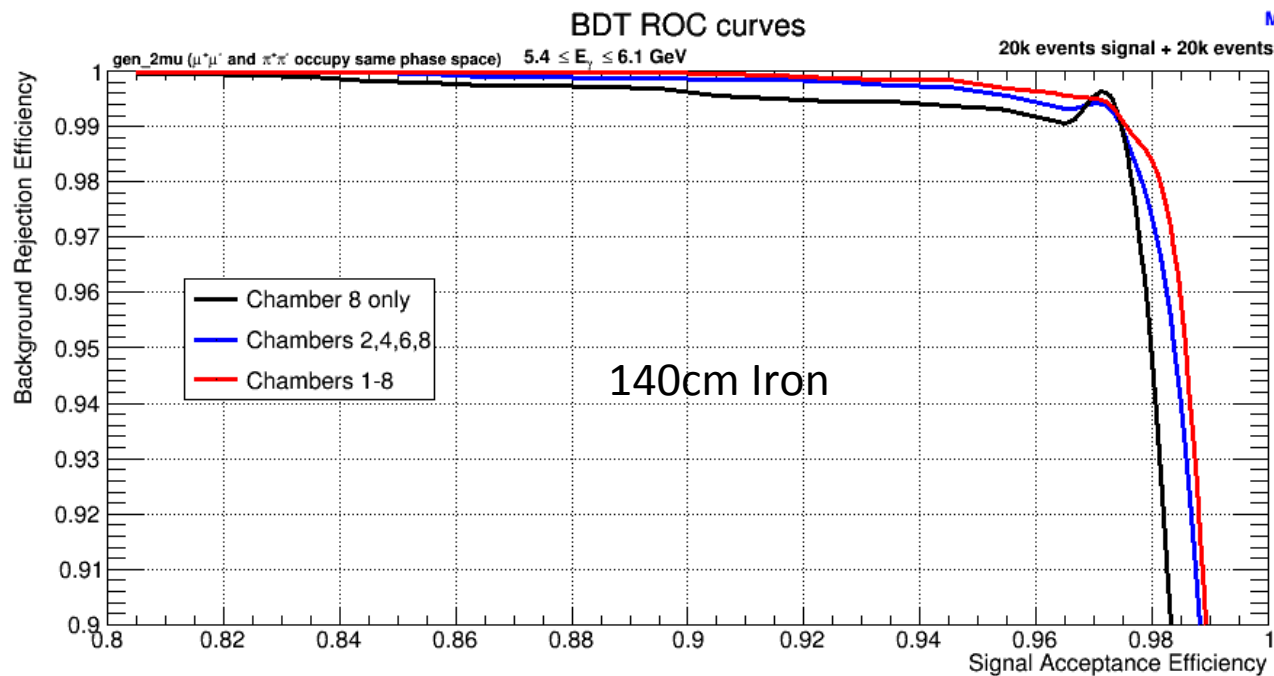
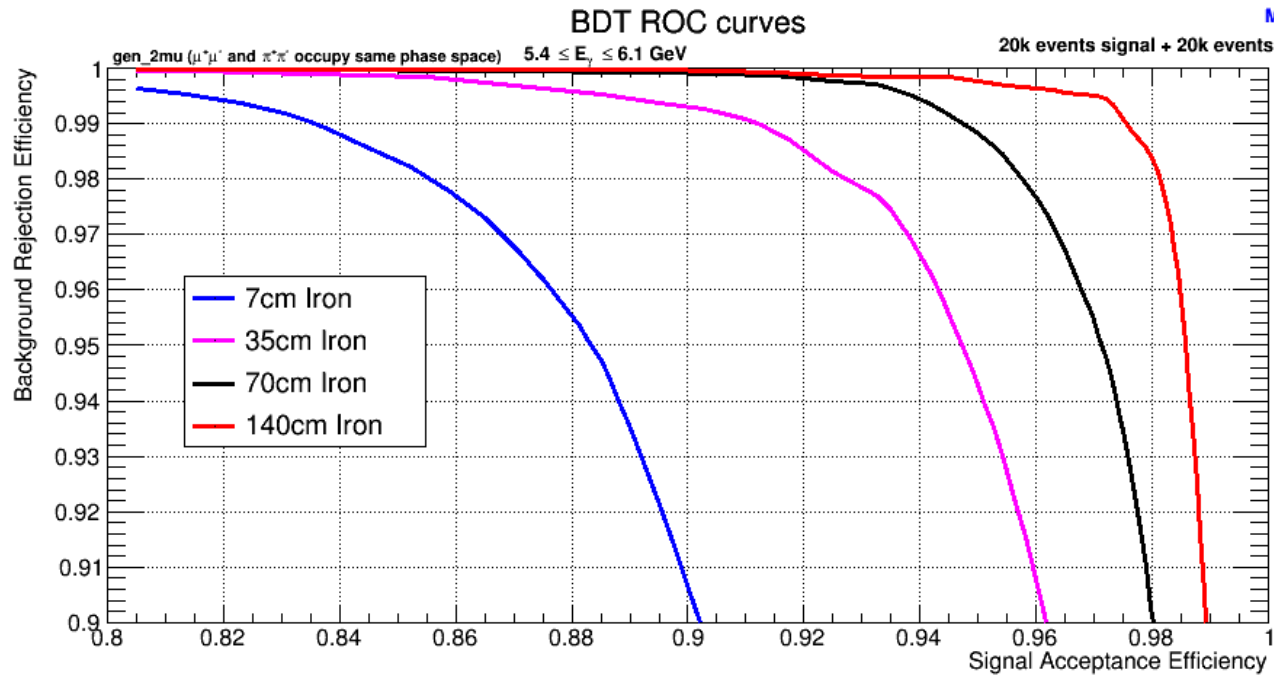


red = $\mu^+\mu^-$
blue = $\pi^+\pi^-$



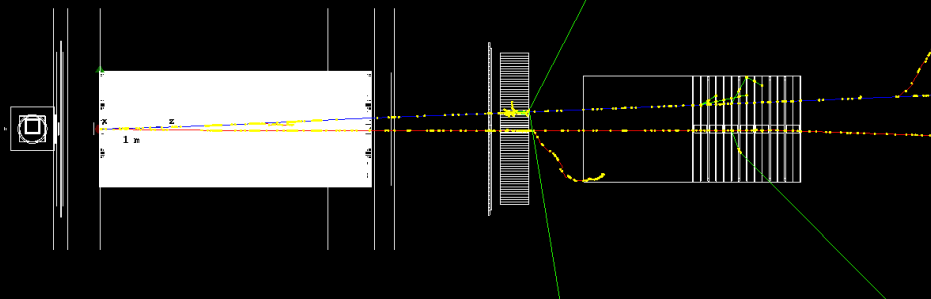
1cm Iron
absorbers
(7cm total)



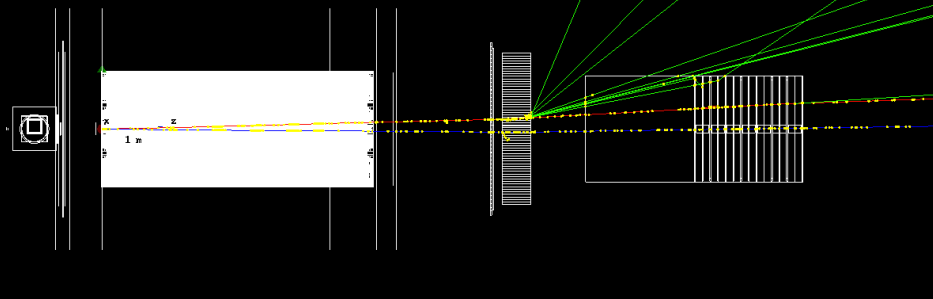


Most of discriminating power comes from single chamber (and FCAL)

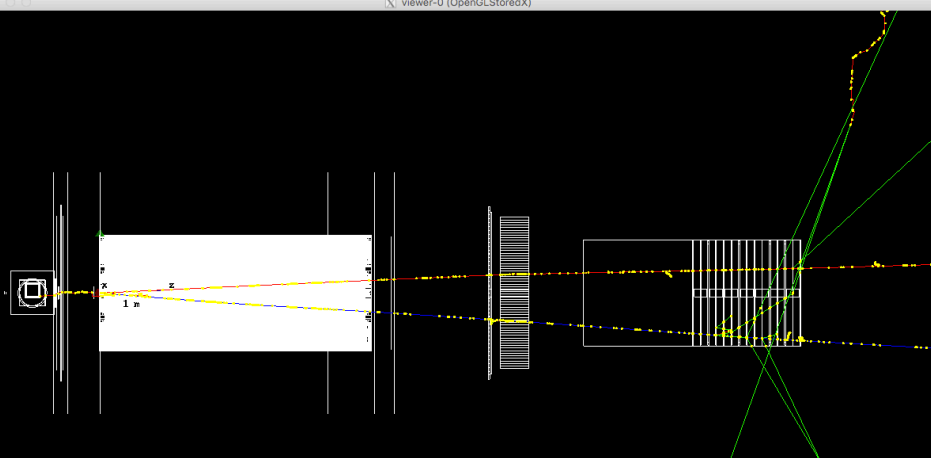
$\mu^+\mu^-$



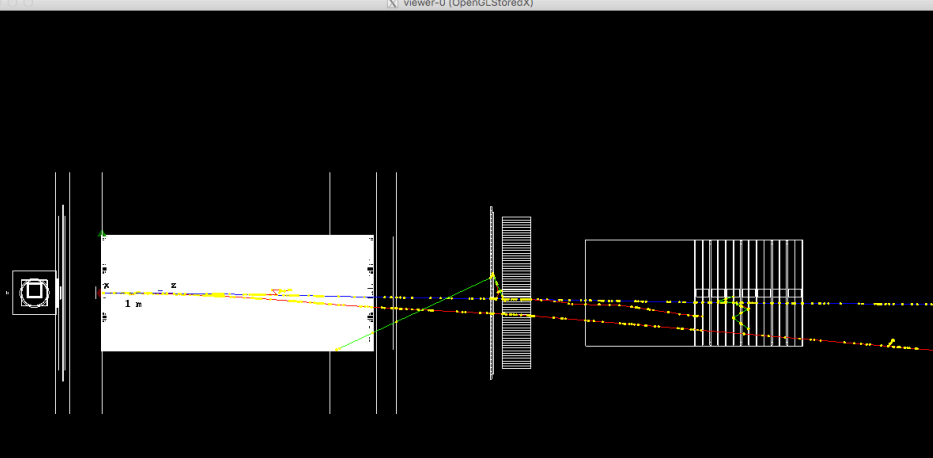
viewer-0 (OpenGLStoreX)



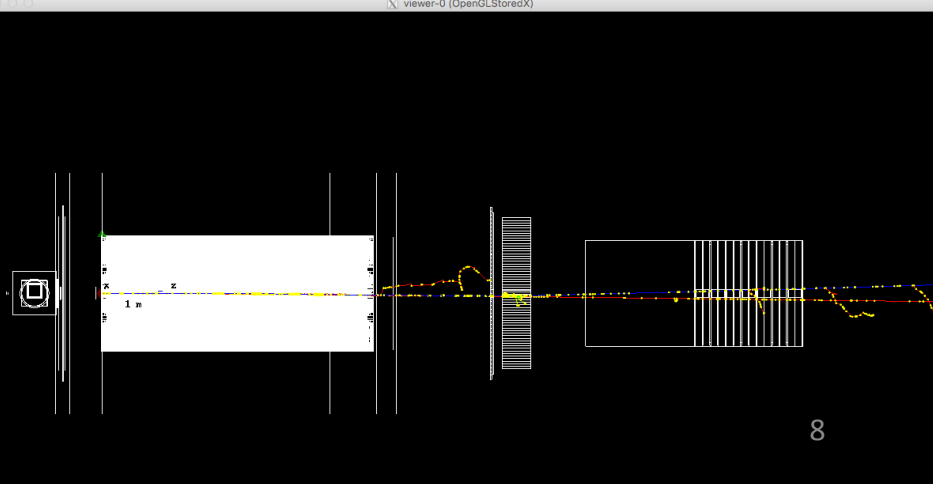
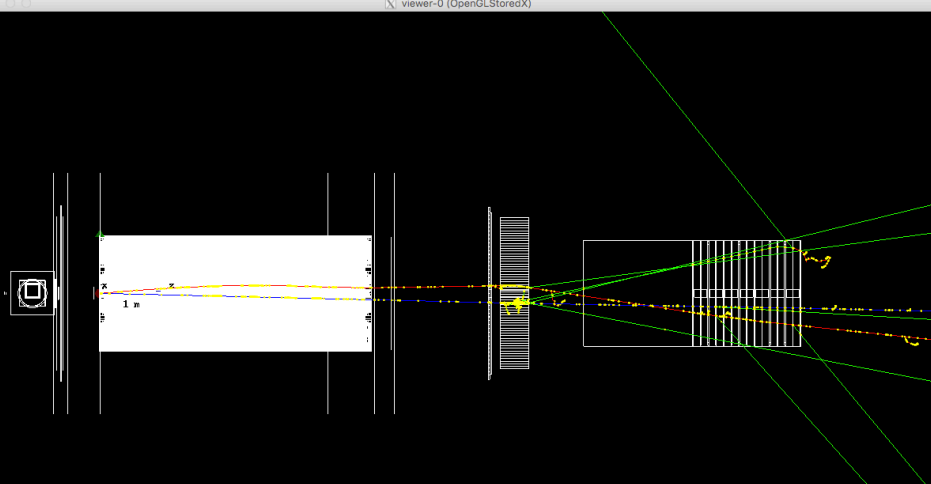
viewer-0 (OpenGLStoreX)



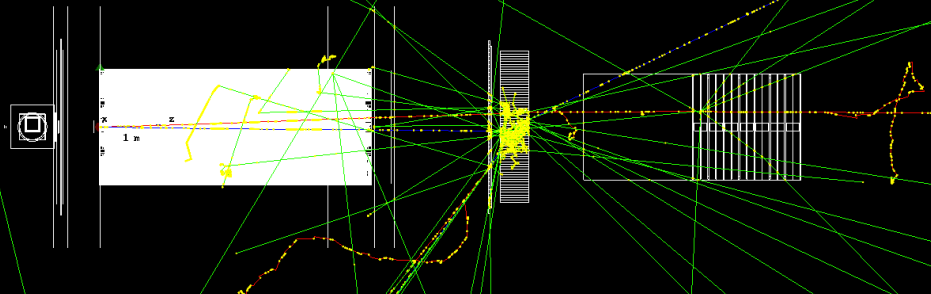
viewer-0 (OpenGLStoreX)



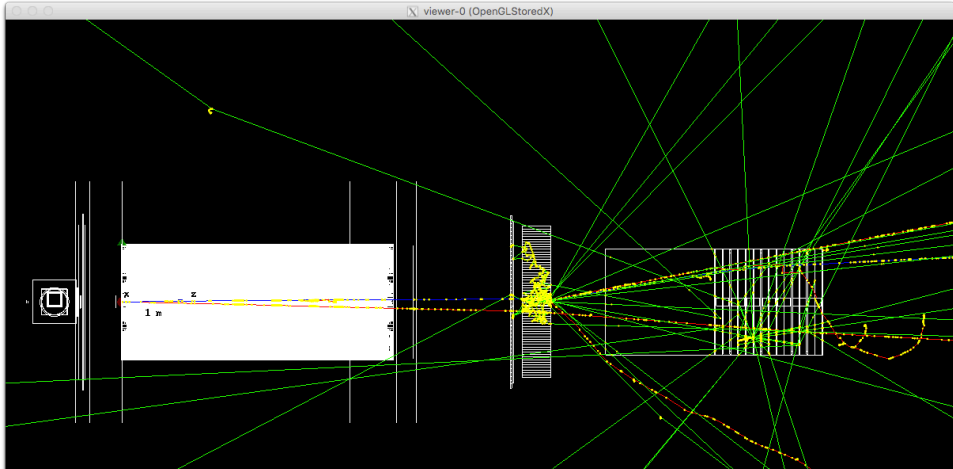
viewer-0 (OpenGLStoreX)



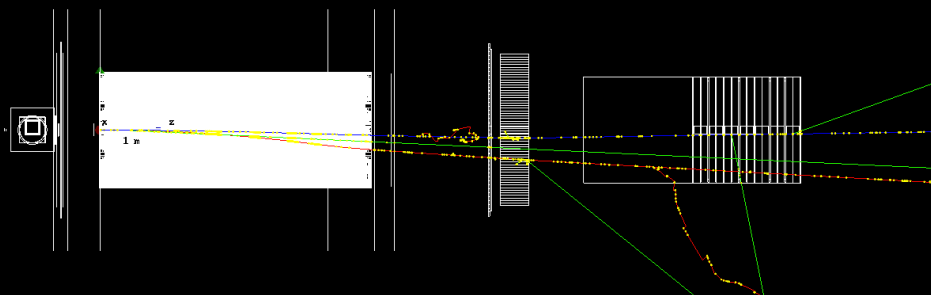
$\pi^+\pi^-$



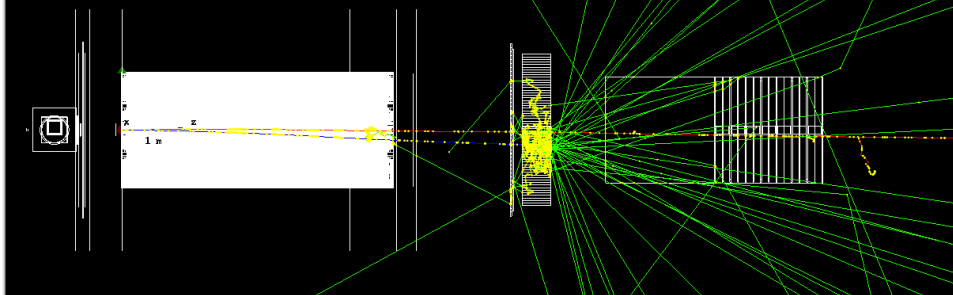
viewer-0 (OpenGLStoreX)



viewer-0 (OpenGLStoreX)



viewer-0 (OpenGLStoreX)



viewer-0 (OpenGLStoreX)

