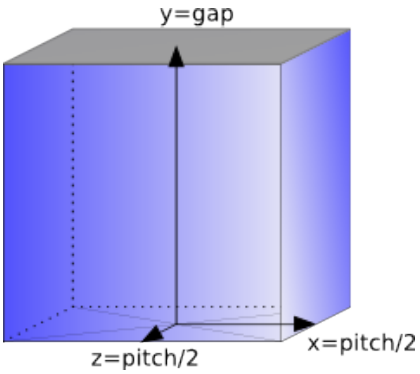
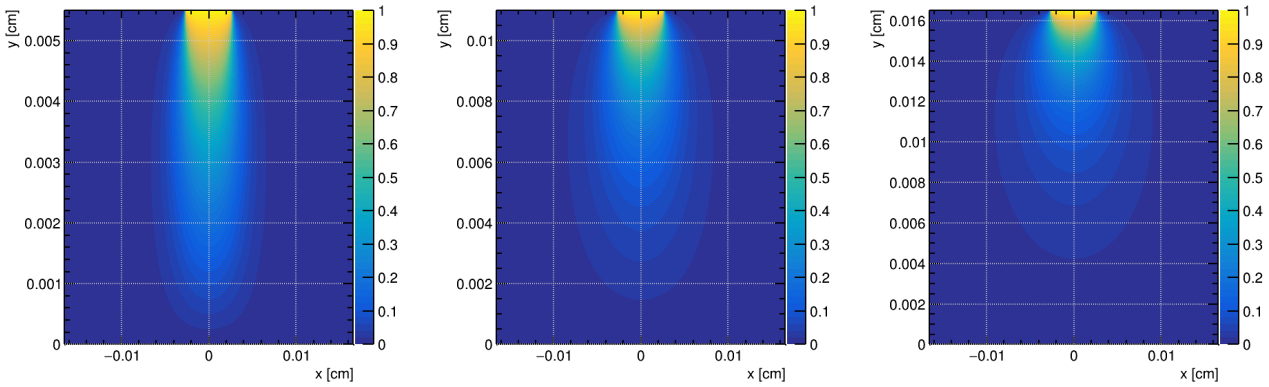
# 1 Timing studies of silicon detectors

This document presents data from garfield++ simulations to study timing properties of silicon detectorsHere are data from one electron hole pair What can be seen in this document is that document presents data from garfield++ simulations to study timing properties of silicon detectors- -

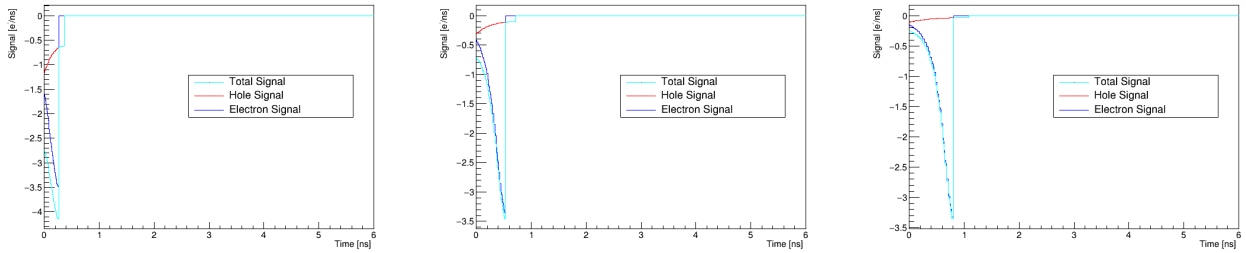
# 2 Pixel geometry




# 3 Weighting potentials

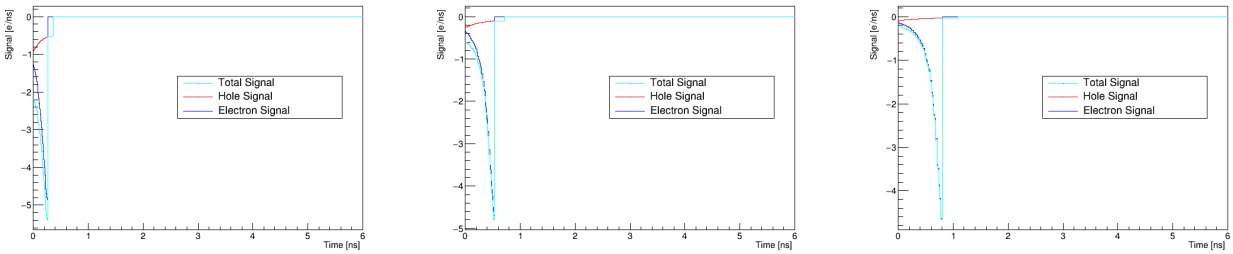



# 4 e-h pair in (0, gap/2, 0)



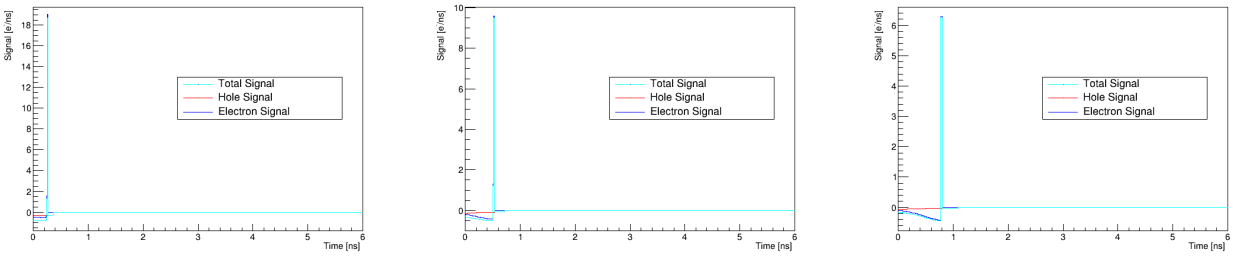

Initial signal is largest for thin devices, this is because the weighting field is larger at this point One can observe how the drift time increases thickness due to longer drift time Max signal is largest for the thin sensor mainly because the holes contribute more to the signal

# 5 e-h pair in (pitch/4, gap/2, pitch/4)



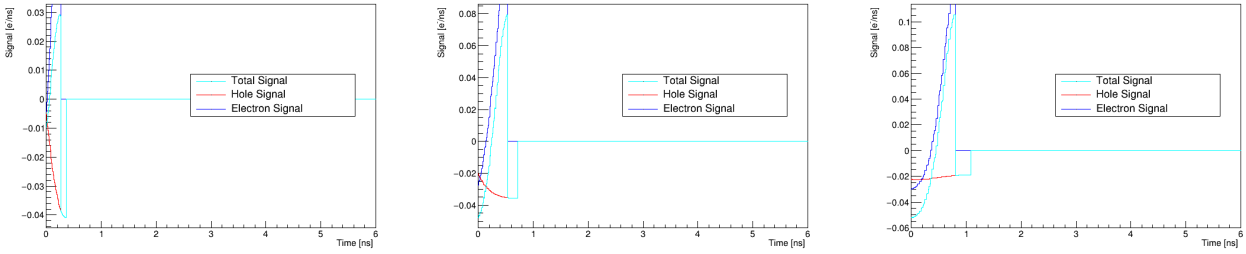

Why is maximum signal bigger than when the e-h pair is created in the (0,gap,0)

# 6 e-h pair in (pitch/2, gap/2, pitch/2)



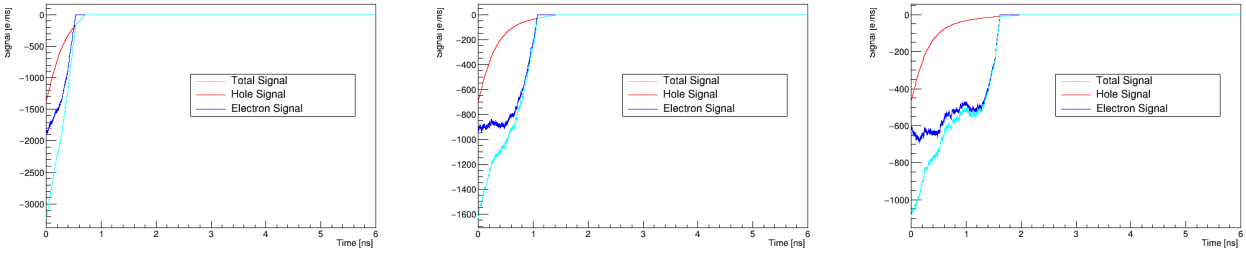

why so big positive? check weightingfield

# 7 e-h pair in (pitch, gap/2, pitch)



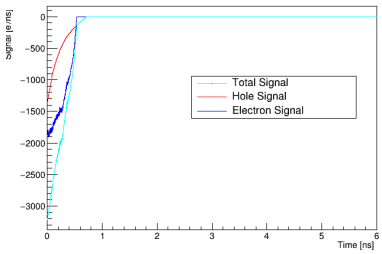

Bipolar as expected

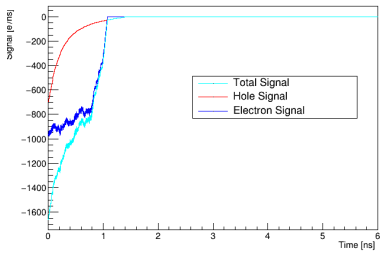
# 8 Track (0, y(uniform), 0)

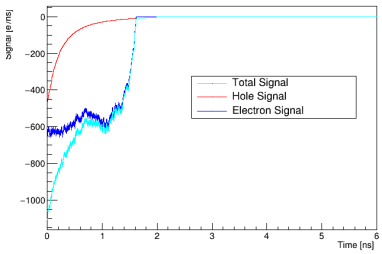



Noisy electron signal as every electron gives more and more signal and rapedly disappears Holes slowly fades away

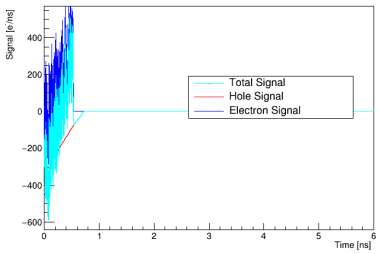
# 9 Track (pitch/4, y(uniform), pitch/4)

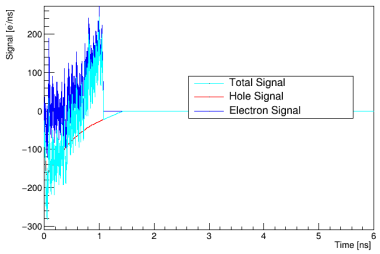


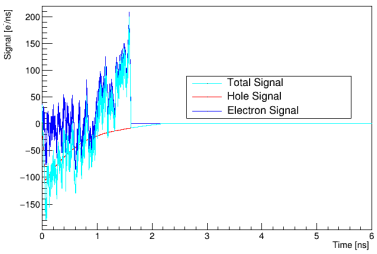



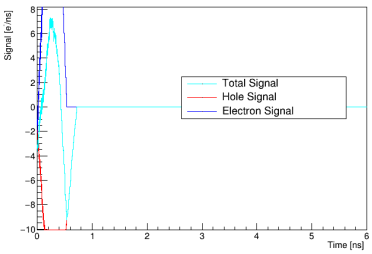

# 10 Track (pitch/2, y(uniform), pitch/2)

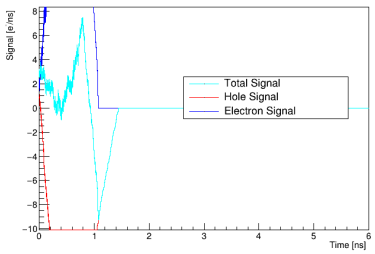


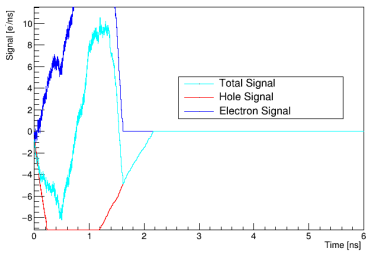




# 11 Track (pitch, y(uniform), pitch)




Bipolar as expected