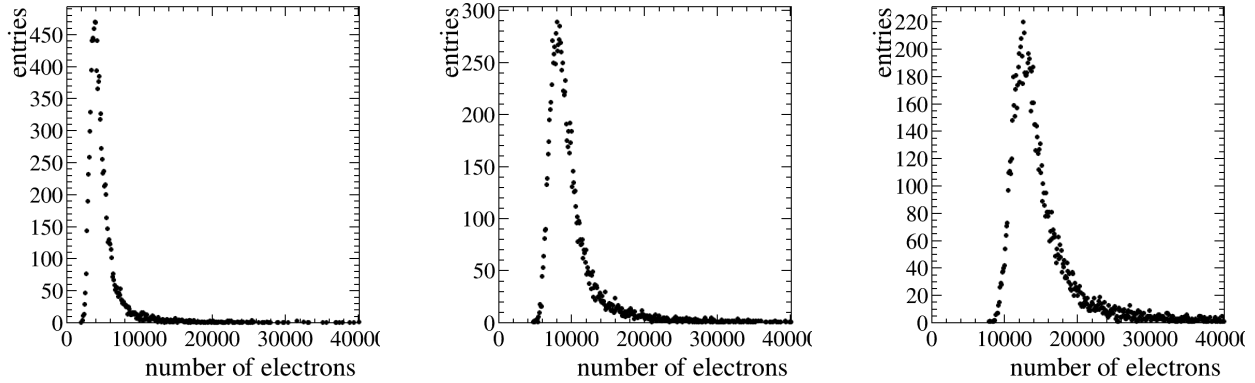


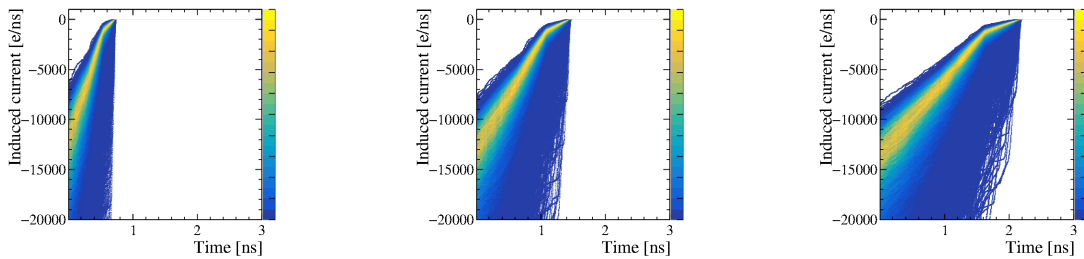
1 Timing studies of silicon detectors

This document presents data from garfield++ simulations to study timing properties of silicon detectors

2 Ionization (55um, 110um, 165um)

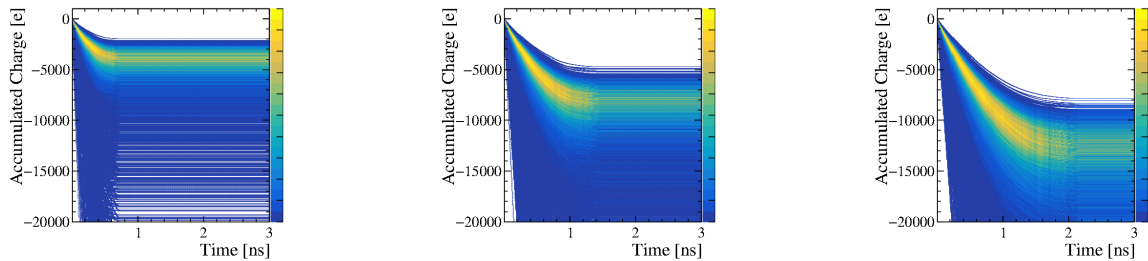


3 Raw pulses of thicknesses 55um, 110um, 165um uniform electric field 100000 V/cm

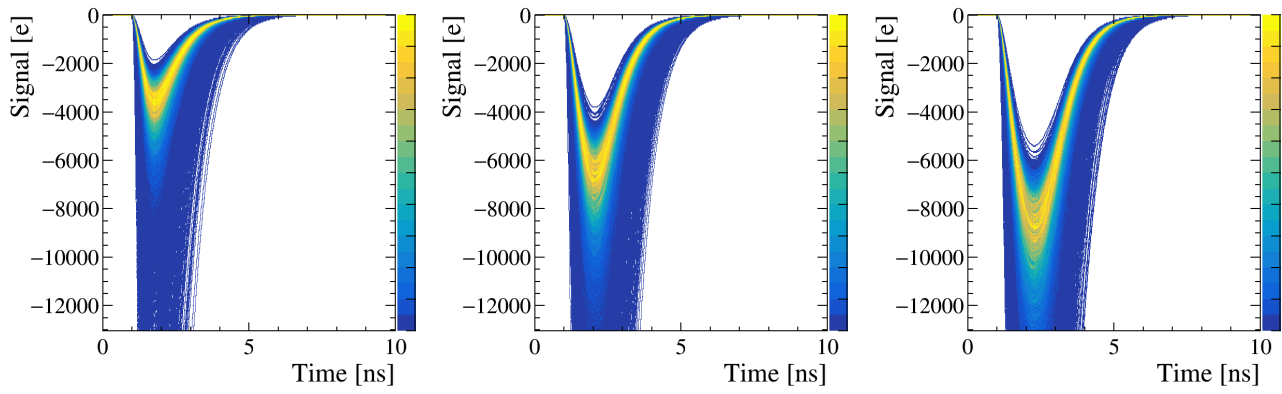


The initial current is the same, the increase of charge carriers is compensated with a reduced weighting field. The signal duration changes because the particles has to move for a longer distance with the same electric field.

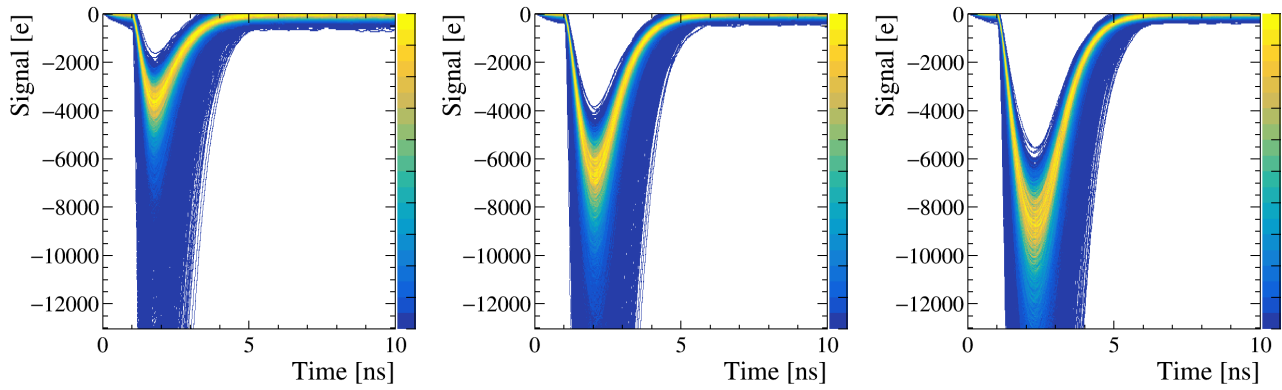
4 Accumulated charge (55um, 110um, 165um)



4.1 Shaper *no noise* peaktime 500ps (55um, 110um, 165um)

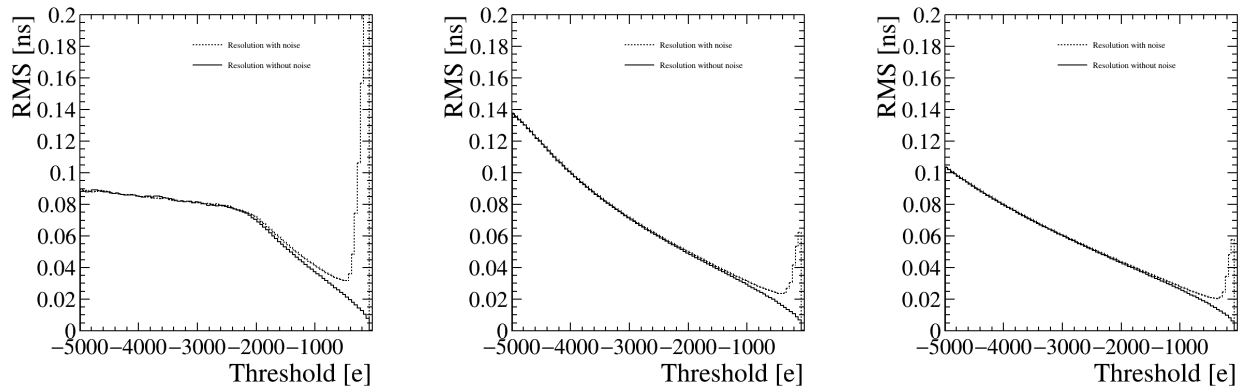


4.2 Shaper *with noise* peak time 500ps (55um, 110um, 165um)



The thicker sensors have a longer and narrower leading edge of signal.

4.3 Threshold scan 500ps (55um, 110um, 165um)



The thicker sensors have a better time resolution than thin sensors, the flattening of the curve in the 55um case is due to a reduced amount of signal crossings