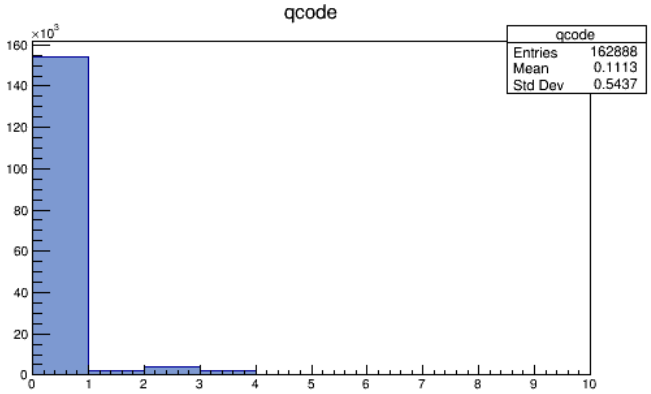
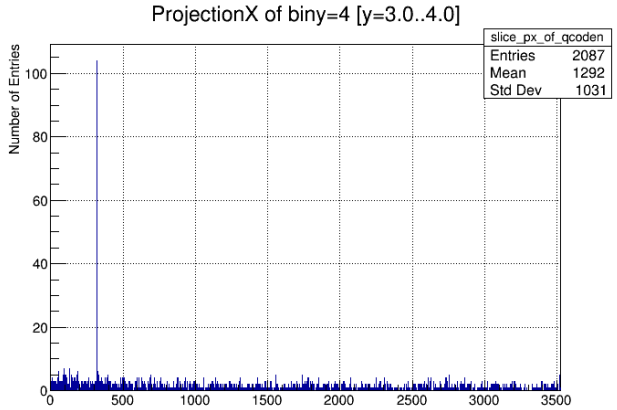
CDC update 3 May 2017

hit efficiency

CDC digihits quality codes

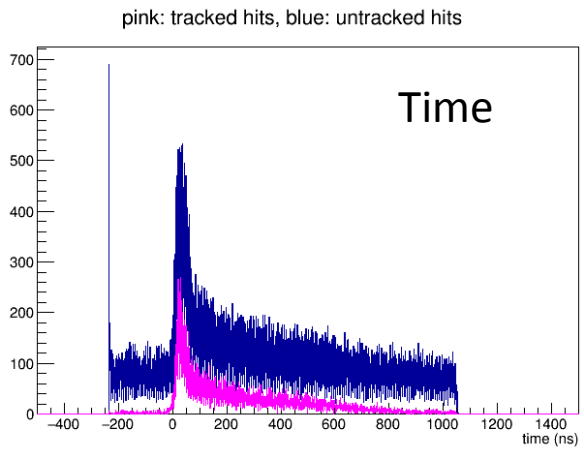


95% become hits (quality code 0)
2% have high initial pedestal (qc 2)
1% have a sample value of 0 (qc 1)
1% don't pass second threshold (qc 3)

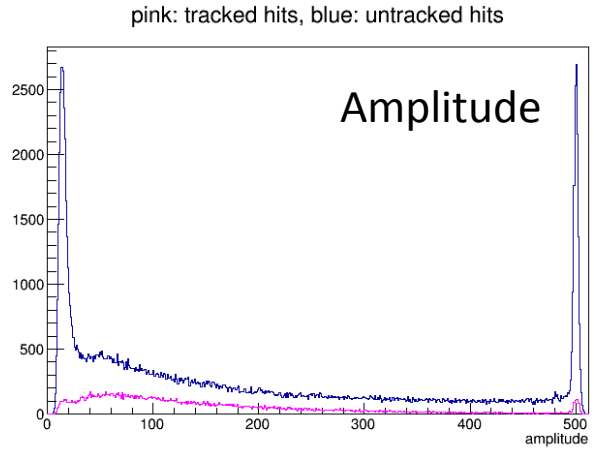


Hits with q-code=3
(peak < 2nd threshold crossing)
Occurrence with straw number

Compare hits that are and are not included on tracks – only 17% make it

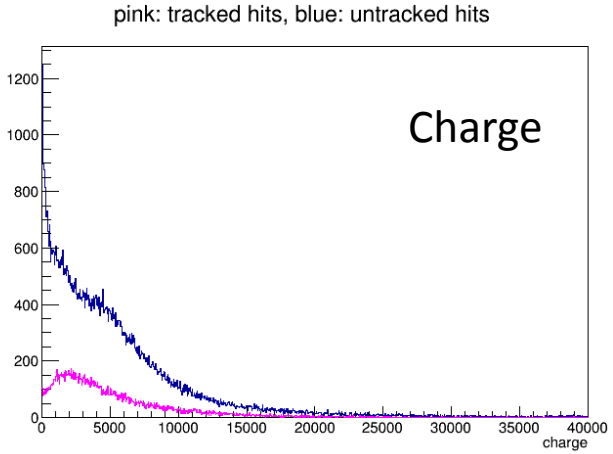


Time: looks plausible for 40% of off-track hits



Amplitude: most saturated hits are off-track

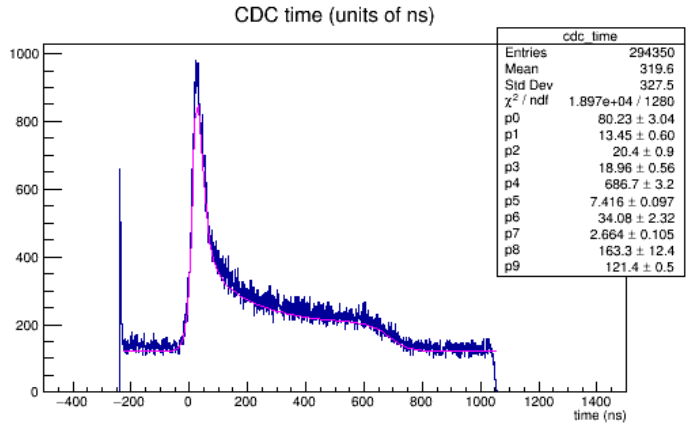
~20% of hits in initial noise pk
~11% in saturation peak

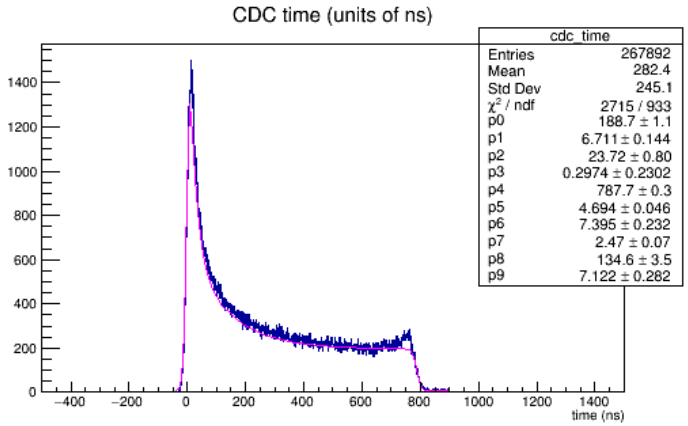


Will dig deeper

Compare simulation & real data

Drift time histogram – all CDC hits, no tracking required

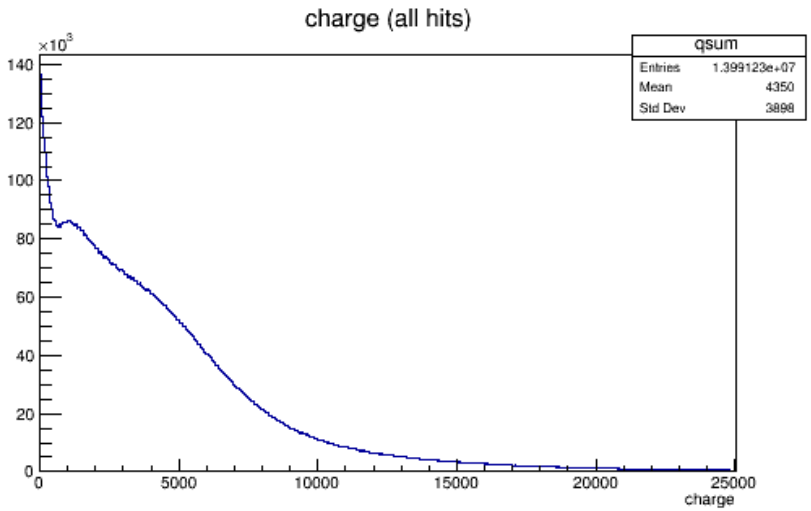


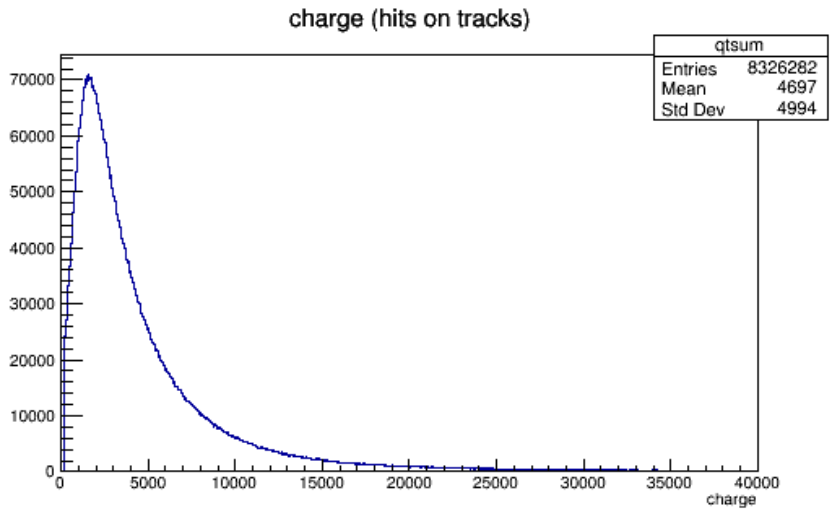


Real
Run 30410, Solenoid 1350A
Max drift 668ns

Simulated (Geant 3)
Run 10000, Solenoid 1350A
Max drift 787ns

Charge – all CDC hits, no tracking required



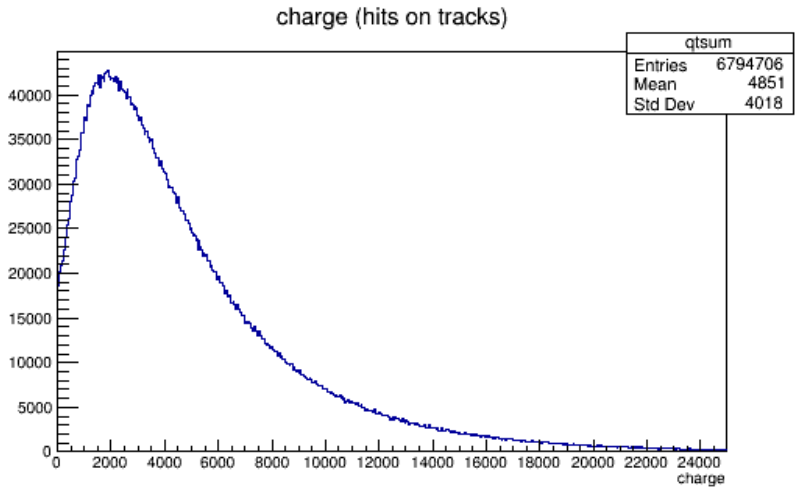


Real
Run 30410, Solenoid 1350A

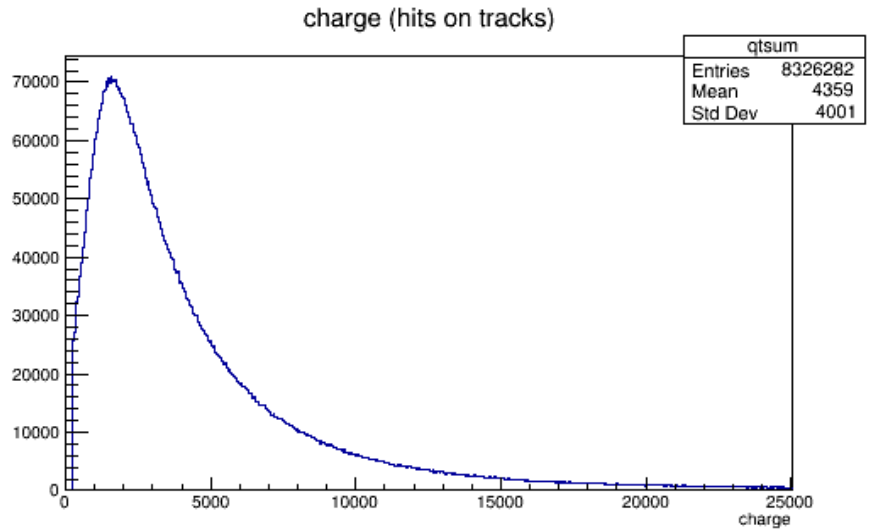
Simulated (Geant 3)
Run 10000, Solenoid 1350A

Don’t compare the #entries – ran over different #events.

Charge – all CDC hits on tracks



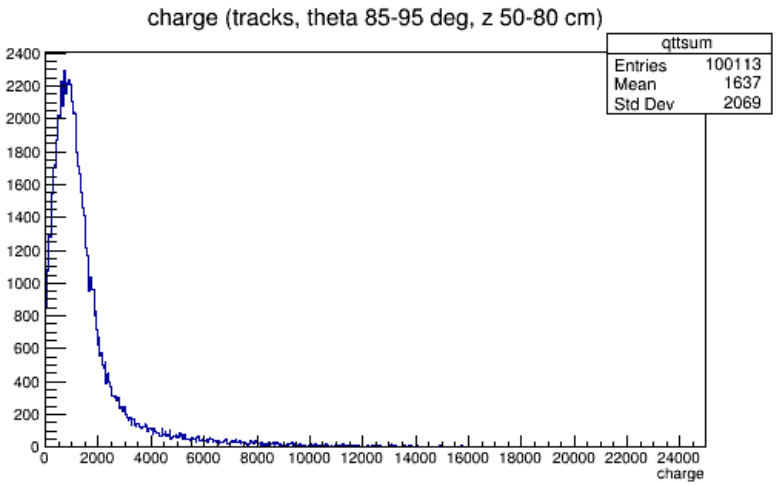
Real
Run 30410, Solenoid 1350A

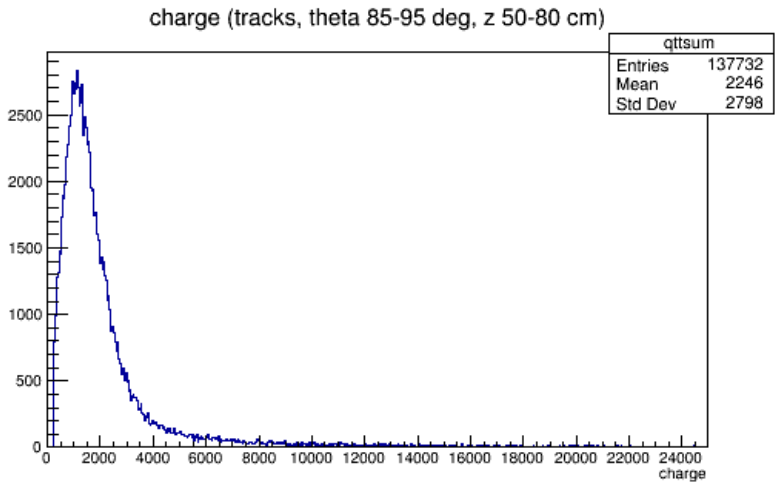


Simulated (Geant 3)
Run 10000, Solenoid 1350A

Don’t compare the #entries – ran over different #events.

Charge – all CDC hits on tracks from target, perp to beam





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