CDC dE/dx problems, Aug 2017

1 Occasional dE<0 (when a hit occurs before the baseline has recovered from an earlier hit)

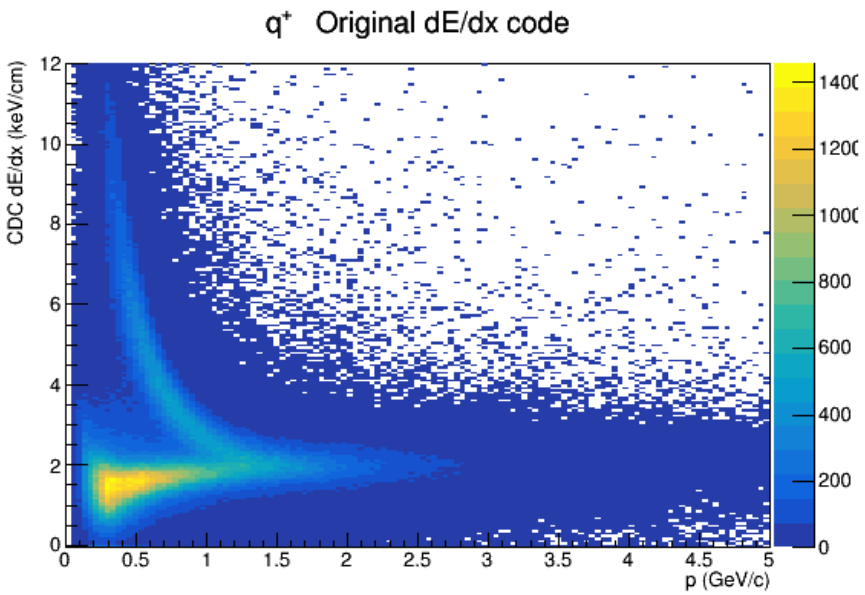
2 Space-charge effect (first cluster to reach the wire depletes the gas of e-s in that region, affects perpendicular tracks most)

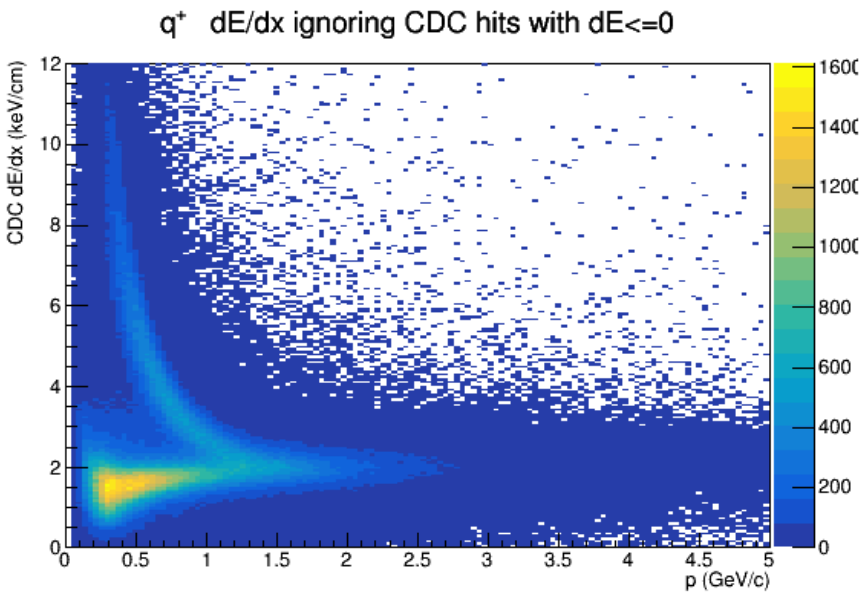
Expect #1 to become more prevalent with increased count rate.

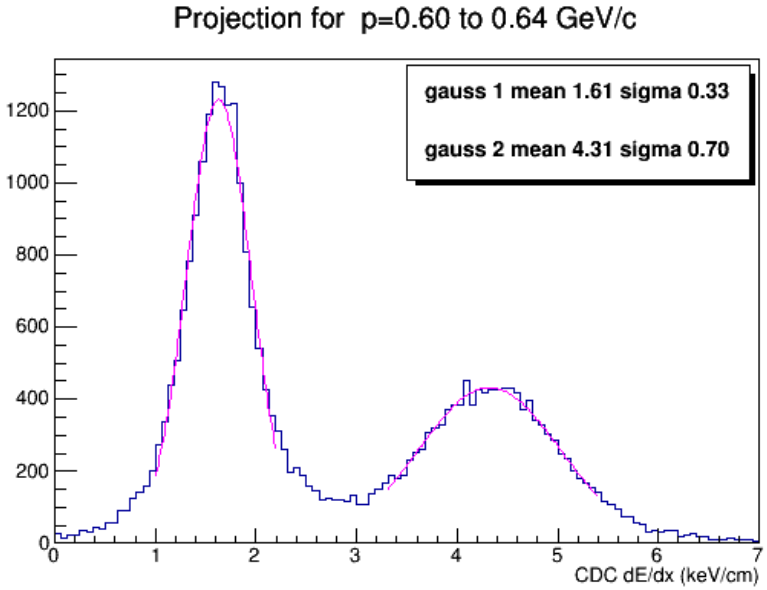
Solutions

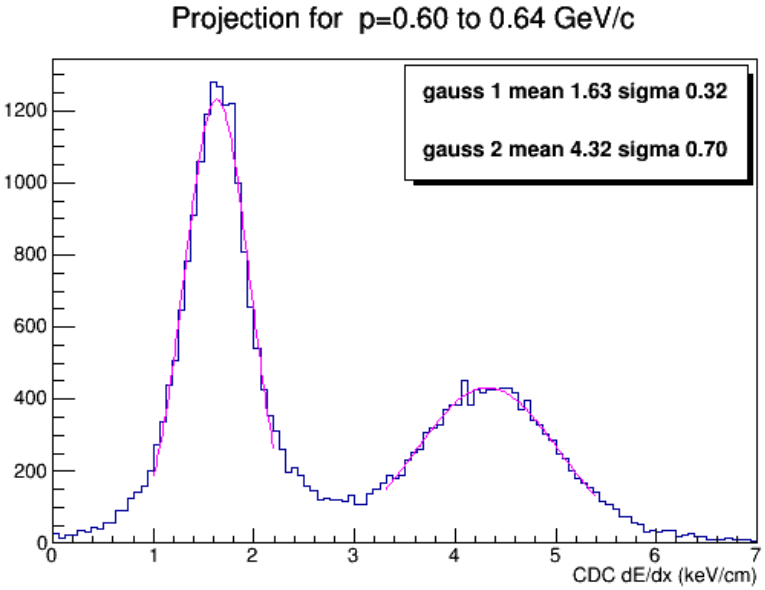
A. Ignore hits with dE<=0 in tracking code – partially fixes #1
B. Use pulse height instead of integral – fixes#1 and maybe #2

A: Ignore hits with dE<=0, monitoring_hists, 011366 file 001









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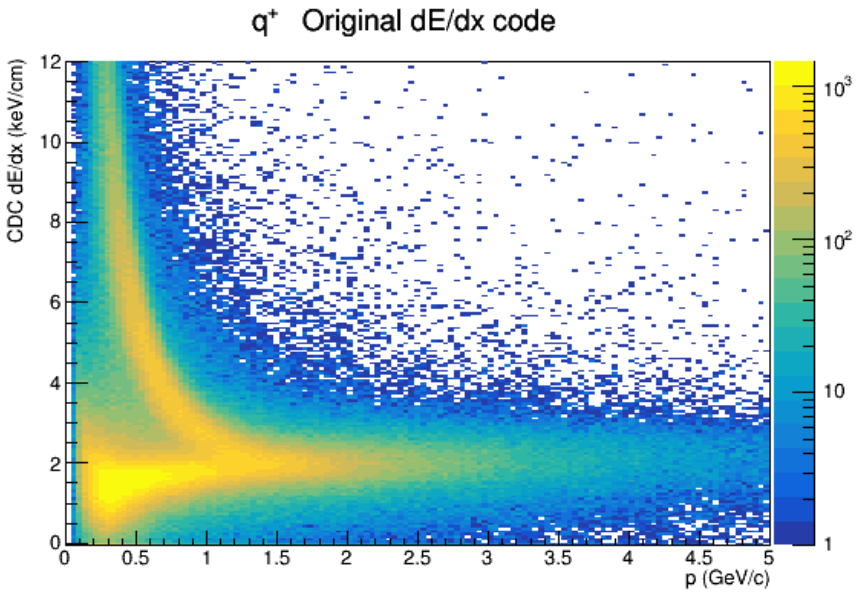
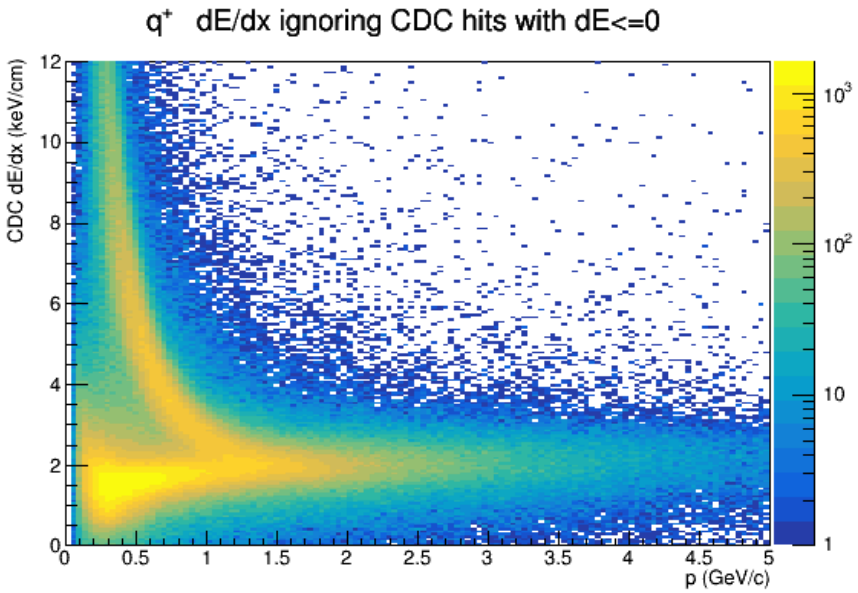
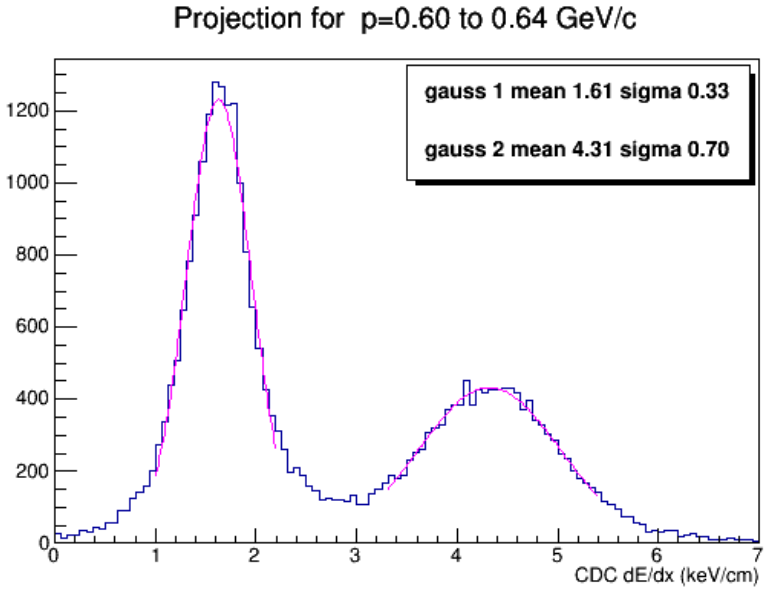
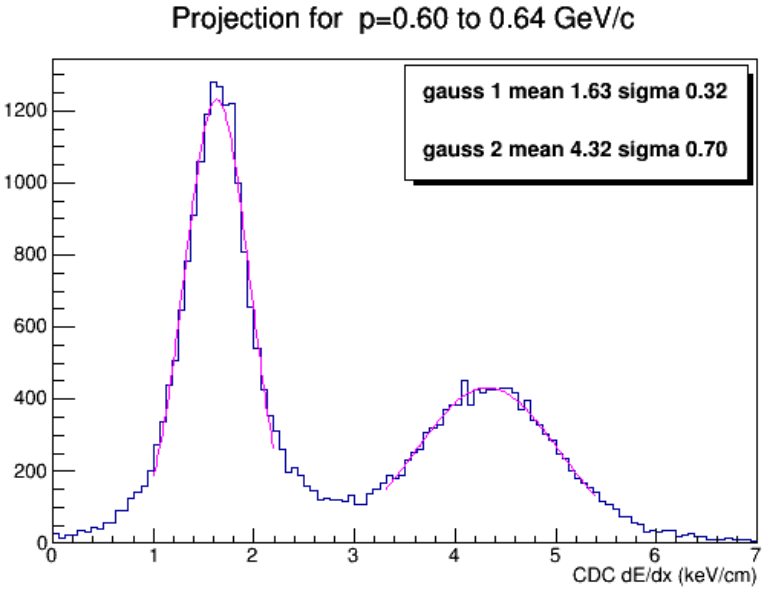
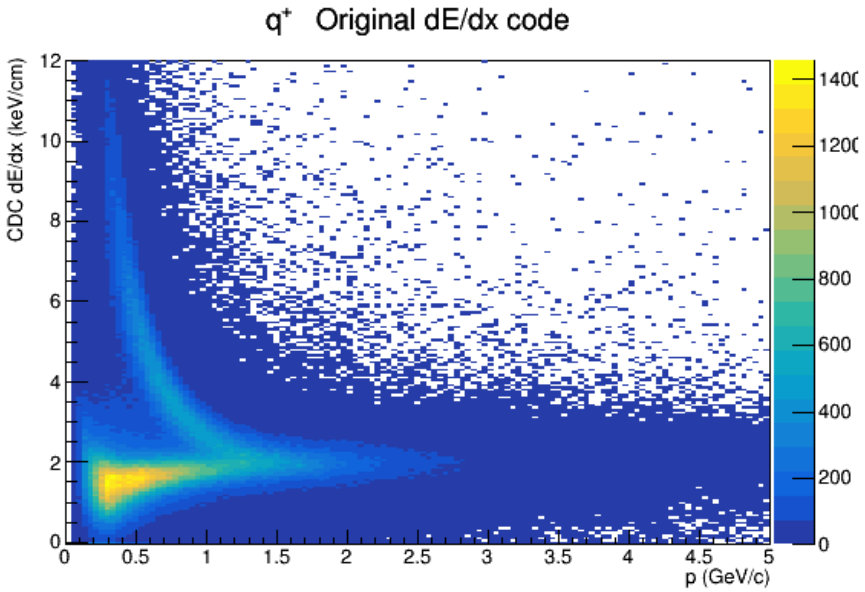


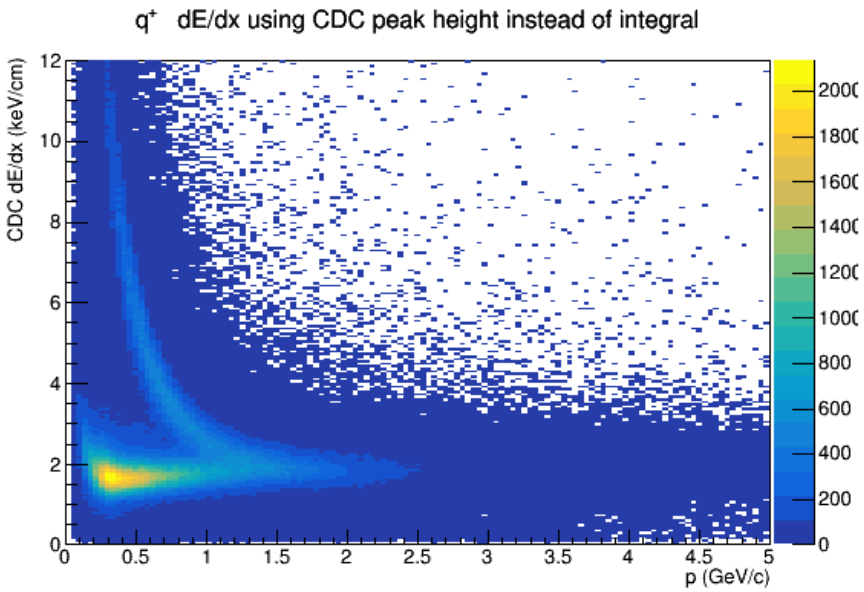


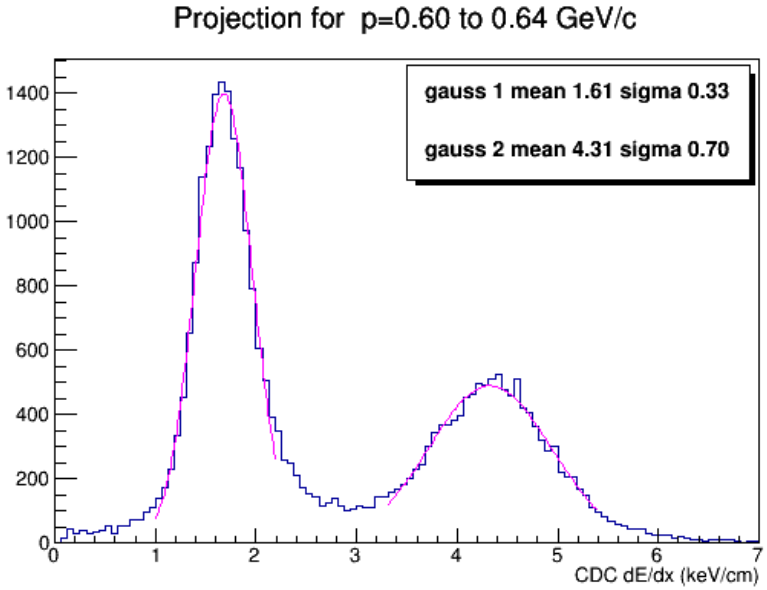


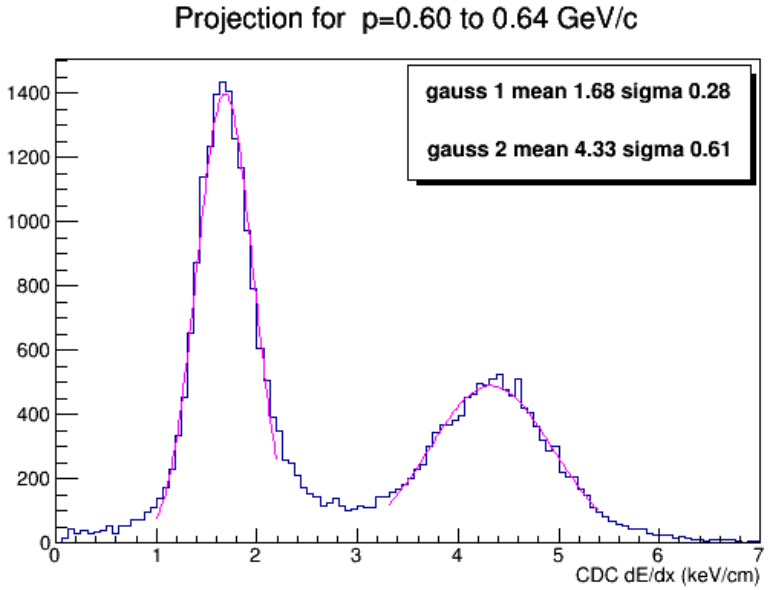


B: Use pulse height x29 instead of integral, monitoring_hists, 011366 file 001









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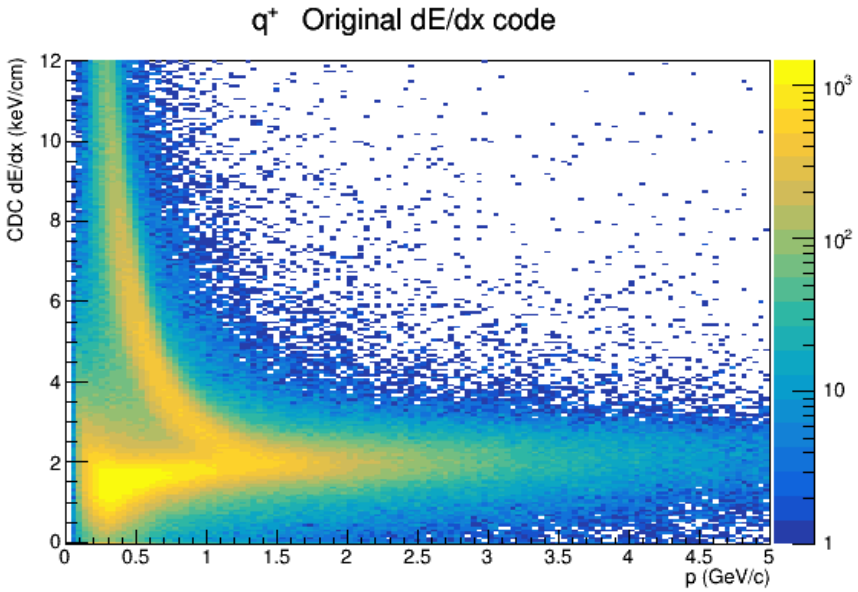
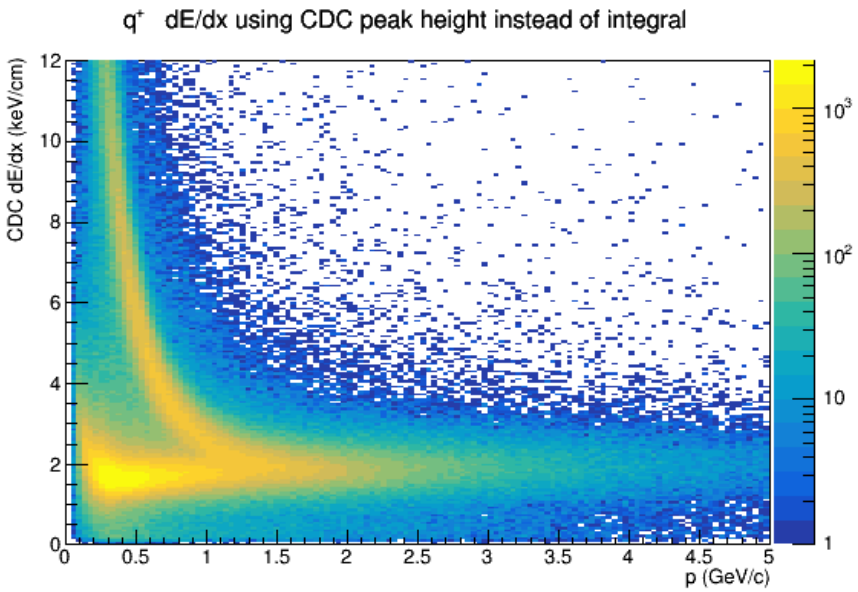
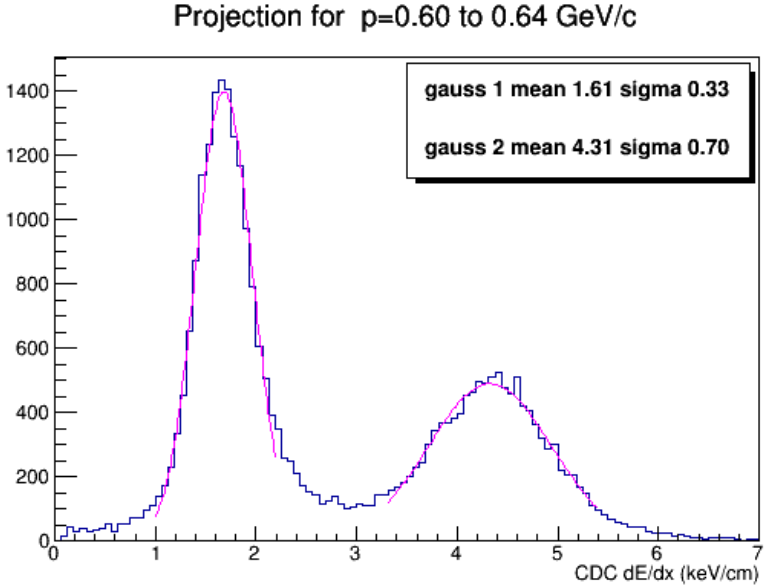
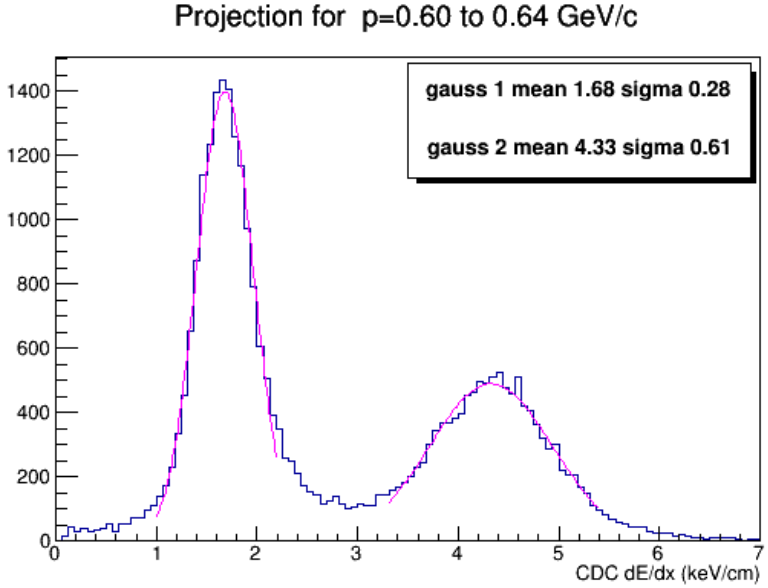
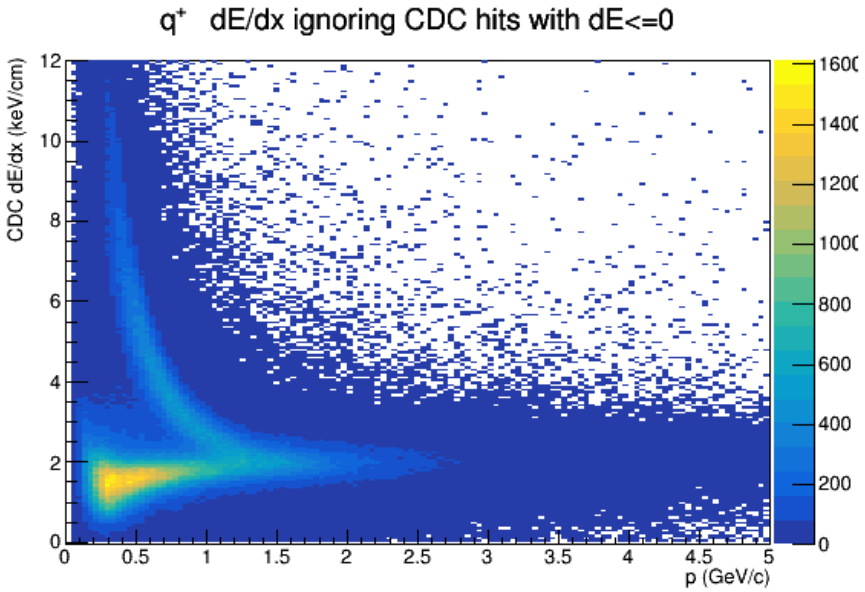


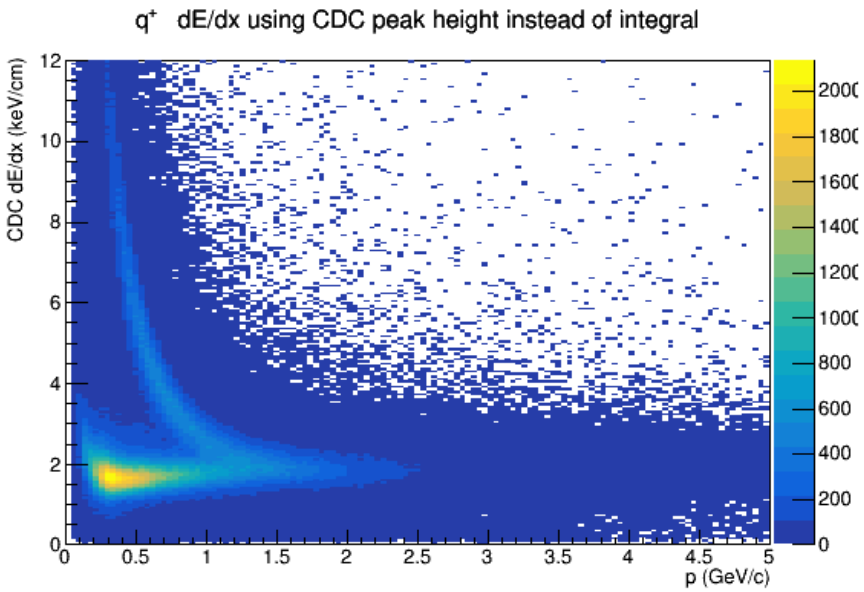


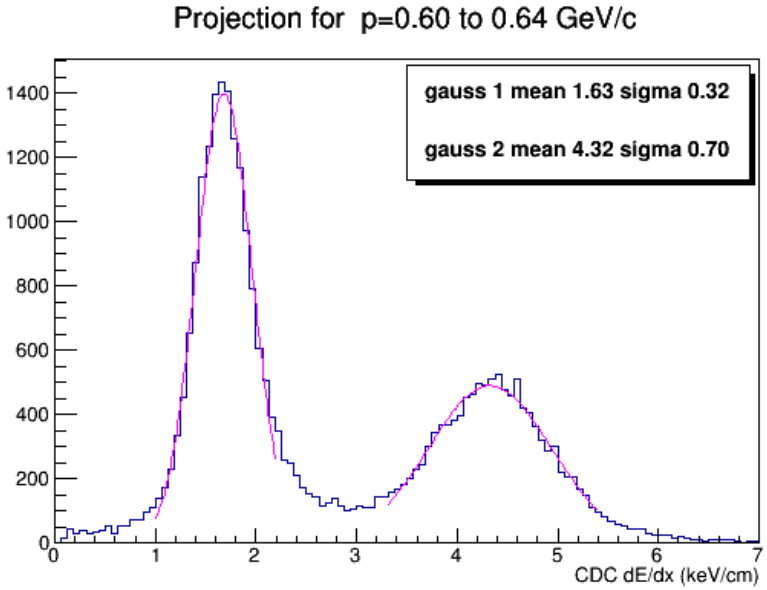


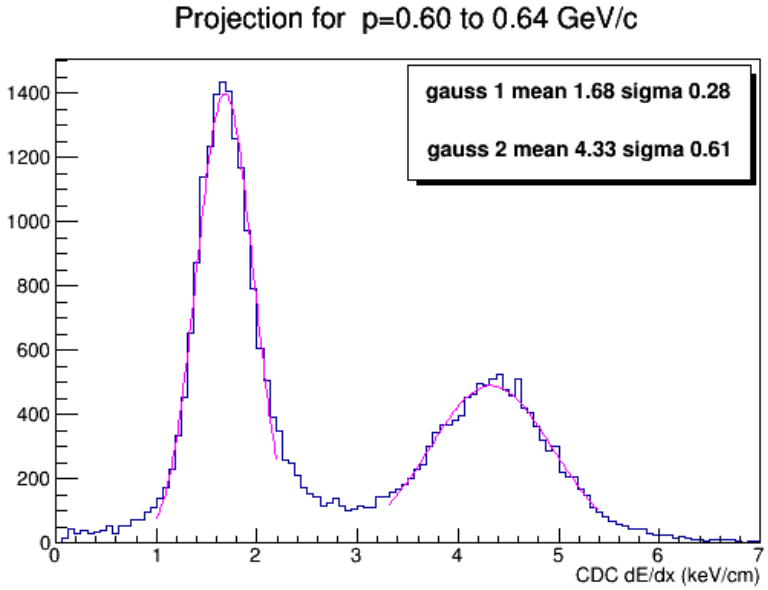


Compare A and B









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