General Gas Calorimeter Digitizer

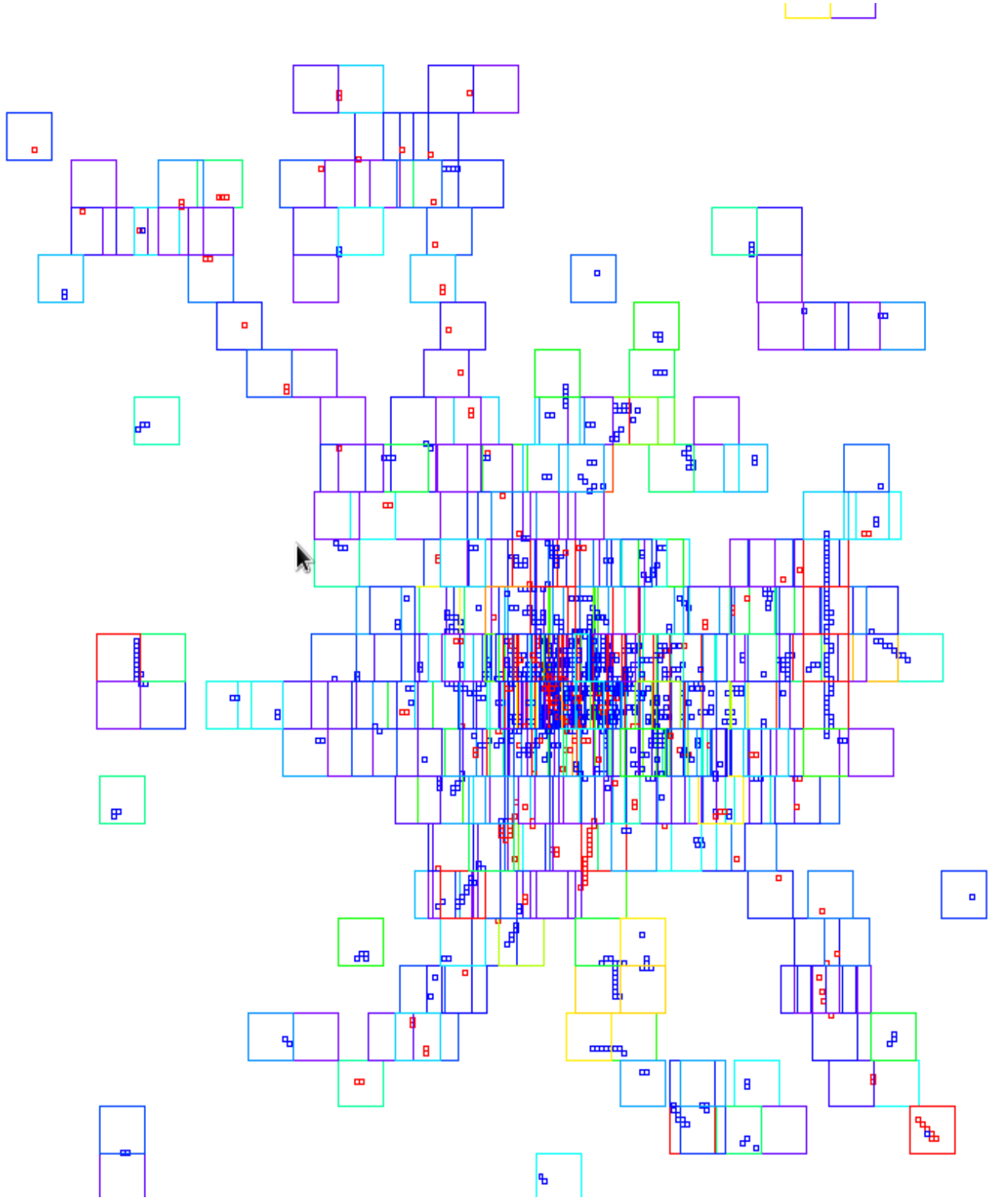
Manqi RUAN

Laboratoire Leprince-Ringuet (LLR)
Ecole Polytechnique
91128, Palaiseau

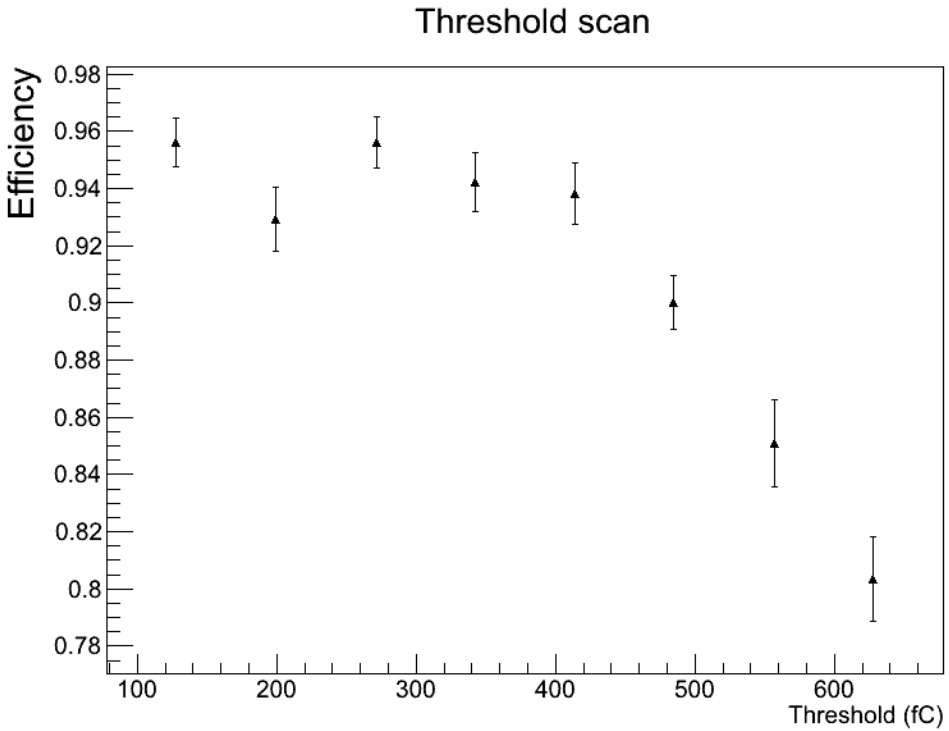
DRUID, RunNum = 0, EventNum = 8

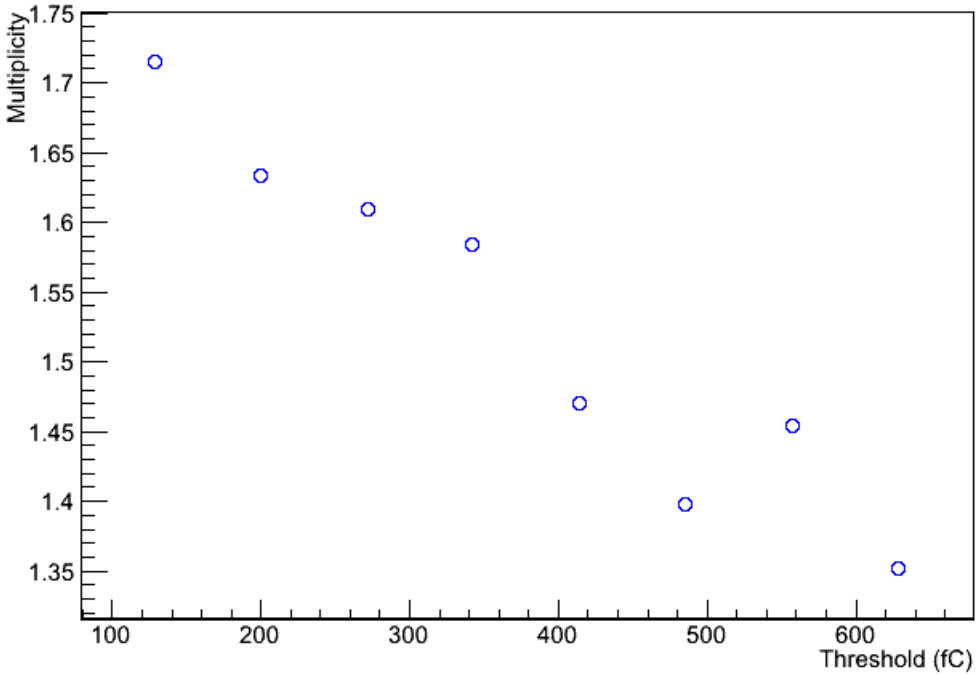
Basic Idea

Count 1mm hits inside
(neighbour to) 10mm cell...



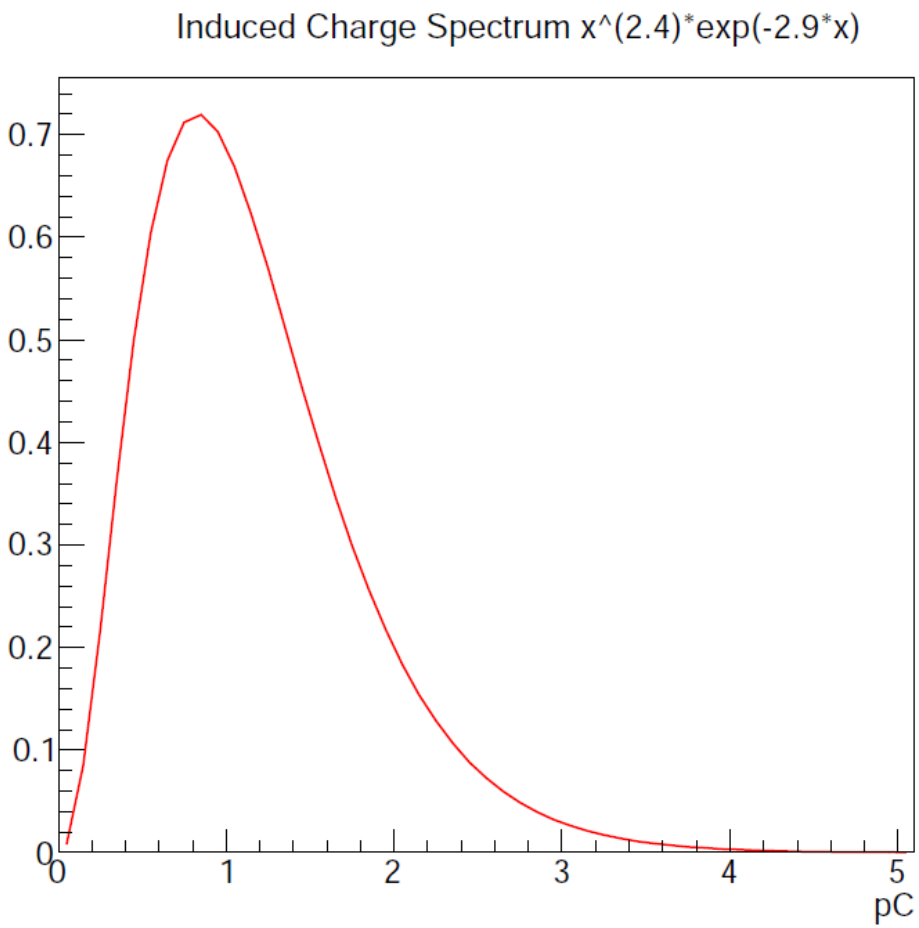
Experimental Input

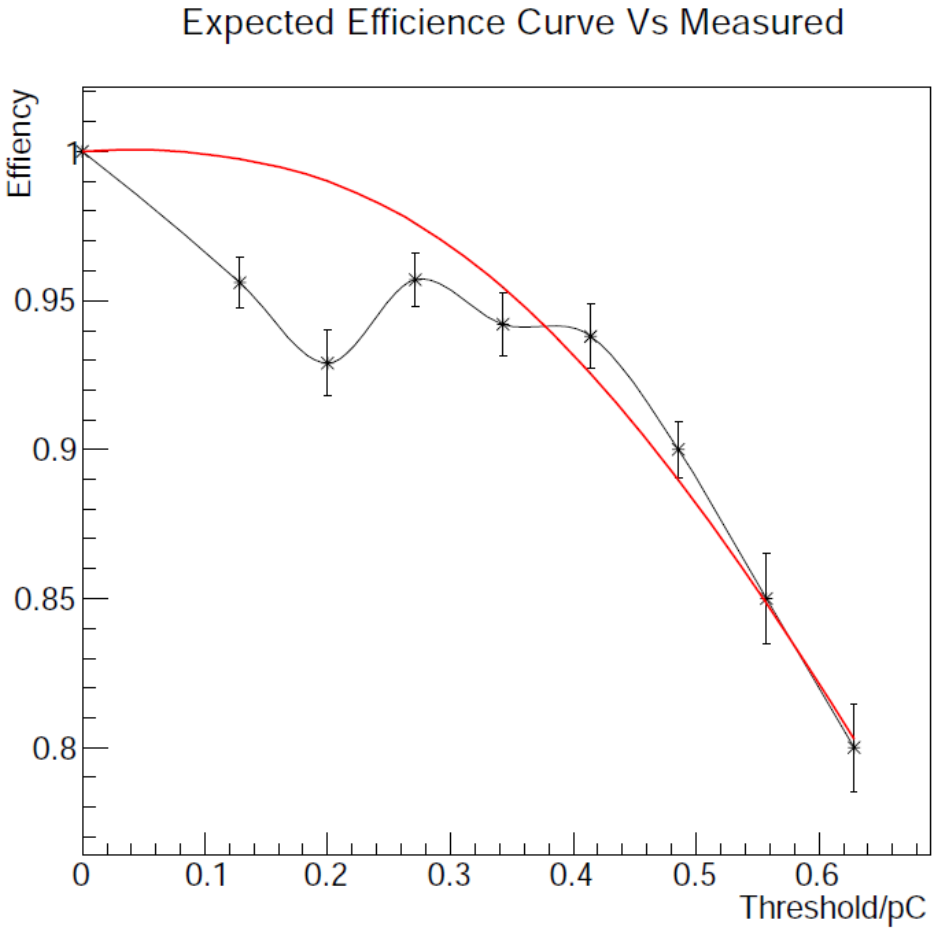




Cubic Meter data from Imad

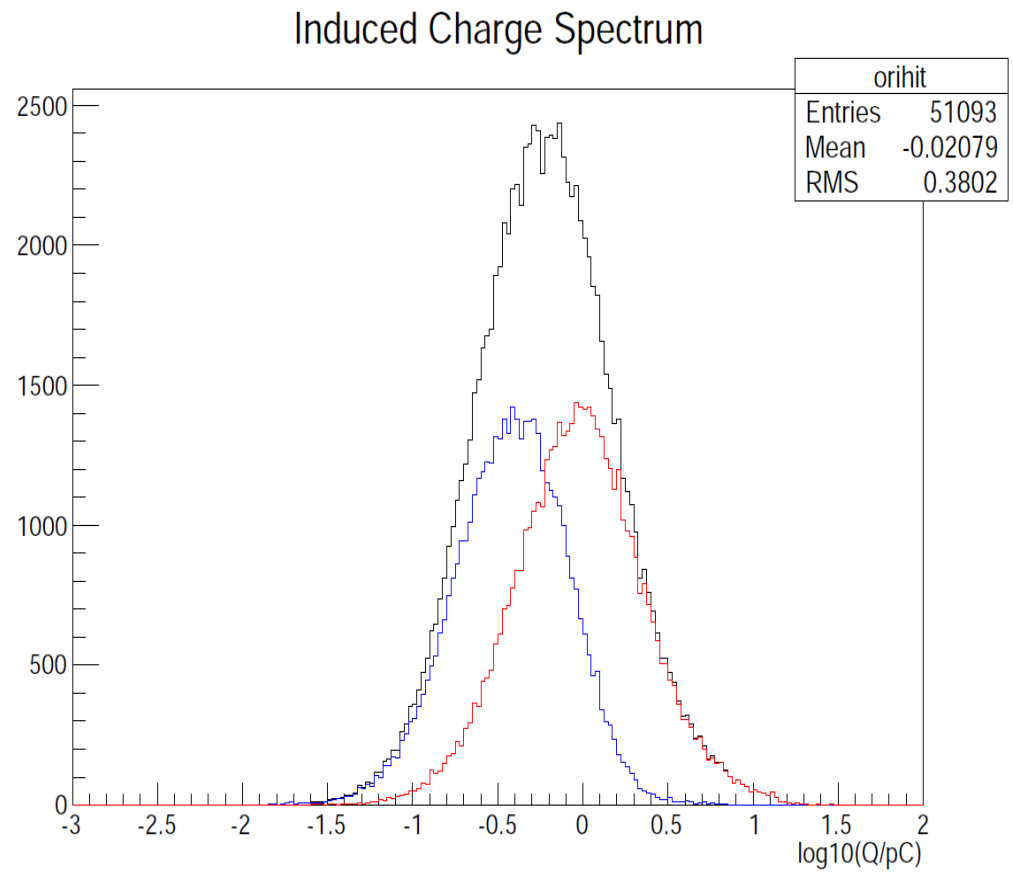
Parametrize Polya

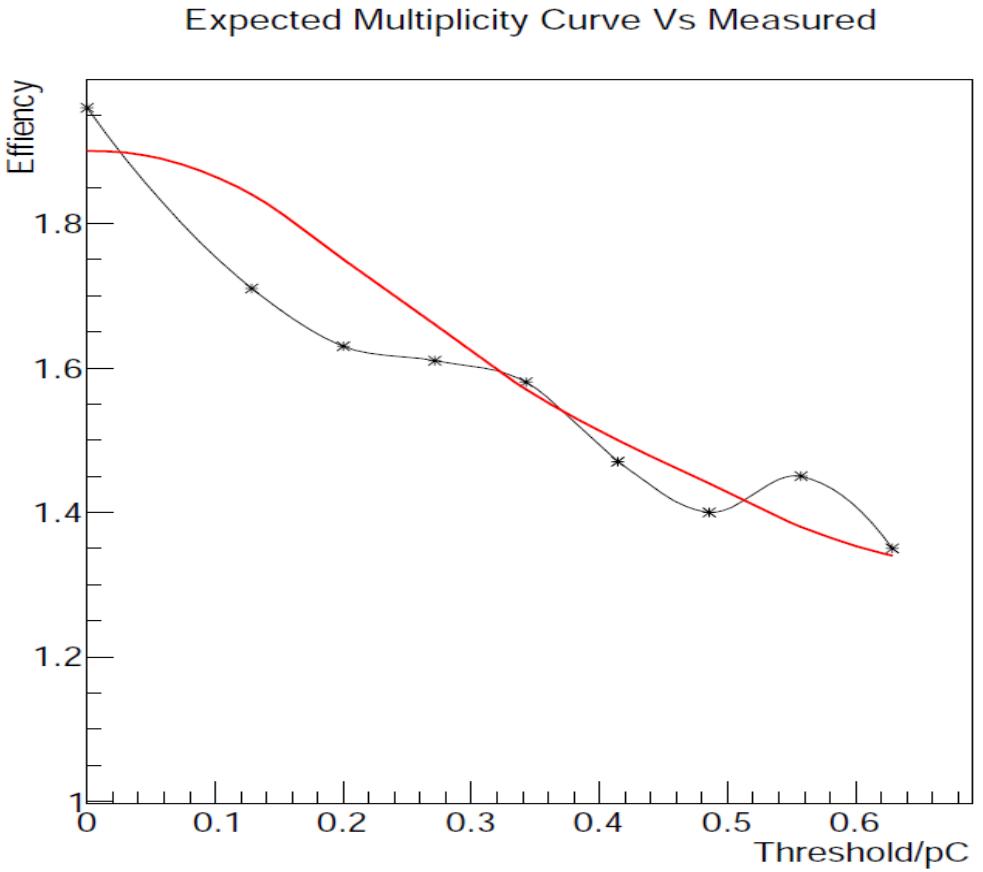




Eff(Threshold = 0) set to be 1

Test on 20GeV Muon





Left Plot: Induced Charge Spectrum with Original hits (red) and Induced Multiplicity hits (blue)

Right: define Multi(T) = 1 + N(multiplicity hits with Q > T)/N(original hits with Q > T)

Suppose charge image covers area of 5 by 5 mm :
*maximal multiplicity = 1.4*1.4 = 1.96, set at T = 0*

Summary

- Preliminary result seems reasonable
  - Estimated value, Not processed with TB efficiency – multiplicity reco-chain
  - Parameters not yet fully tuned
  - Efficiency has not been corrected from Multiplicity effect
  - Ignored systematic: noise and dead response

- Propose: full efficiency curve measurement:
  - Tuning threshold with only 1 layer in cubic meter, measure efficiency drop until eff ~ 0 (dynamic range of threshold setting?)
  - Other layers set at optimized threshold for good track finding efficiency