

New digitizer validation

ecl-it meeting

04/09/2015

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Old vs New digitizer comparison

For each digitizer config:

- 1000 events

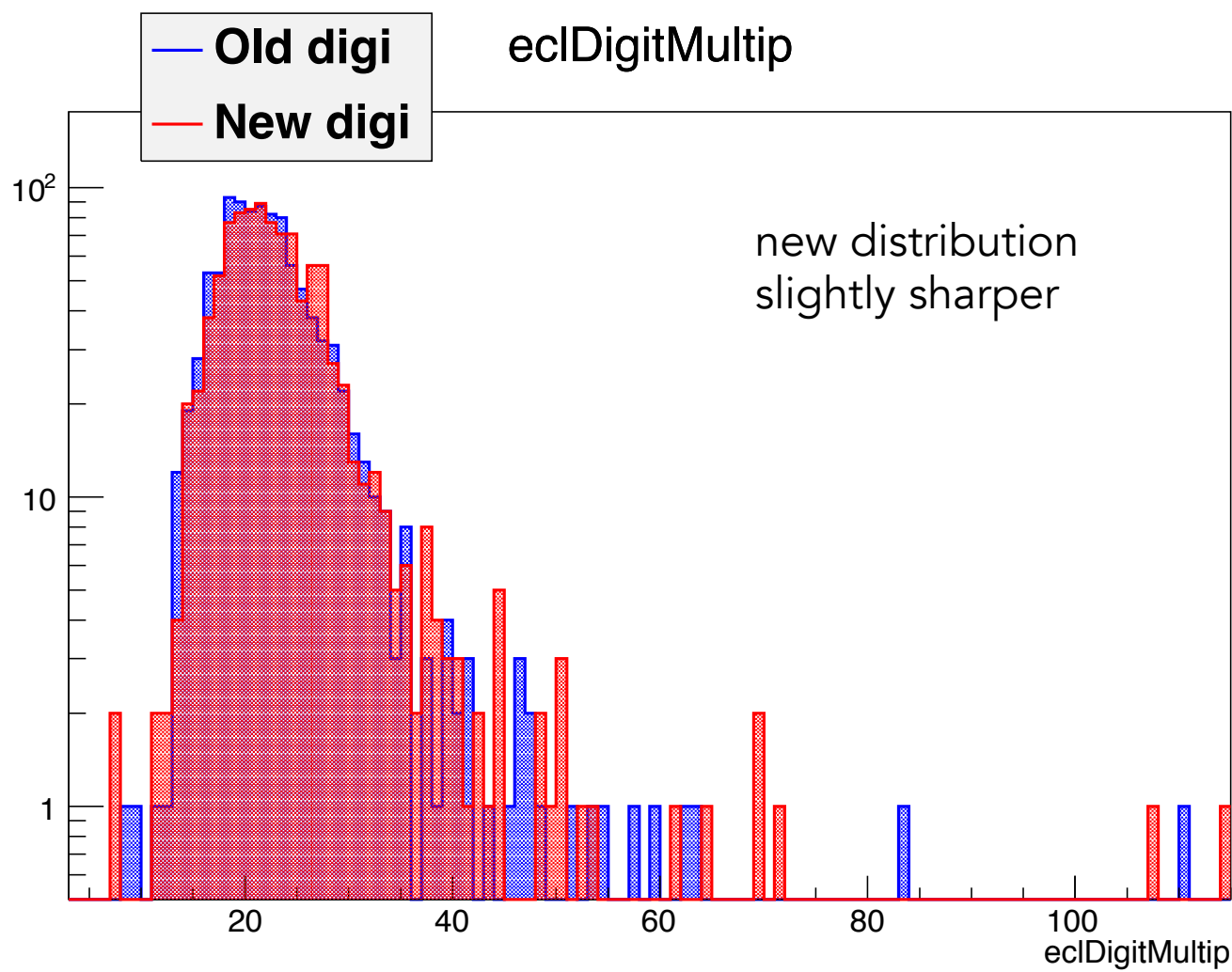
- 500 MeV single photon events, no machine bkg

- Full detector configuration

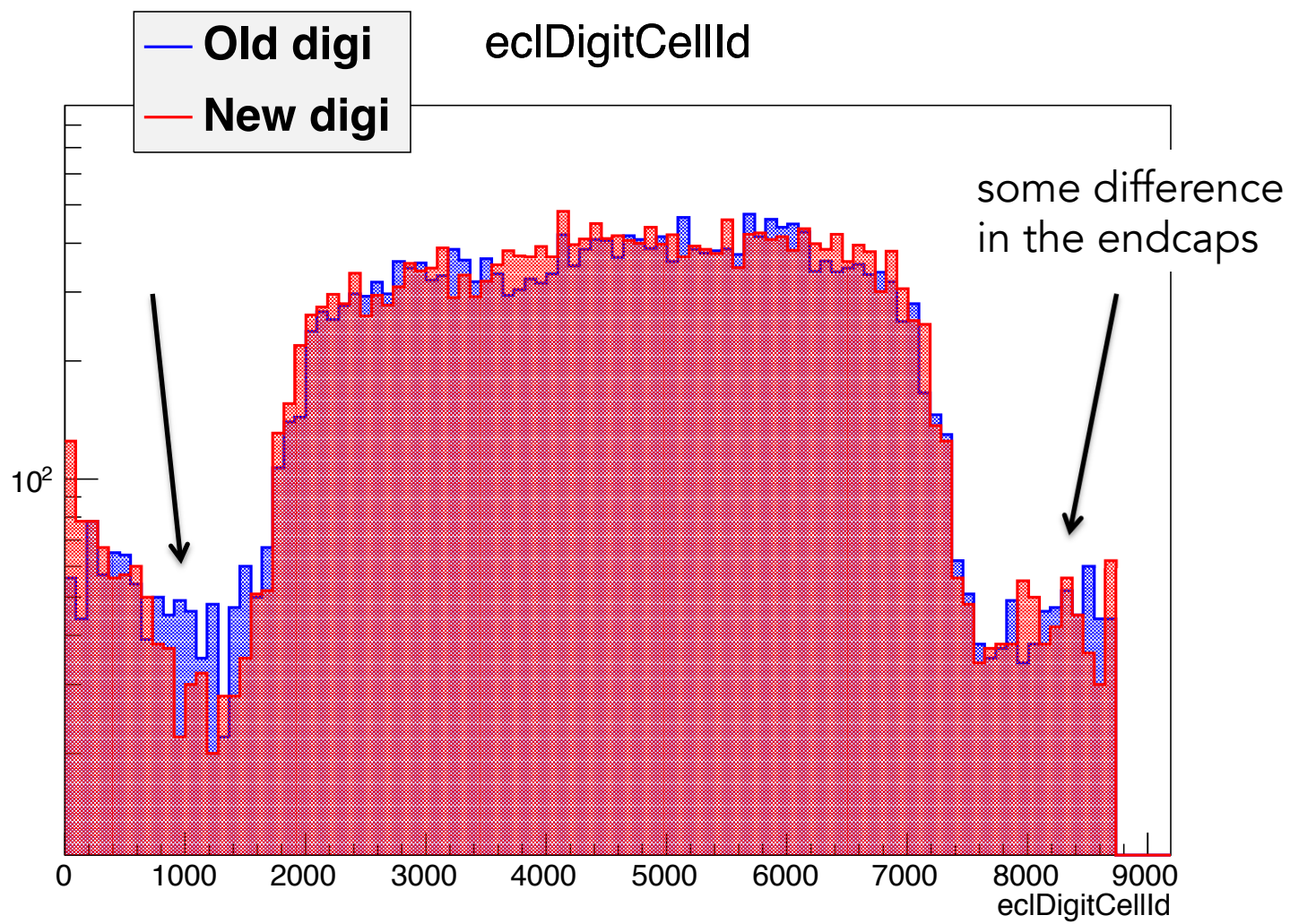
- ECL angular acceptance: $[40^\circ, 120^\circ]$

ECLDIGIT INFO, NO BKG

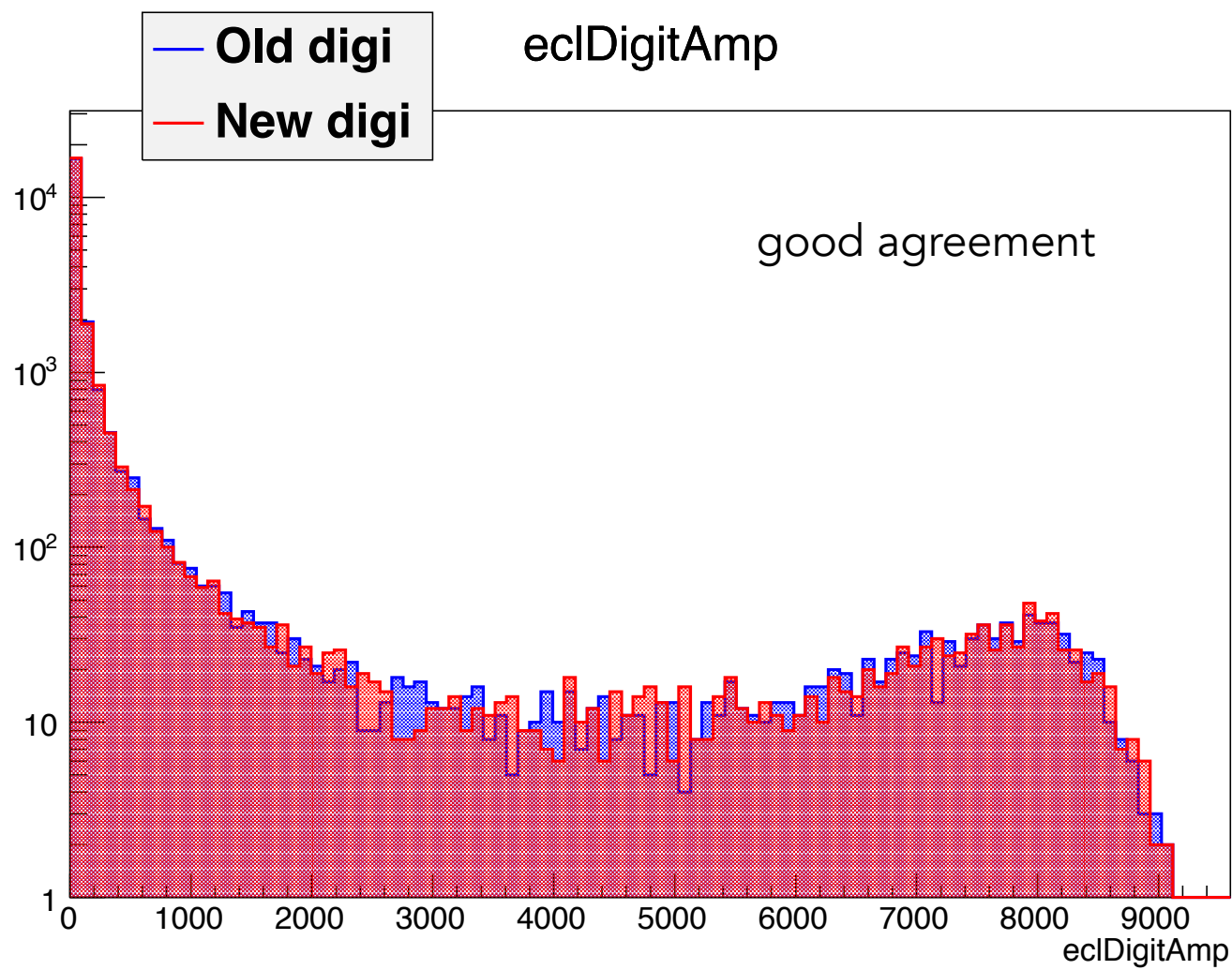
eclDigit multiplicity



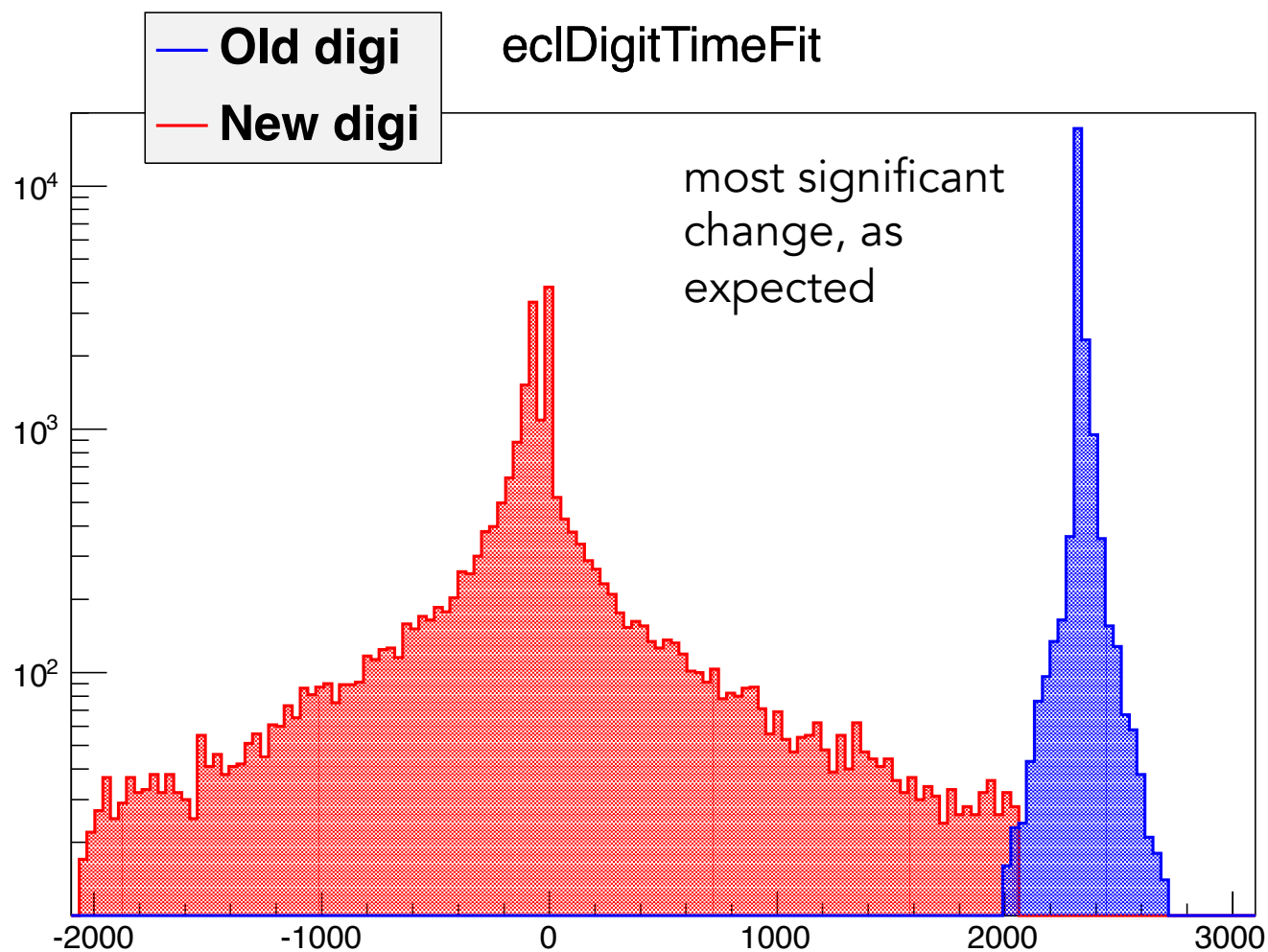
eclDigit cell index



eclDigit amplitude



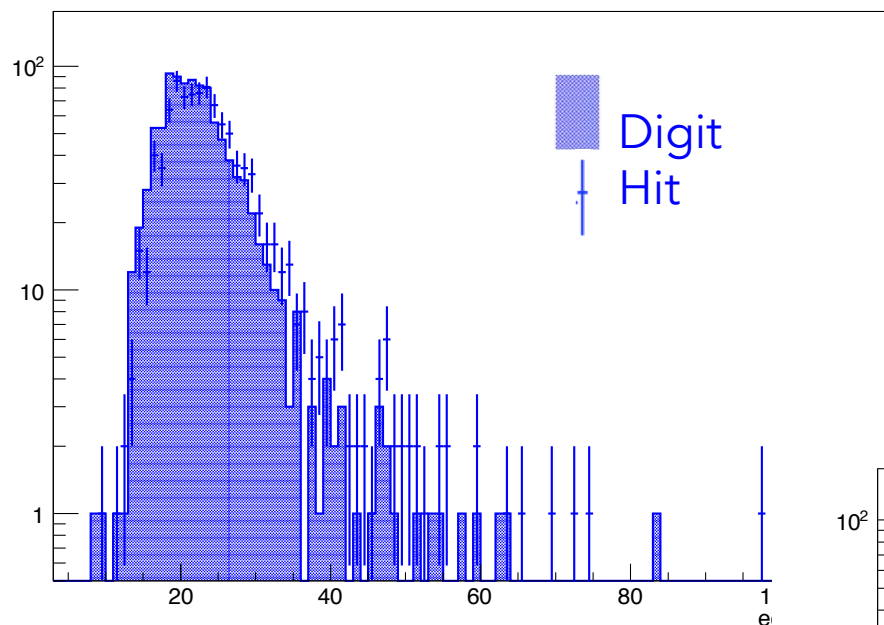
eclDigit timing



ECLDIGIT VS ECLHIT, NO
BKG

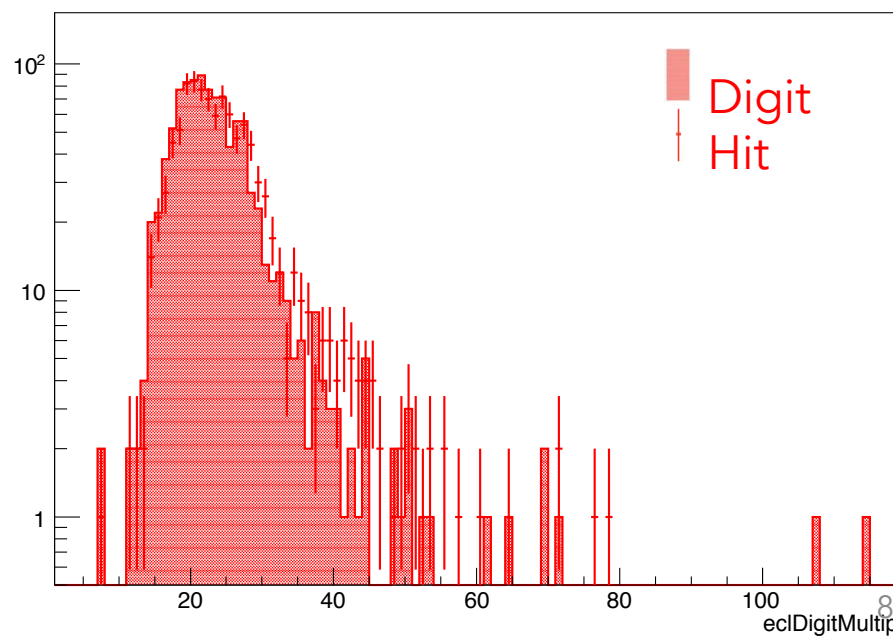
Multiplicity

ecIDigitMultip



small shift to
higher values in
Hit distribution
(no energy cut
on Hit energy
applied here)

ecIDigitMultip

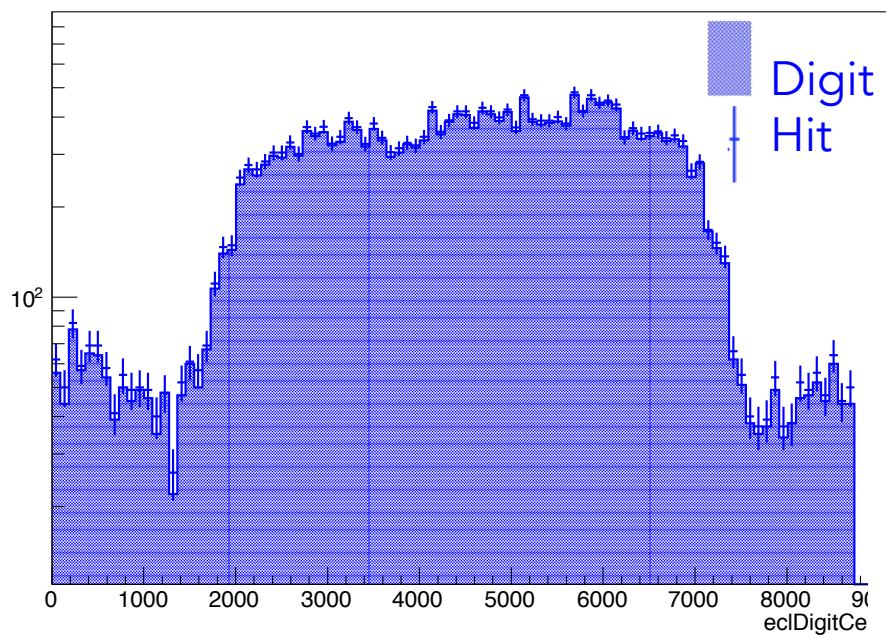


— Old digi
— New digi

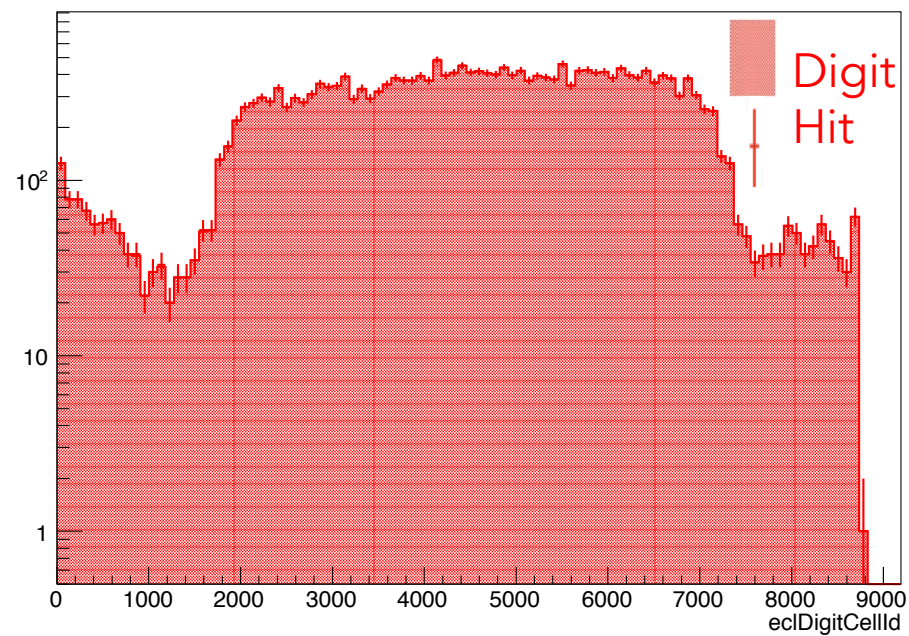
Cell Index

ecIDigitCellId

Energy cut @ 0.1 MeV



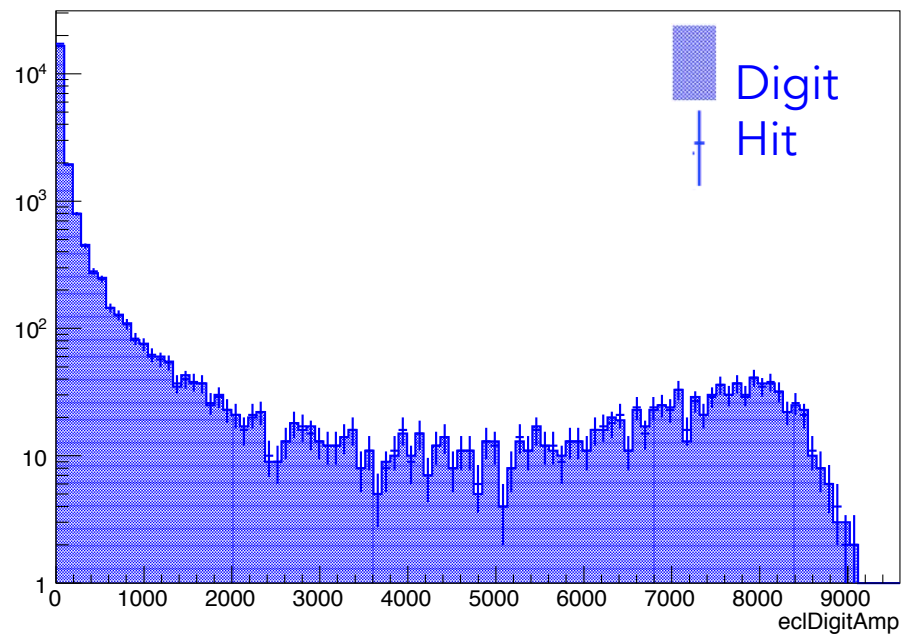
ecIDigitCellId



— Old digi
— New digi

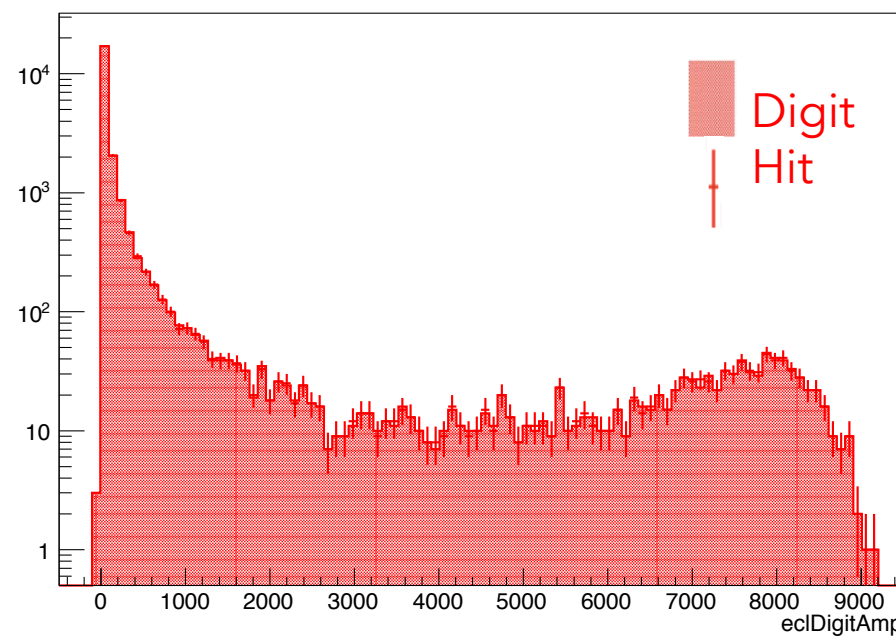
Reconstructed Energy

ecldigitAmp



Energy cut @ 0.1 MeV

ecldigitAmp



— Old digi
— New digi

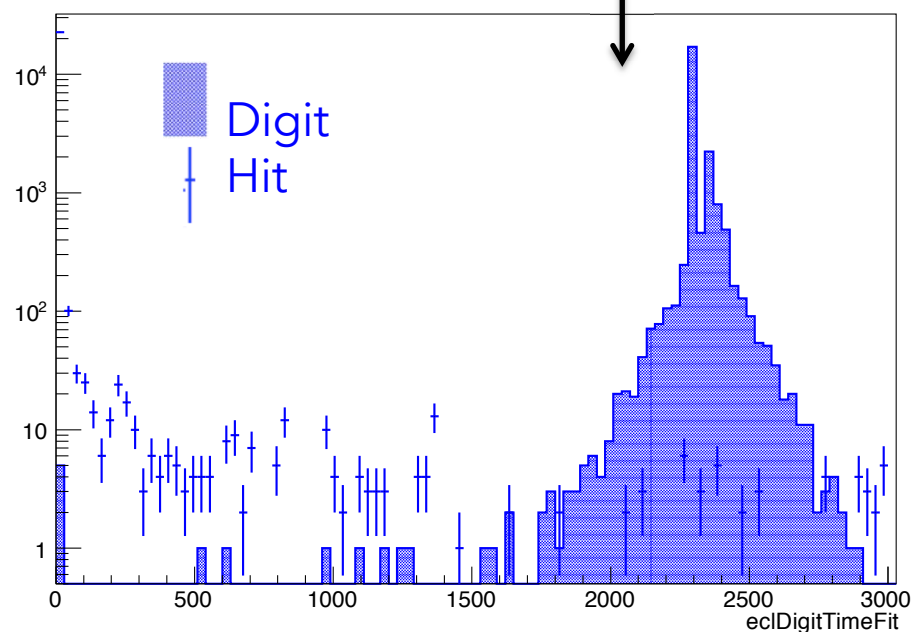
Hit timing info : "absolute"
time, Geant4 info + light
propagation in xtal

Digit timing info, derived from
fit (trigger as time reference)

ecldigitTimeFit

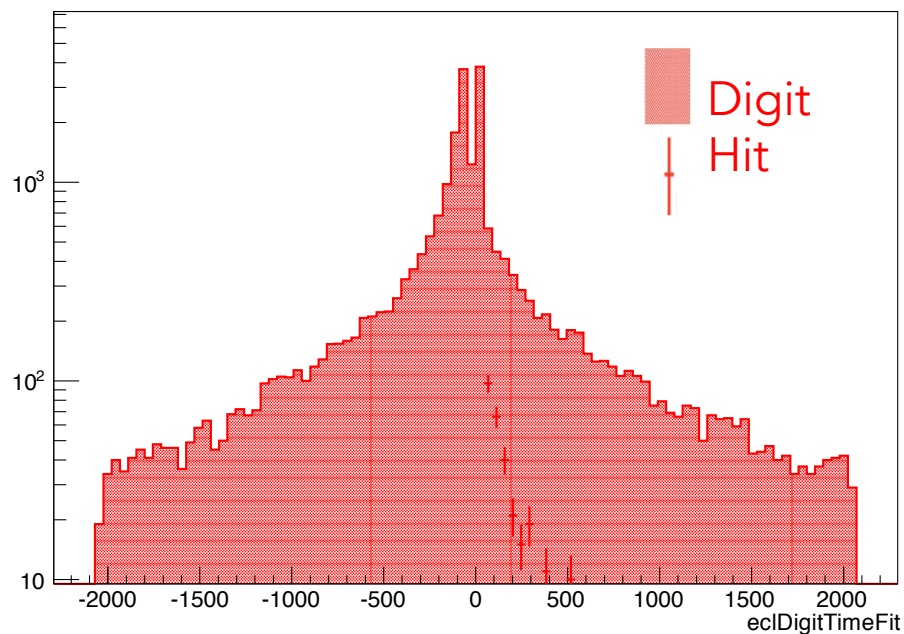
Timing info

Energy cut @ 0.1 MeV



— Old digi
— New digi

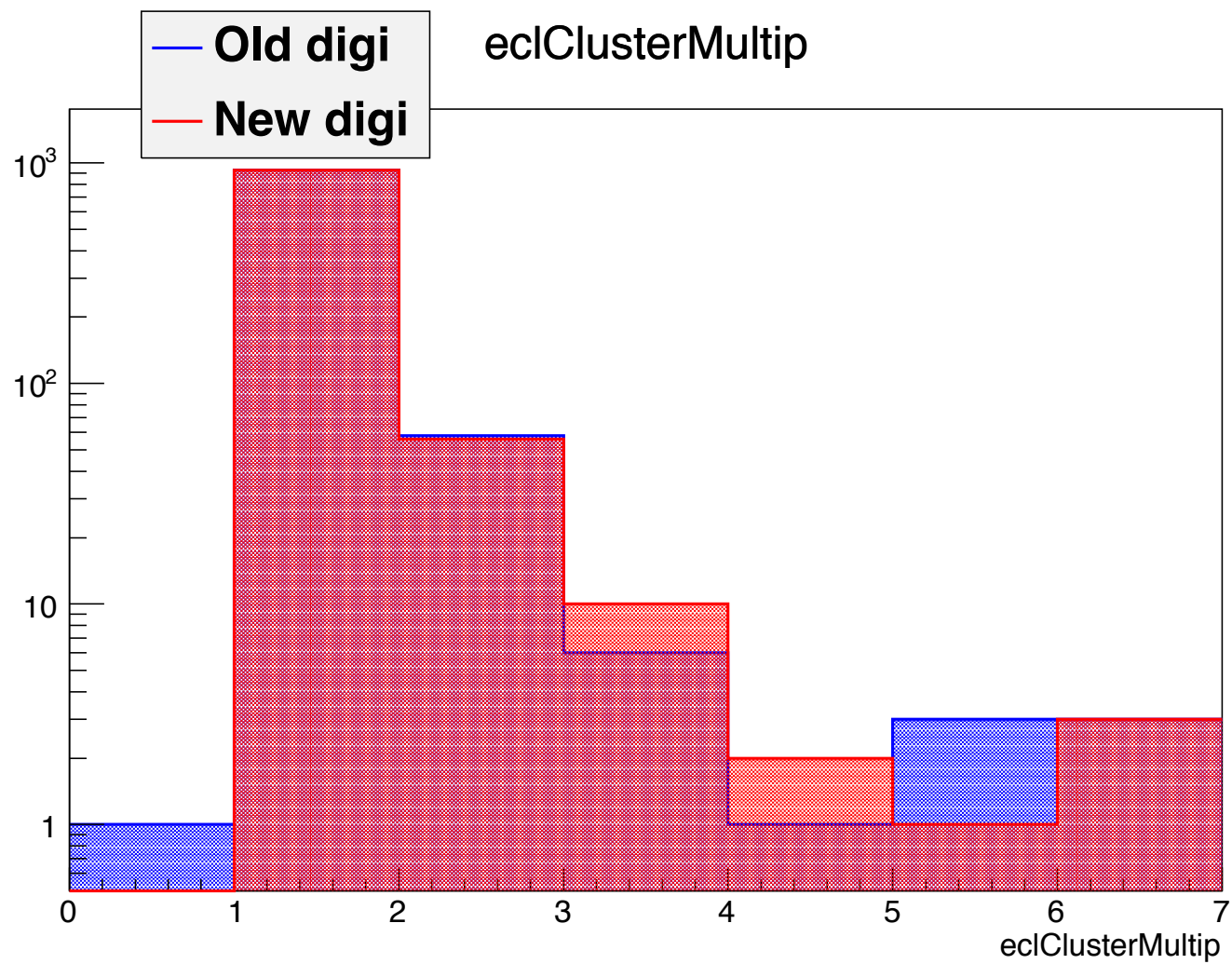
ecldigitTimeFit



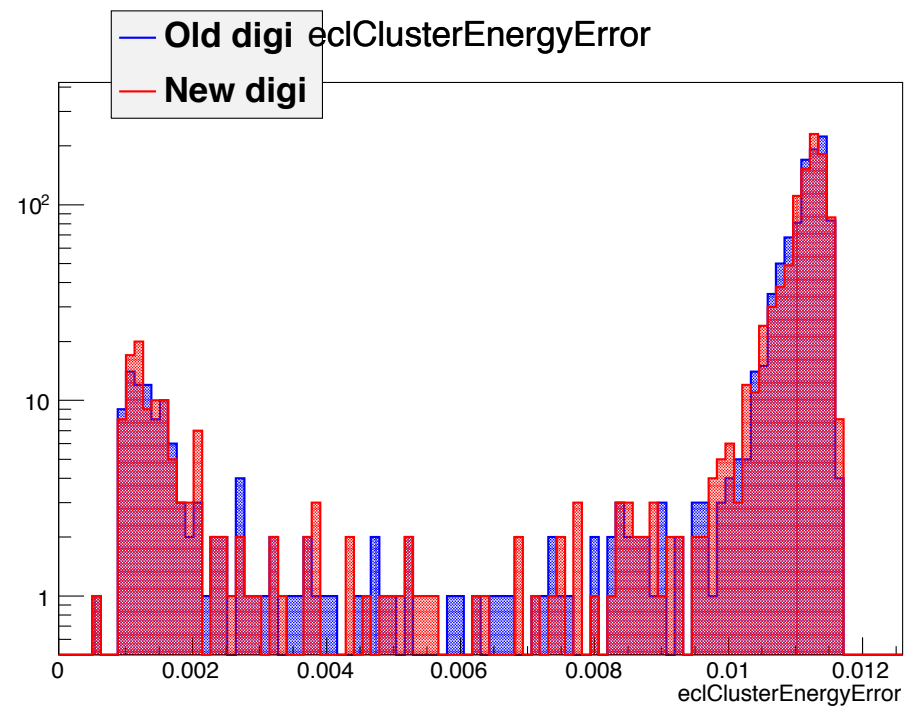
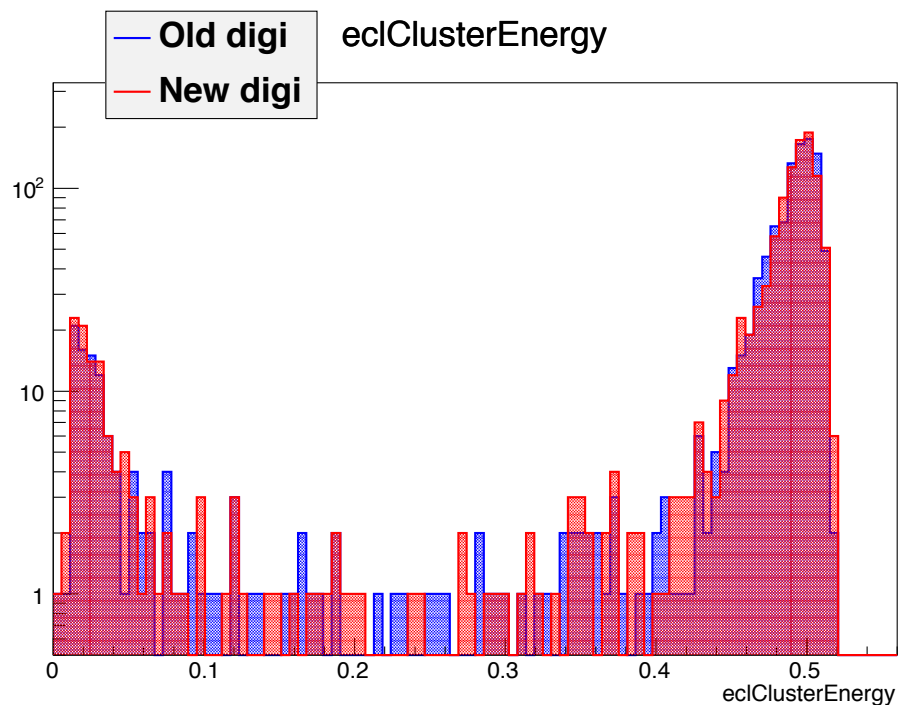
Old vs New digitizer

**ECLCLUSTER INFO, NO
BKG**

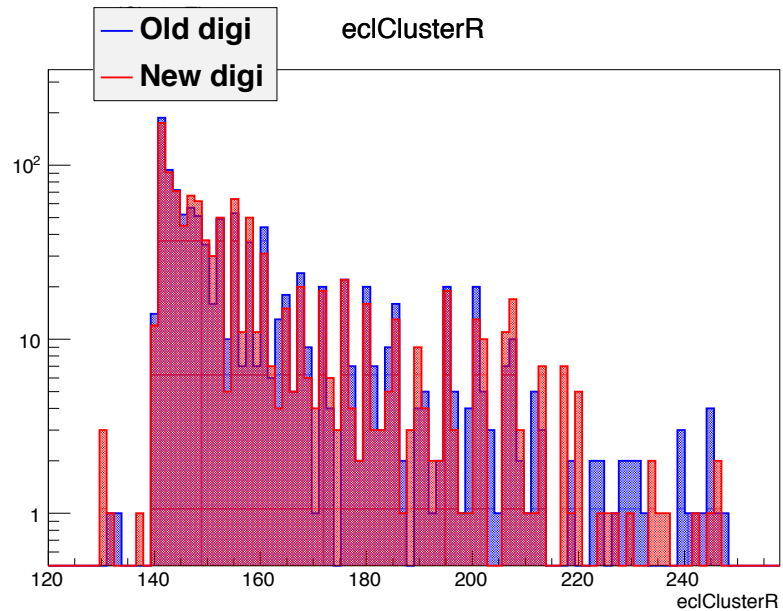
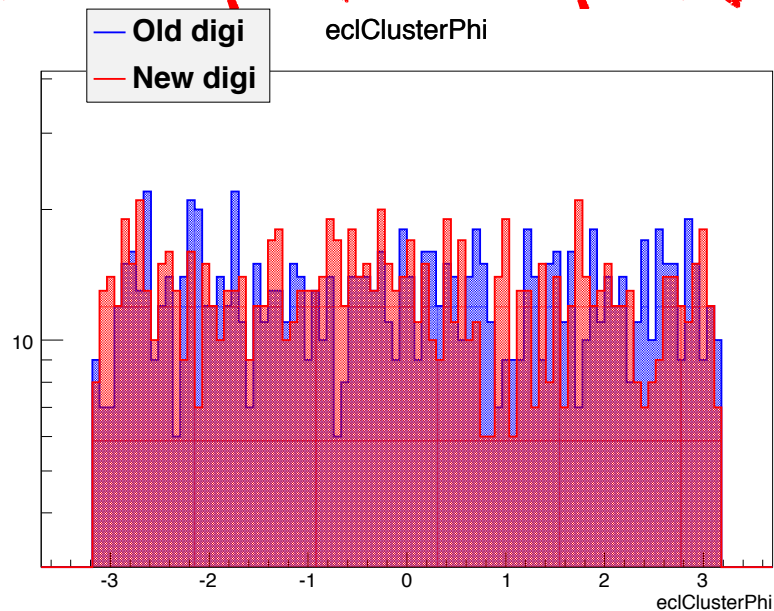
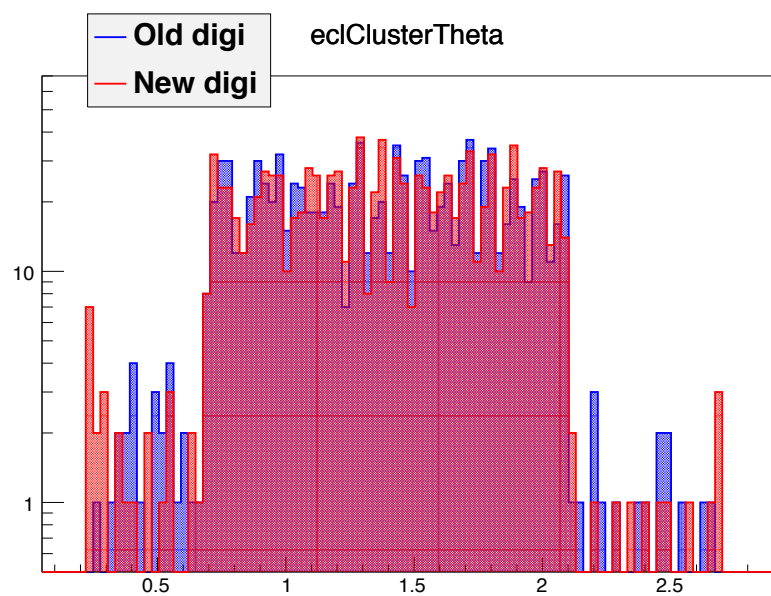
eclCluster multiplicity



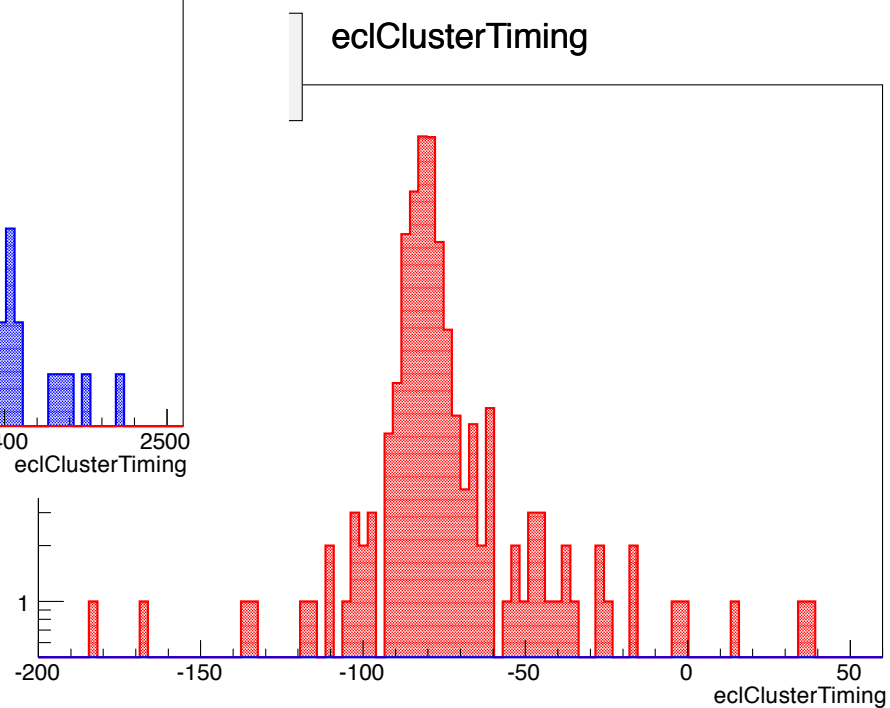
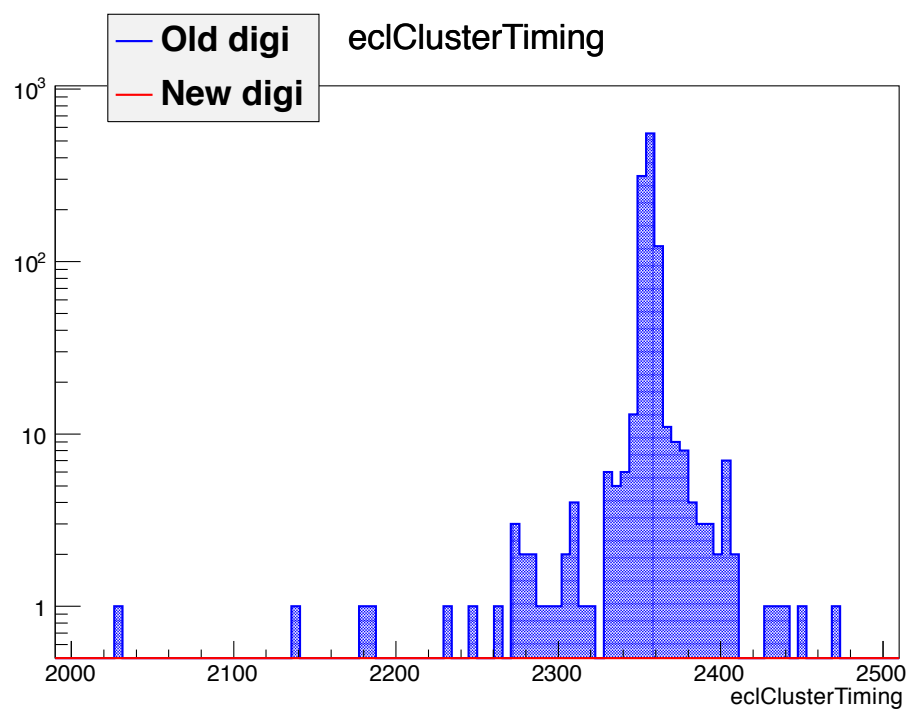
eclCluster energy & energy error



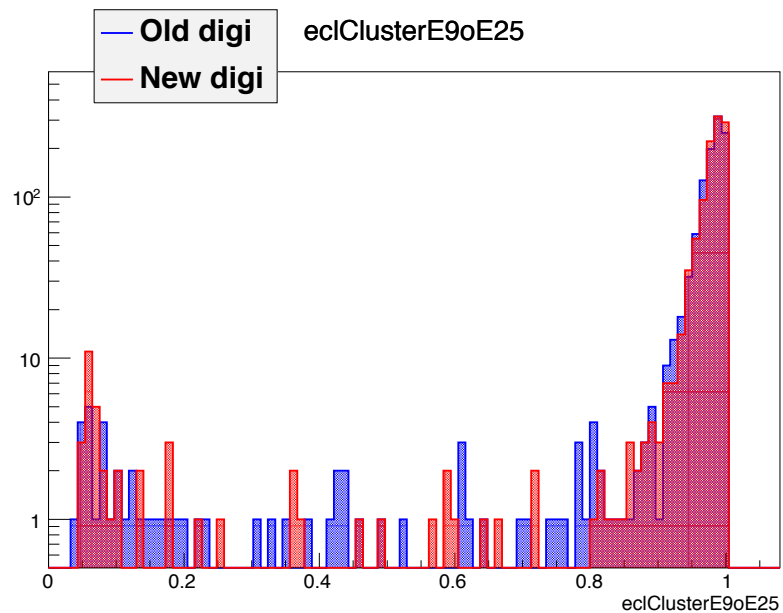
ec1Cluster Theta $\neq$ Phi $\neq$ R



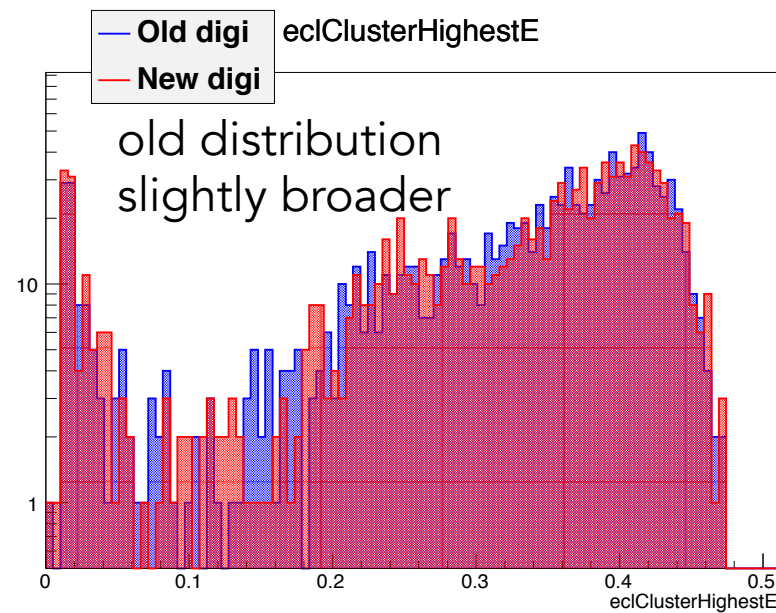
ecICluster Timing



eclCluster E9/E25



eclCluster energy of most energetic xtal



Old vs New digitizer comparison

For each digitizer config:

- 200 events

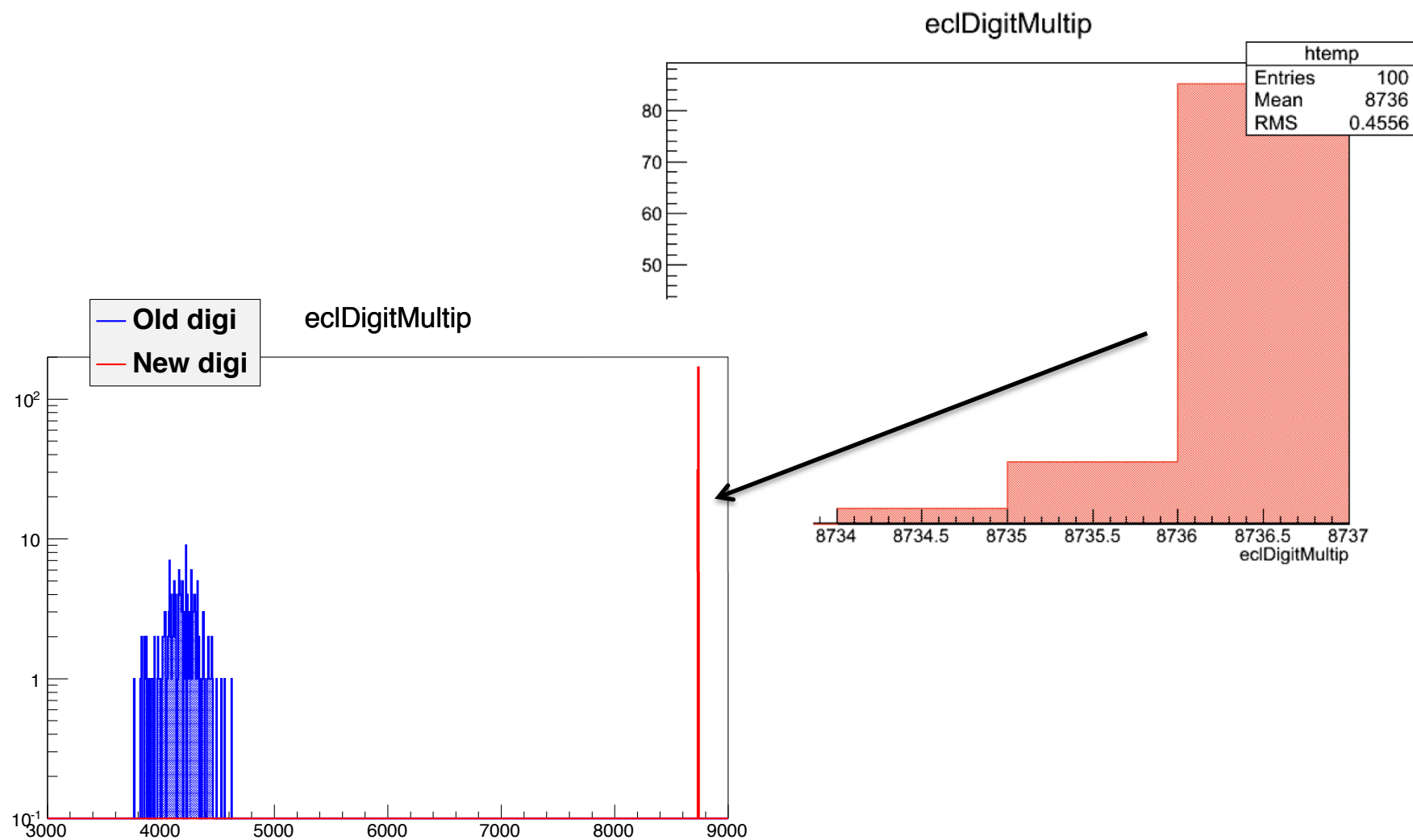
- 500 MeV single photon events, machine bkg

- Full detector configuration

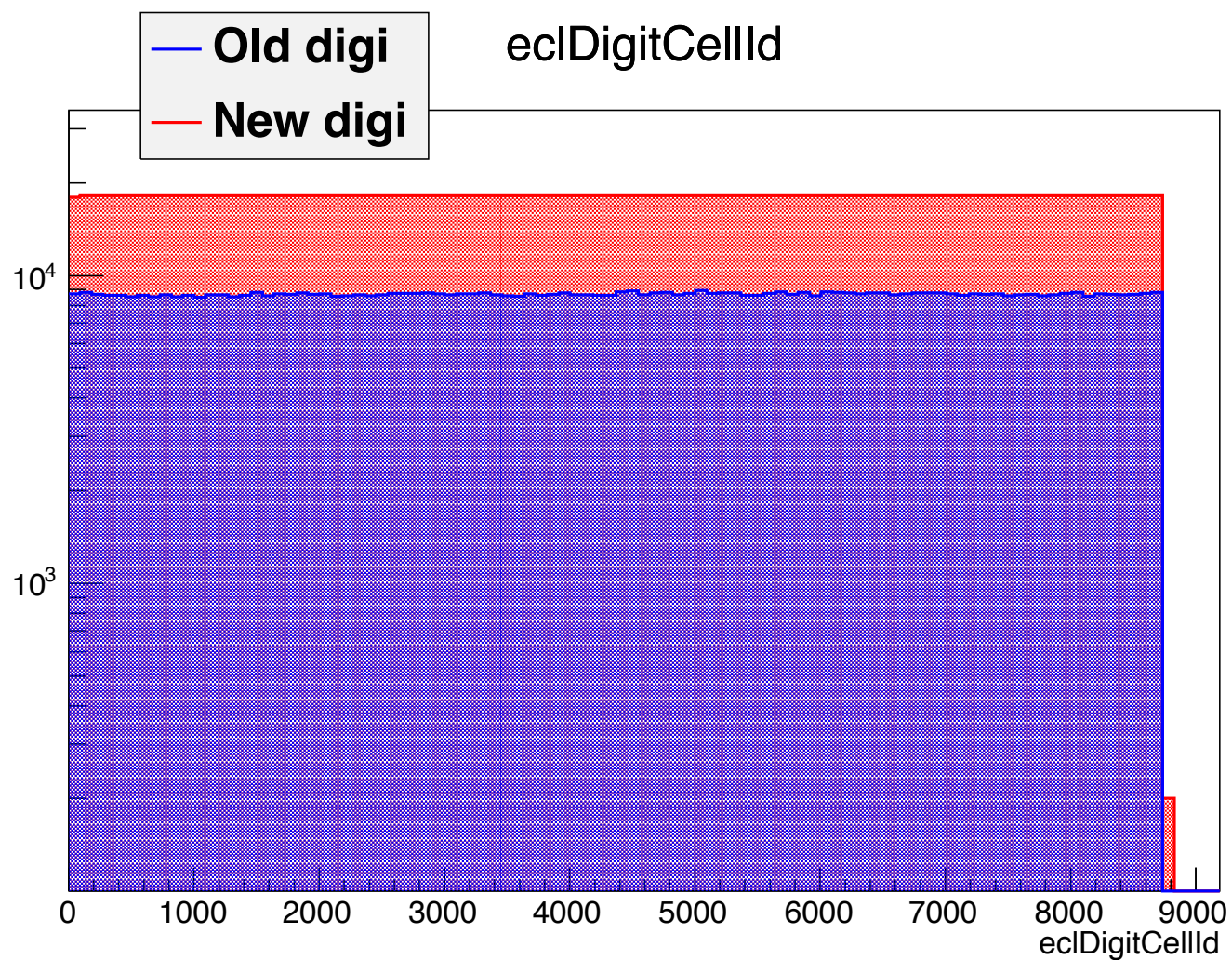
- ECL angular acceptance: $[40^\circ, 120^\circ]$

**FIRST LOOK AT 500-MeV
PHOTONS + MACHINE BKG**

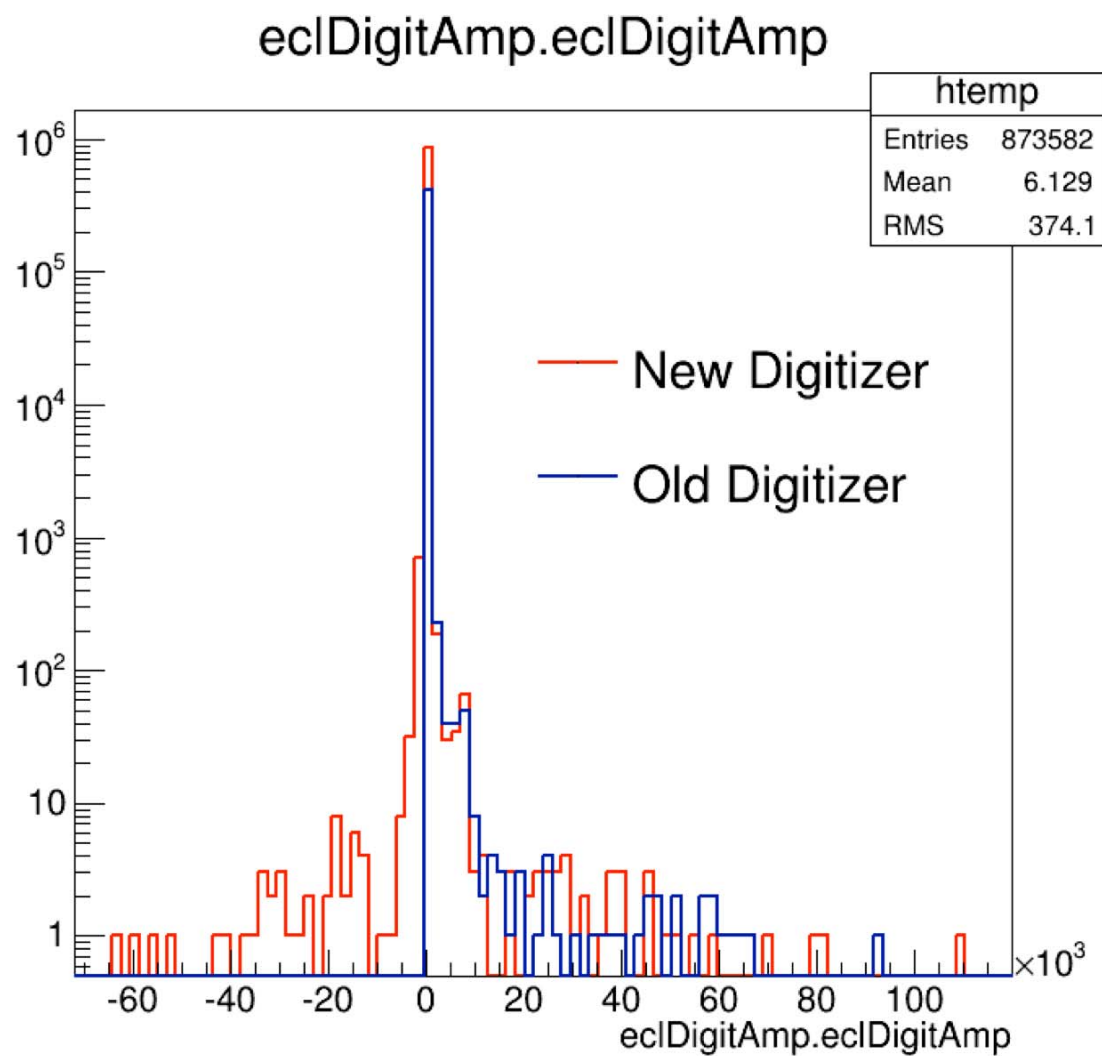
Digit info (I)



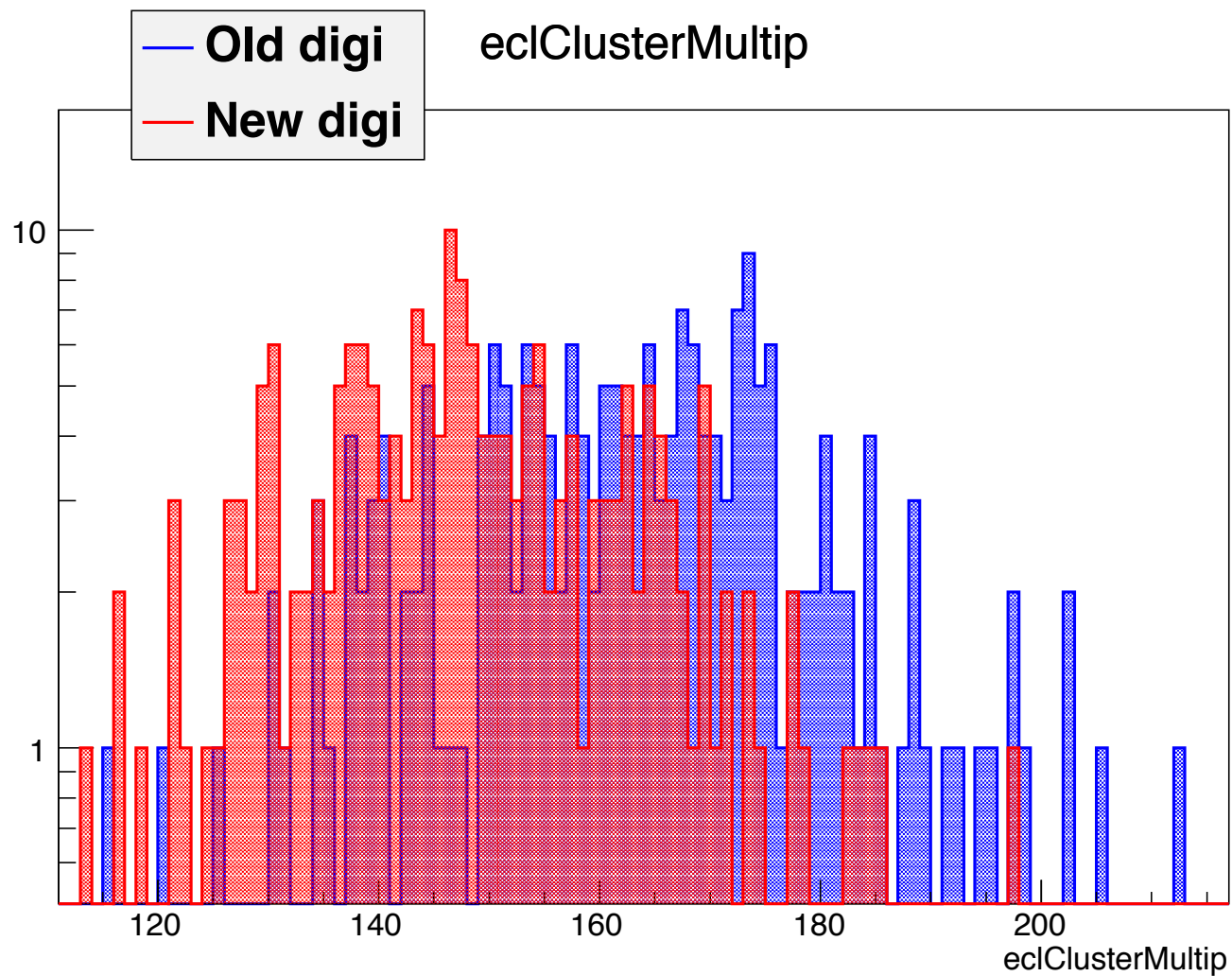
Digit info (II)



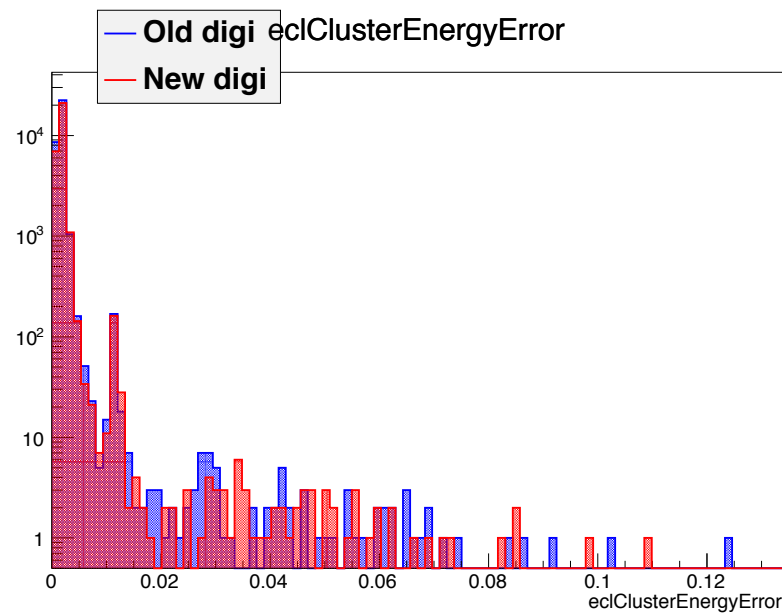
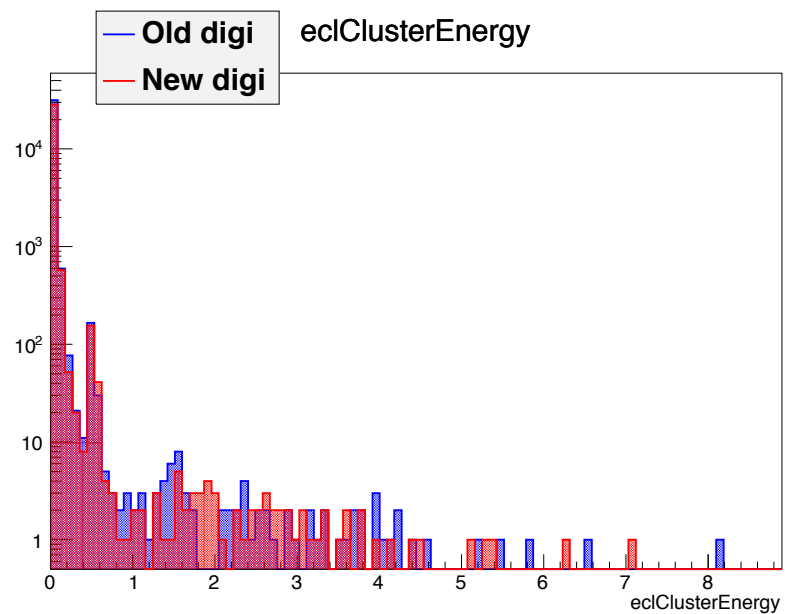
Digit info (III)



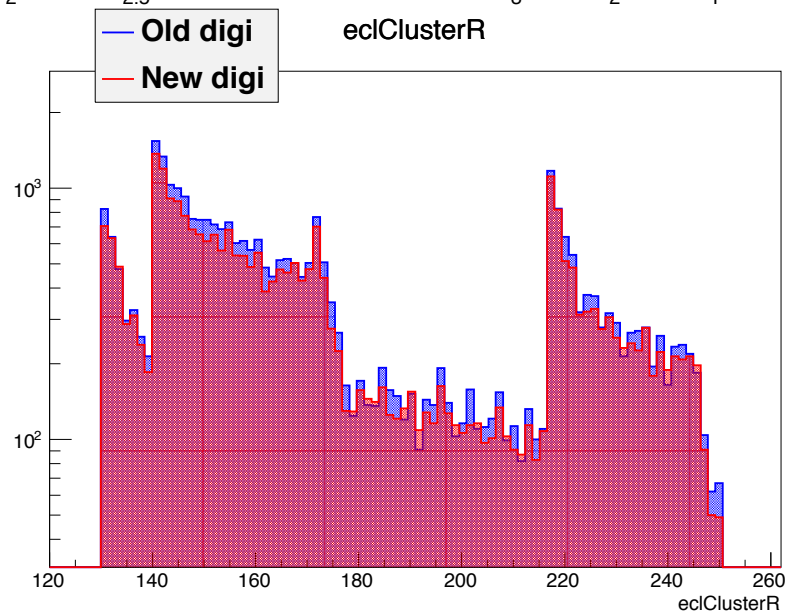
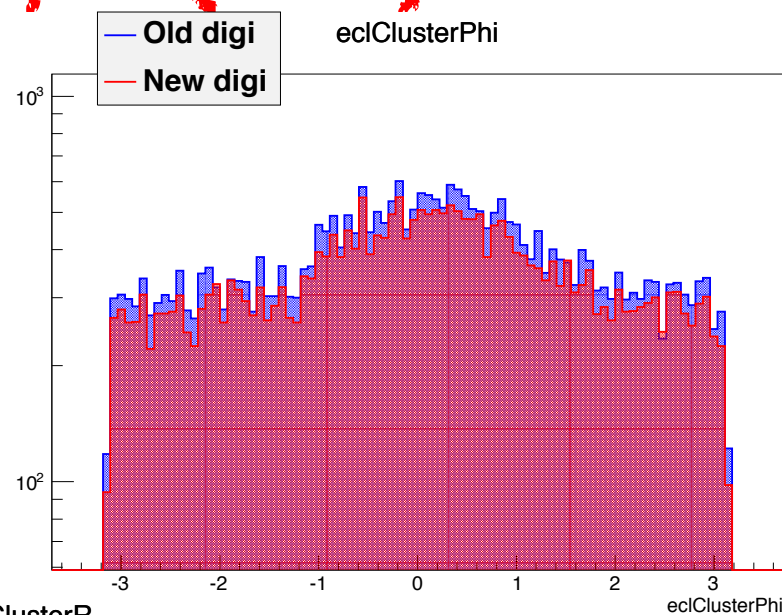
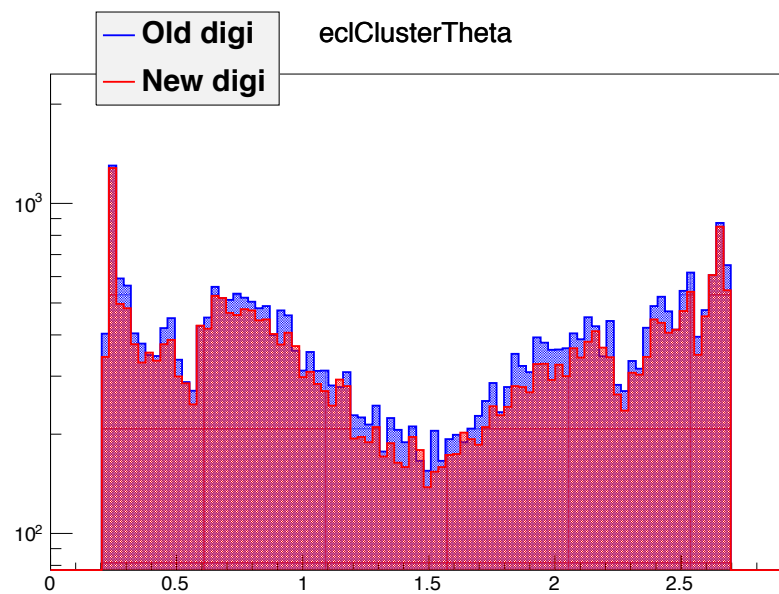
Cluster Info (I)



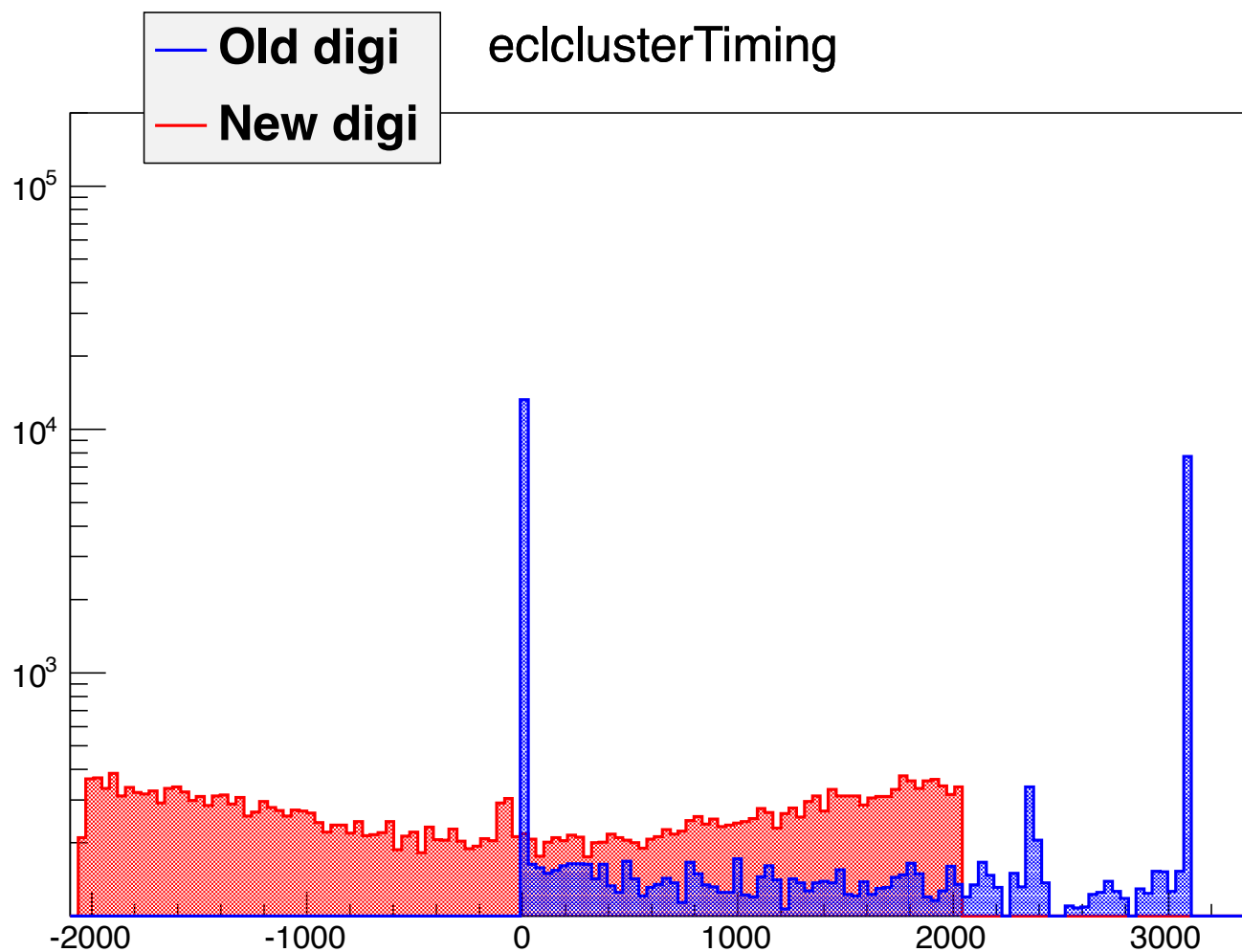
Cluster info (II)



Cluster info (III)



Cluster info (IV)



Cluster info (v)

