# Status on TRGECL DQM


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45th B2GM meeting

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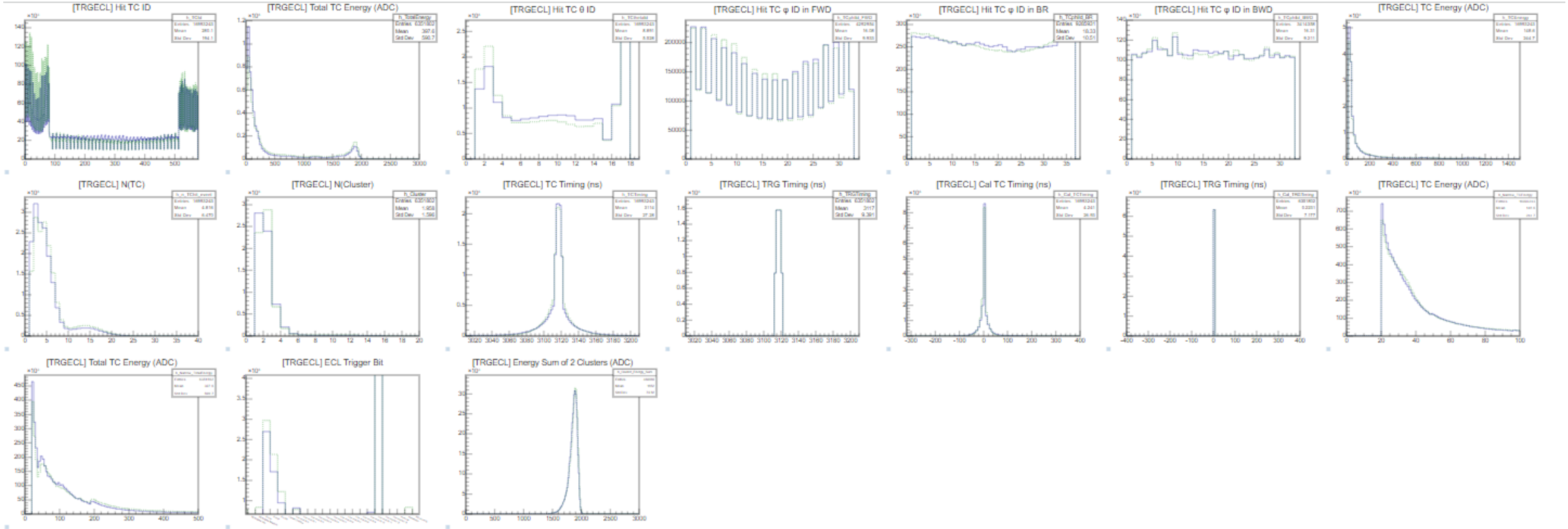
# TRGECL DQM

# Current status



# Fine Event

The ECL trigger is the main L1 trigger timing source. The ECL trigger determines trigger timing as the timing of the highest energy TC with two data clocks(256ns).

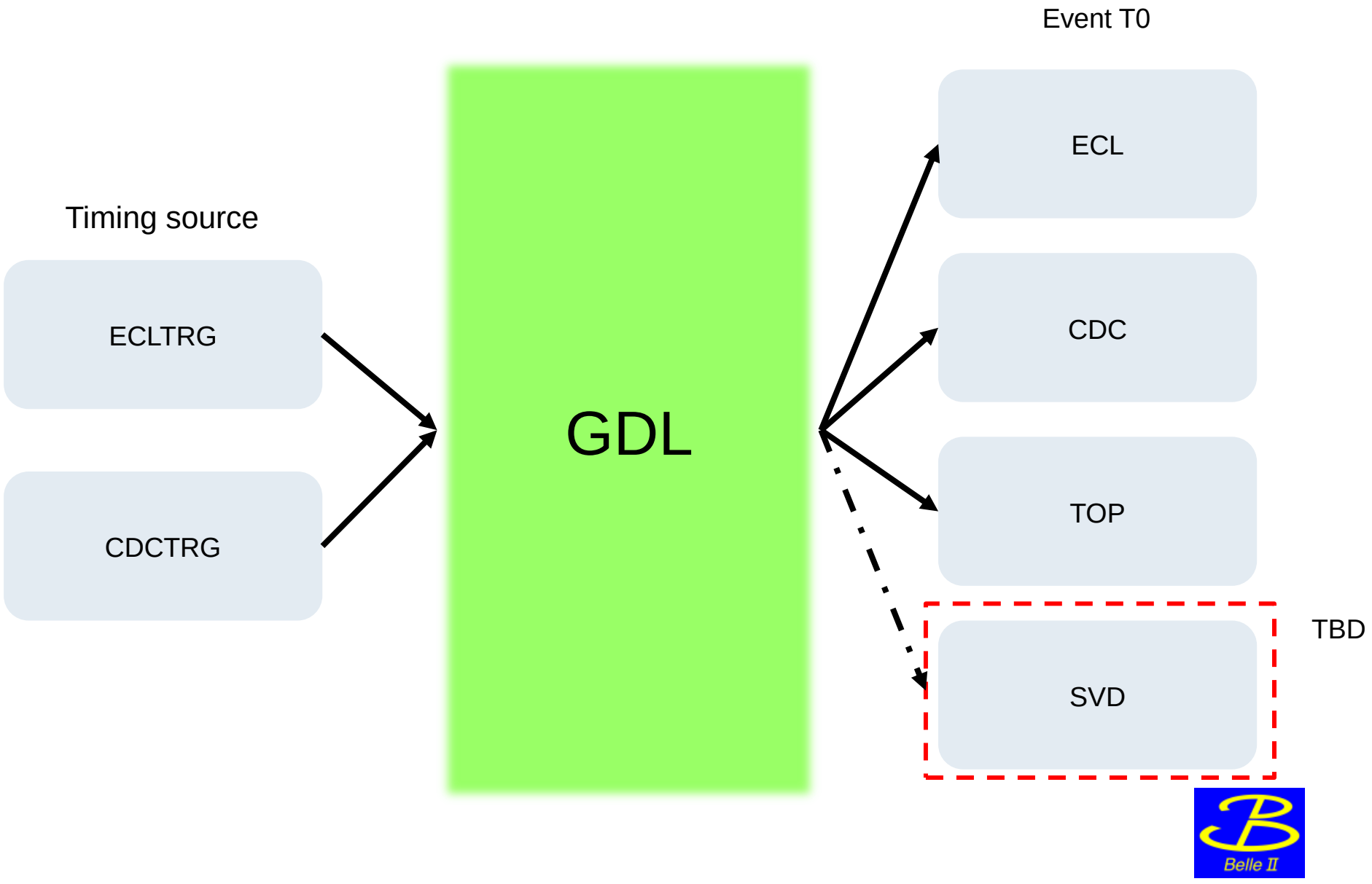
- Definition
  - The event whose most energetic TC is larger than 200 ADC (Not fixed).
  - SVD group will be select the condition.
    - ► ECL trigger jitter < 10 ns
    - ► Data size > 40%

- Applications
  - 6/3 mixed sample mode of SVD.
    - ► 3-sample based on fine event ($E_{max} > 200\ ADC$)
    - ► 6-sample based on course event ($E_{max} < 200\ ADC$)

# Update plot

- TRGECLDQM
  - Most Energetic TC Energy
  - The Fraction of Fine Event
- Event T0
  - Event T0 distribution each range
  - ECL trigger jitter
- Data
  - Ex22 run 372 HLT1 f00001
  - Cdst physics
  - Excluding TOP Event T0
  - # of events : 69474

# Event T0



# Update or creating module

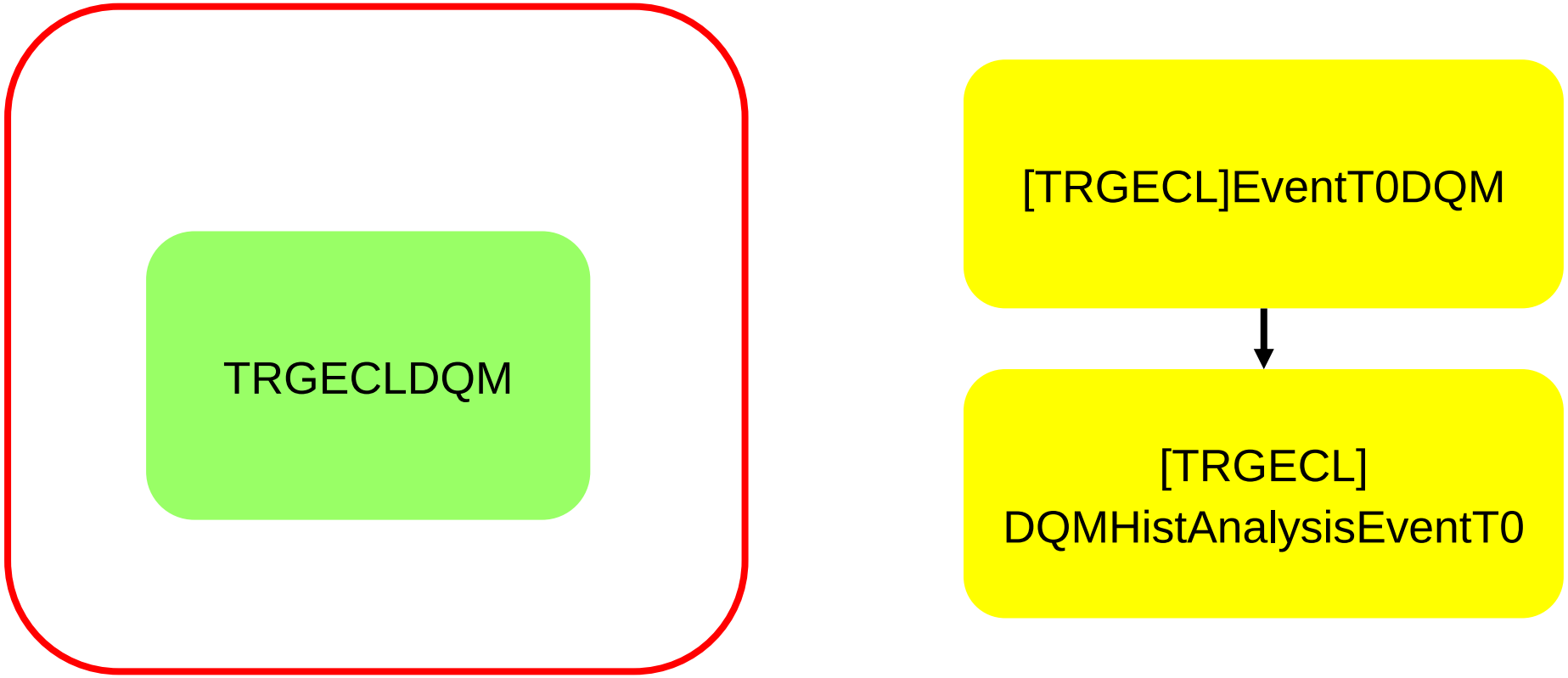
TRGECLDQM

[TRGECL]EventT0DQM

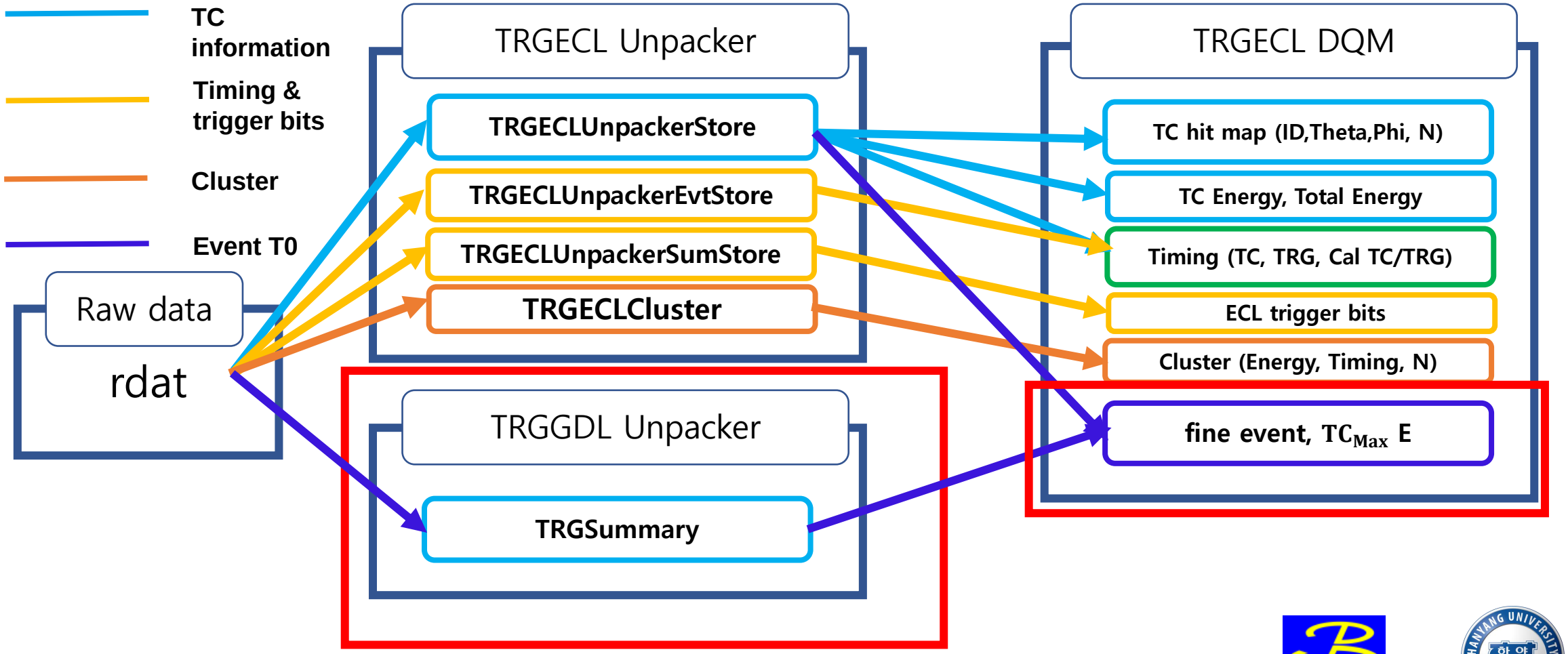
↓

[TRGECL]
DQMHistAnalysisEventT0

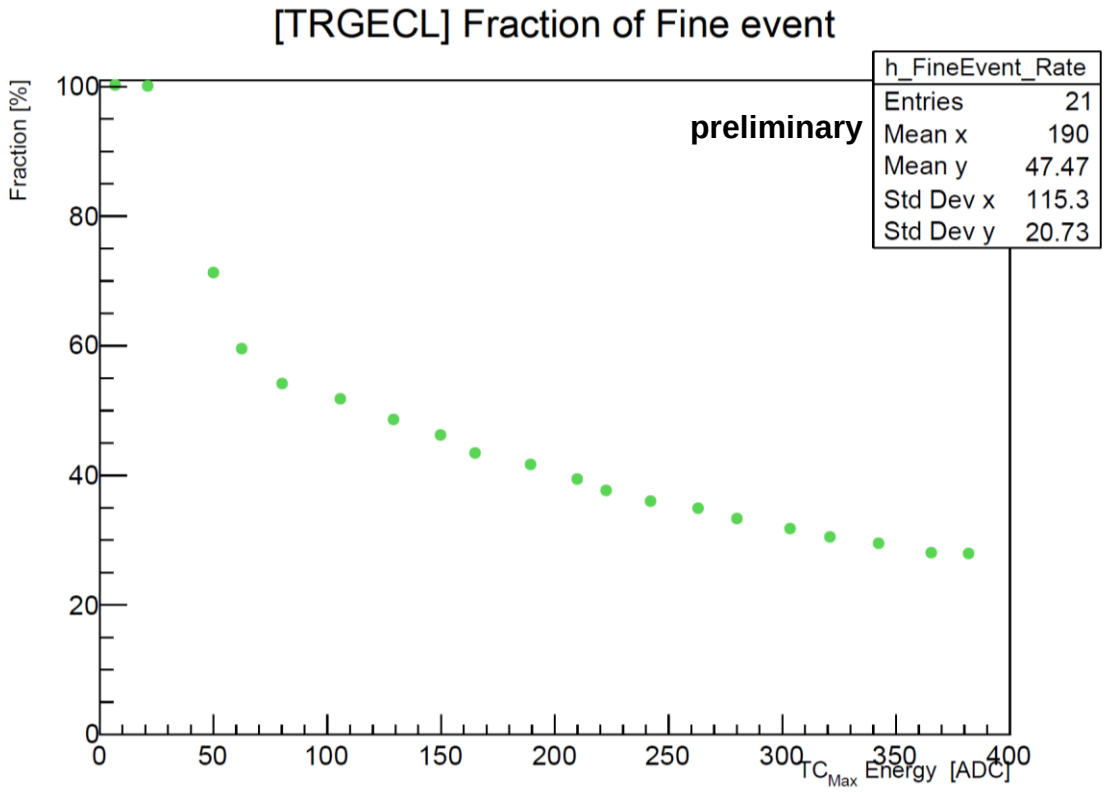
# Update or creating module



# TRGECL DQM module data flow



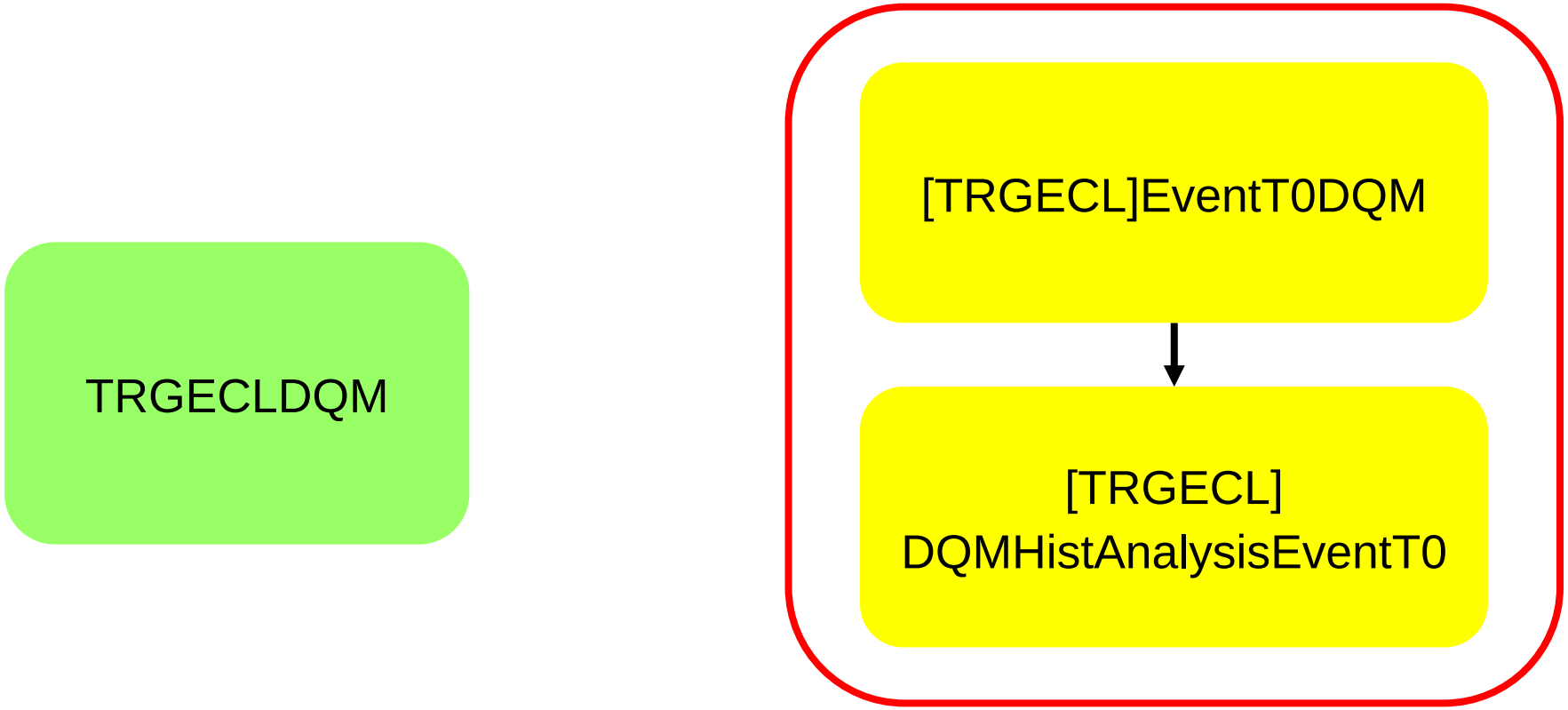
# Fraction of Fine Event



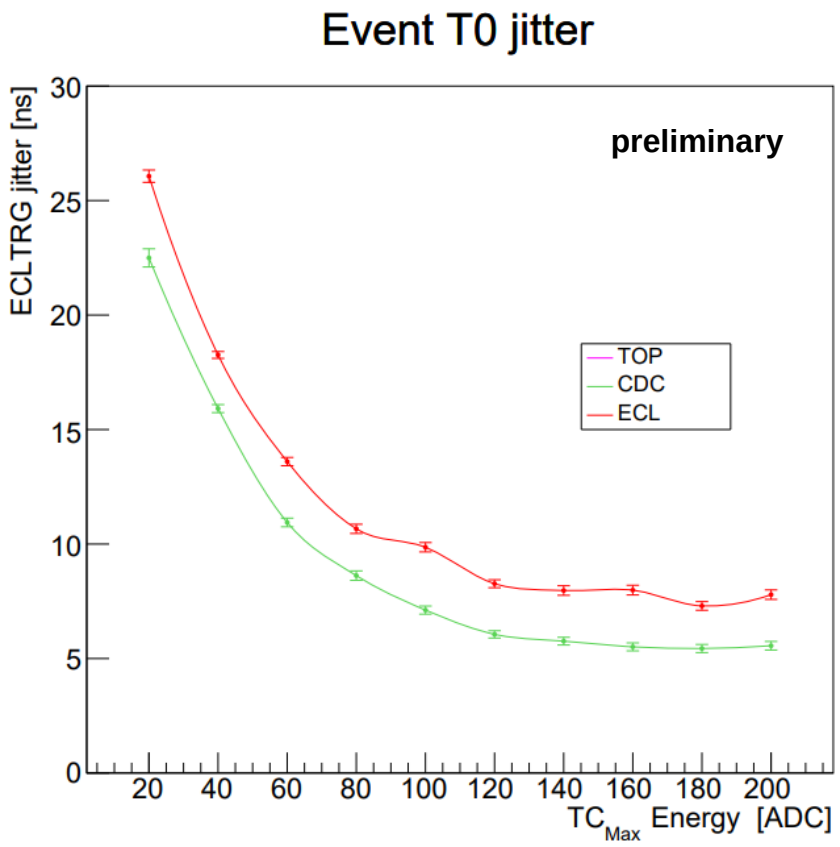

Fraction of fine event

- First version plot
  - X axis
    - $E_{max}\ cut$
    - range : 0 ~ 400 ADC
    - Can change depending on the SVD decision
  - Y axis
    - $Fraction = \frac{N_{ECL\ trigger}\ \&\ N_{E_{max}>X\ ADC}}{N_{ECL\ trigger}}$

# Update or creating module

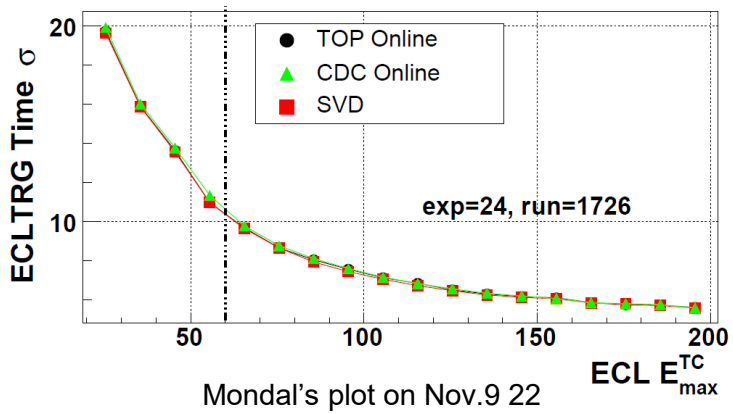


# ECLTRG Event T0 jitter




Event T0 jitter of CDC and ECL, exclude TOP

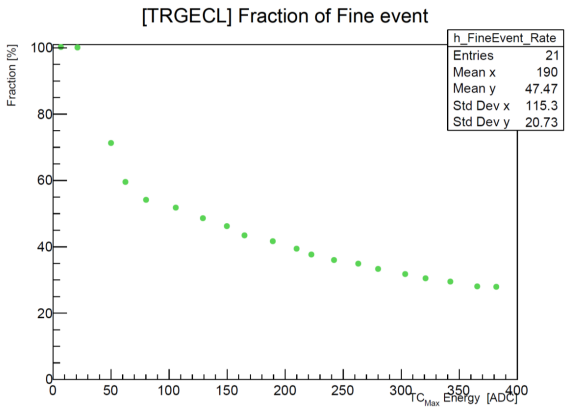
- ECL trigger jitter plot
  - Provide the sigma of gaussian fit result
    - ▶ The ECL trigger jitter of Event T0
    - ▶ TOP, CDC, ECL [SVD]
  - TC max Energy range : 0 ~ 200 ADC
  - This plot will be upload on Event T0 DQM page.



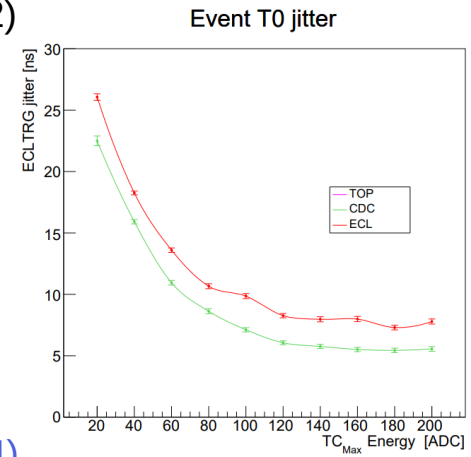

Mondal's plot on Nov.9 22

# SVD meeting comments

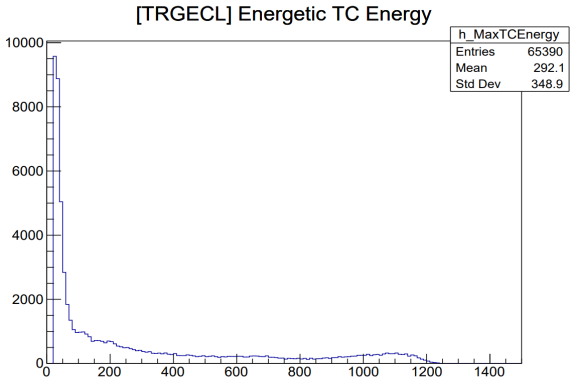
1)



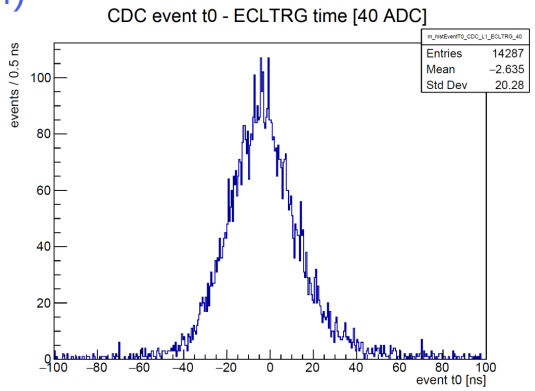

2)




3)



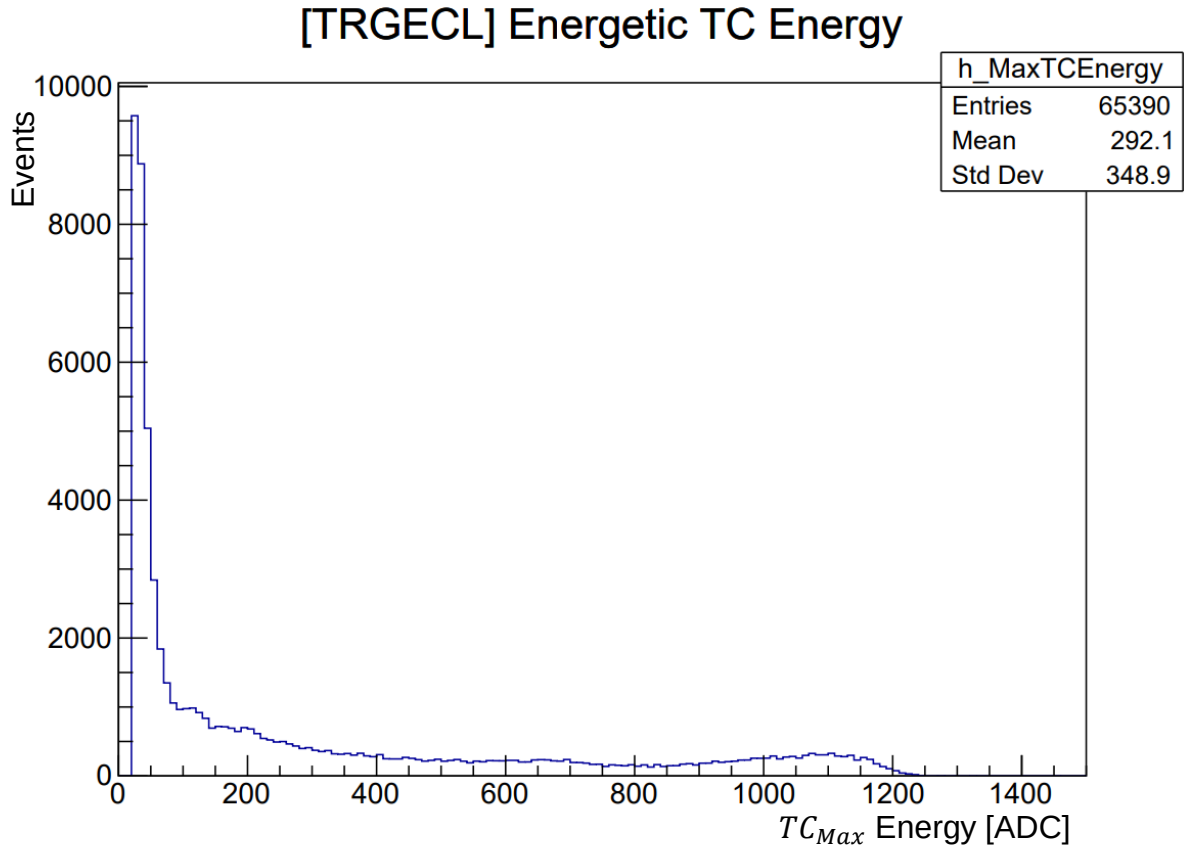

4)




- The request of SVD group
  - SVD event t0 plot →[ 4) ]
  - The plot using data before HLT filtering

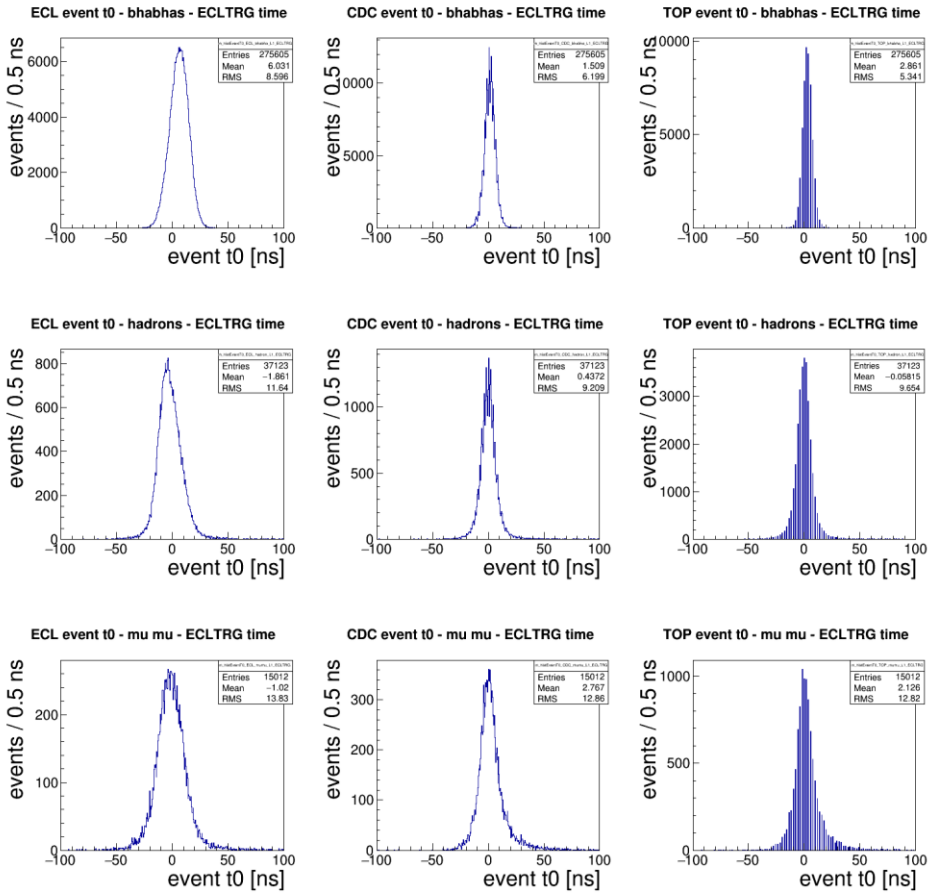
# Back up

# The Energy distribution of Most Energetic TC




- The L1 timing source is the ECL trigger.

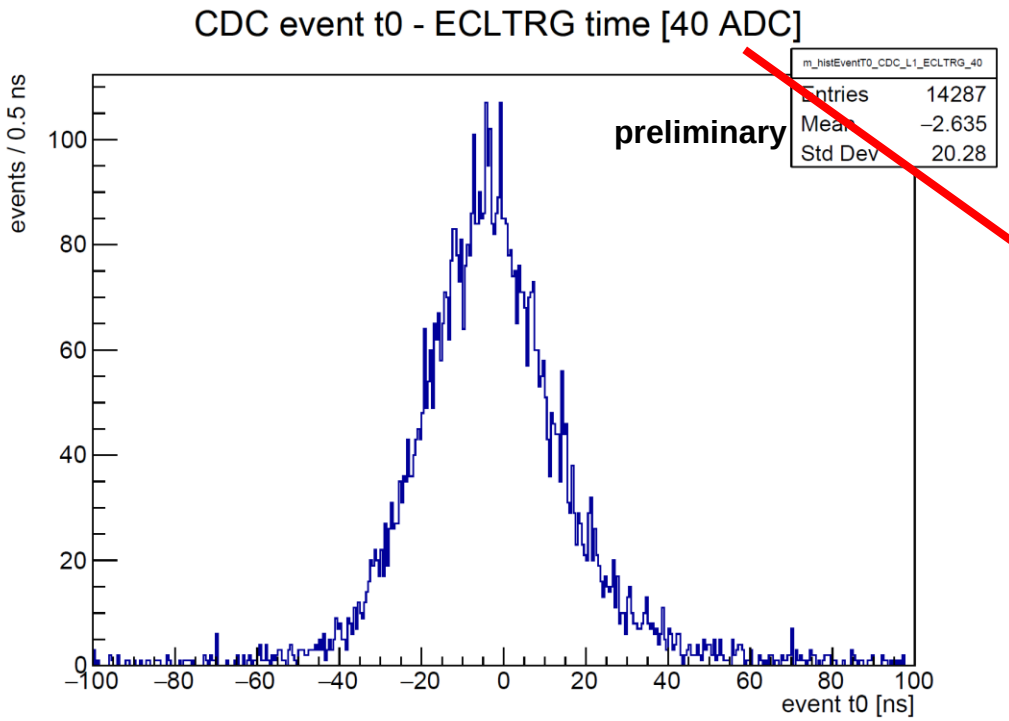
# Event T0 plot




EventT0 ECLTRG of Physics run

- The current status
  - Total plot 18
  - ECL timing source : 9
  - CDC timing source : 9
  - Skim type : Bhabha, hadron, mumu

# Plots for analysis of ECLTRG  Event t0 jitter

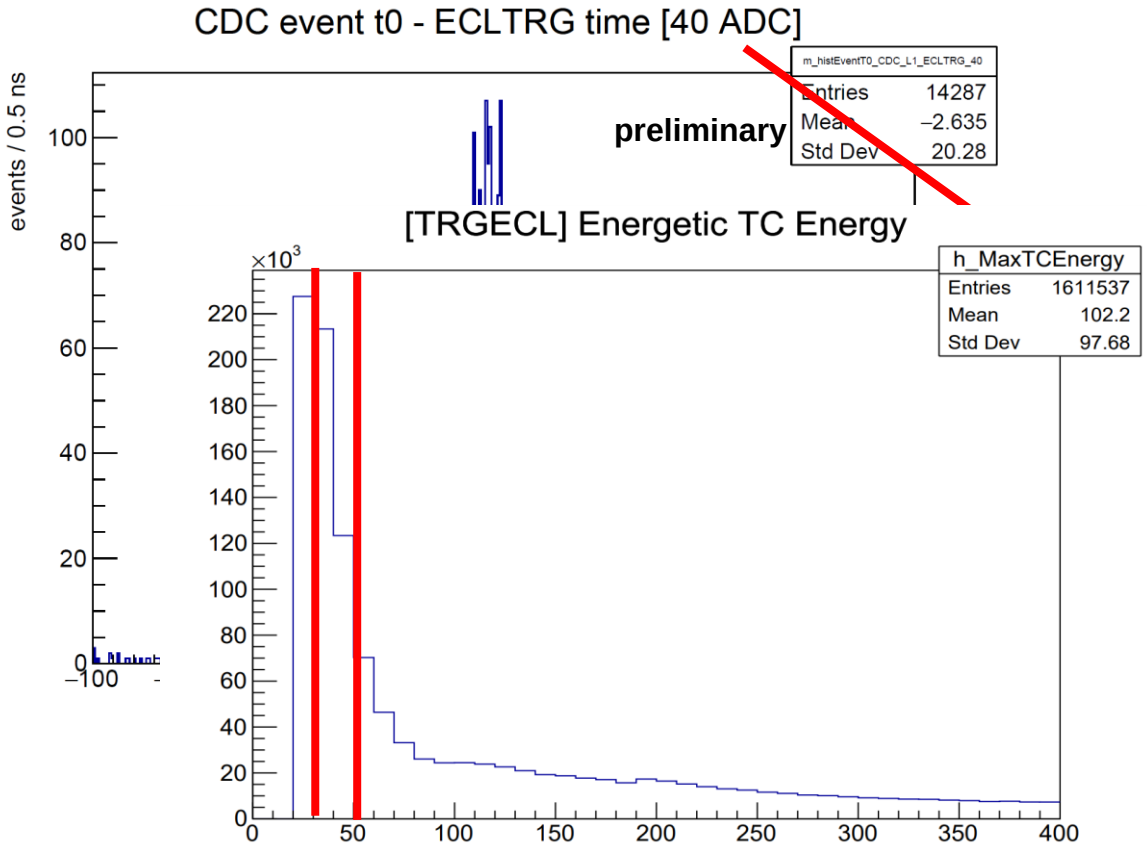



EventT0 ECLTRG with 50 ADC > Emax > 30 ADC

- The plots for Event T0 resolution
  - ECL trigger
  - 3 plots per Emax Range
    - ► CDC, ECL, TOP

| Description | Emax Range [ADC] |
|---|---|
| [20 ADC] | 20~30 |
| [40 ADC] | 30~50 |
| [60 ADC] | 50~70 |
| [80 ADC] | 70~90 |
| [100 ADC] | 90~110 |
| [120 ADC] | 110~130 |
| [140 ADC] | 130~150 |
| [160 ADC] | 150~170 |
| [180 ADC] | 170~190 |
| [200 ADC] | 190~210 |

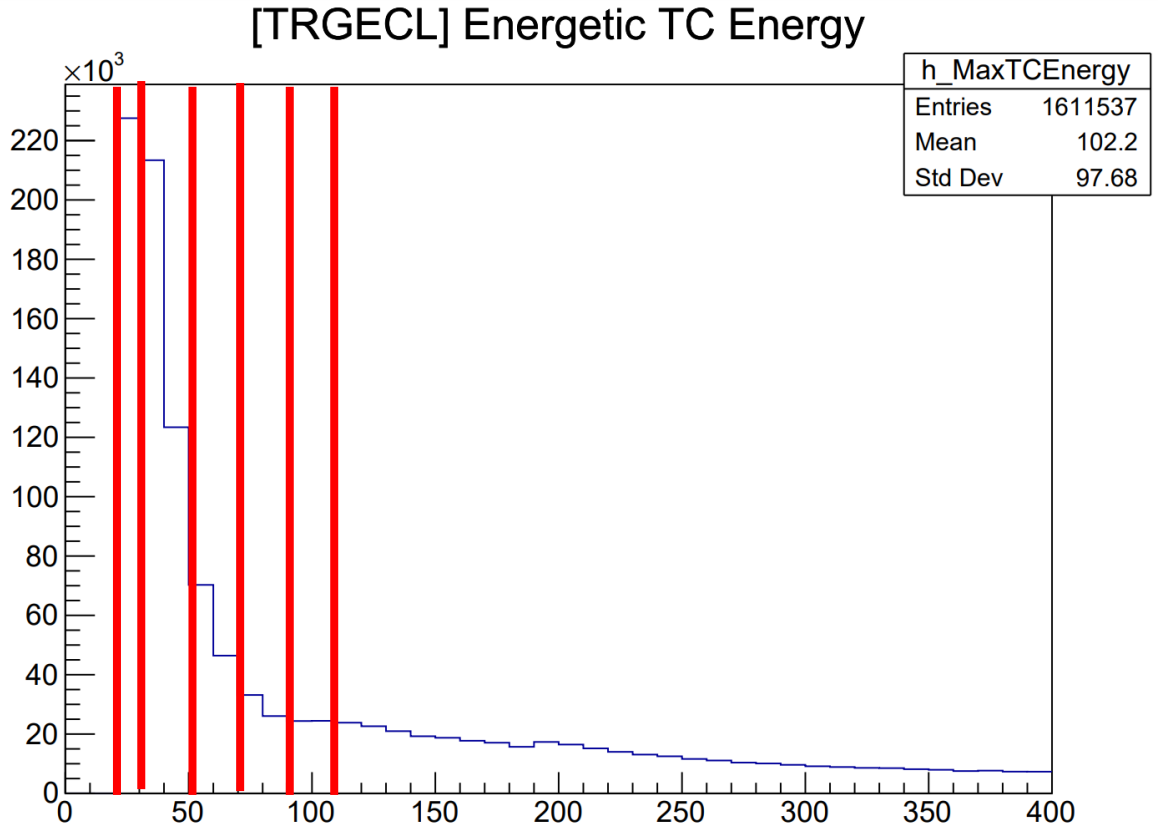
# Plots for analysis of ECLTRG  Event t0 jitter




- The plots for Event T0 resolution
  - ECL trigger
  - 3 plots per Emax Range
    - ► CDC, ECL, TOP

| Description | Emax Range [ADC] |
|---|---|
| [20 ADC] | 20~30 |
| [40 ADC] | 30~50 |
| [60 ADC] | 50~70 |
| [80 ADC] | 70~90 |
| [100 ADC] | 90~110 |
| [120 ADC] | 110~130 |
| [140 ADC] | 130~150 |
| [160 ADC] | 150~170 |
| [180 ADC] | 170~190 |
| [200 ADC] | 190~210 |

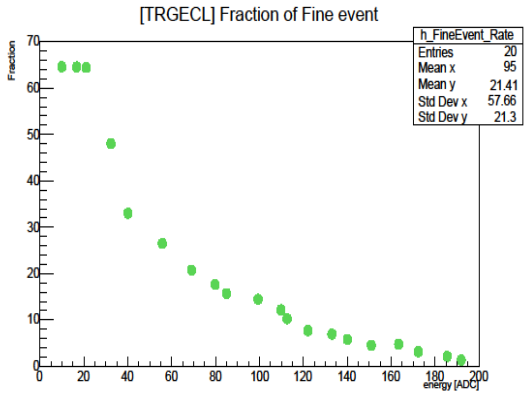
# ECLTRG jitter

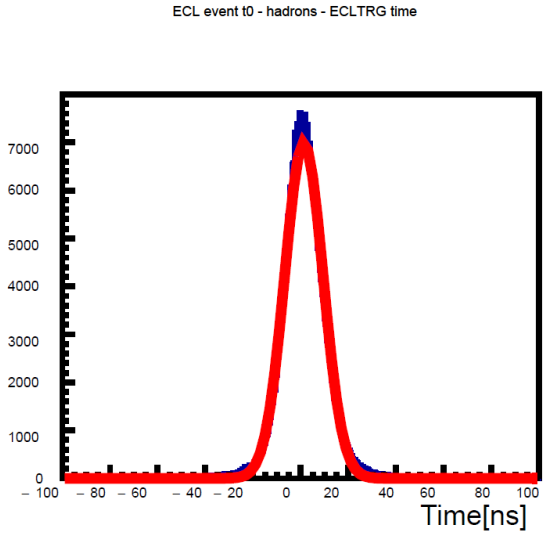


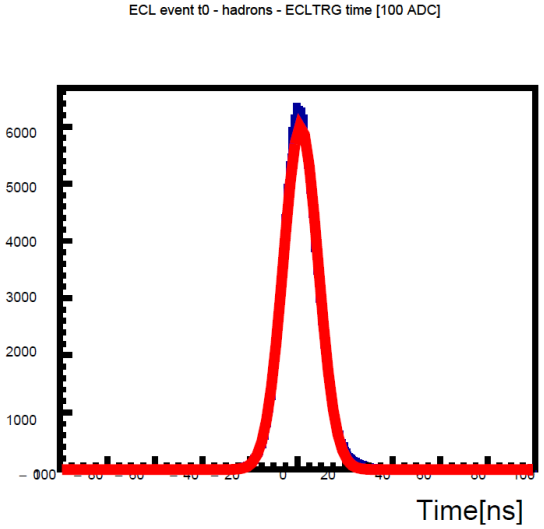

Most Energetic TC Energy

- ECLTRG Event T0 jitter
  - 20 ≤ Most Energetic TC E ≤ 30 ADC
  - 30 ≤ Most Energetic TC E ≤ 50 ADC
  - 50 ≤ Most Energetic TC E ≤ 70 ADC
  - 70 ≤ Most Energetic TC E ≤ 90 ADC
  - 90 ≤ Most Energetic TC E ≤ 110 ADC

# Debugging issue




- TRGECLDQM module
  - Low 3 dots are not 100%
  - Other value is also strange(too low)
- TRGECLEventT0DQM module
  - Energy cut 0 ADC and 100 ADC
    - ► No big difference
    - ► It affect hist-analysis-module

# To do

# To do

- Include these plot on DQM system
- QAM for Event T0 resolution
  - How ?
- The Fraction of ECL TRG timing
  - Which parameter affect the fraction?
  - Check other exp
  - Draw the Fraction as a function of statistic