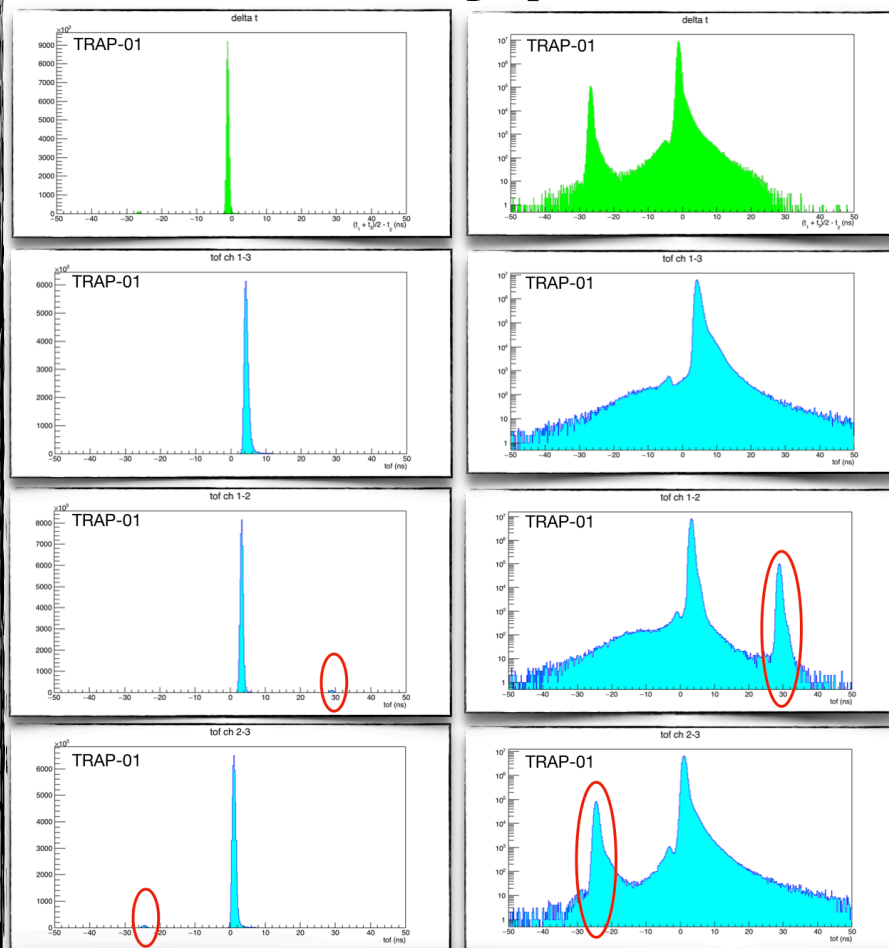


Timing

Details from analysis on performance

Secondary peaks

Secondary peak and time of flight



- ♦ $t_{\text{expected}} - t_{\text{measured}}$ on chamber 2 to measure σ_t
- ♦ Secondary peak at 25 ns

- ♦ Time of flight between chamber 1 and 3
- ♦ No secondary peaks

- ♦ Time of flight between chamber 1 and 2
- ♦ Secondary peak at 25 ns

- ♦ Time of flight between chamber 2 and 3
- ♦ Secondary peak at 25 ns

♦ Secondary peaks were visible and discussed
♦ Check data from telescopes with the new trigger card

Conclusions

- ♦ The same behavior is visible on other telescopes (further check soon)
- ♦ Peaks appear when using middle chamber in the measurement
- ♦ Secondary peak at 25 ns (clock frequency)
- ♦ Is the offset introduced by the clock card?
- ♦ Next:
 - check data from telescopes with new trigger card (VICE-01)
 - study correlation with other quantities

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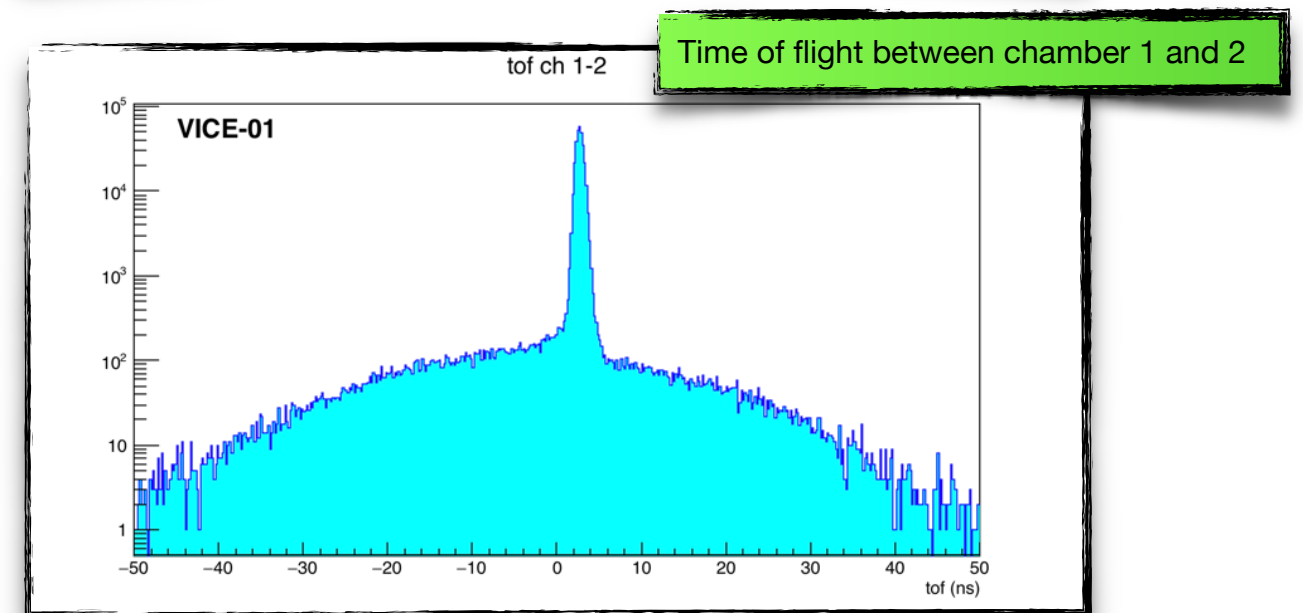
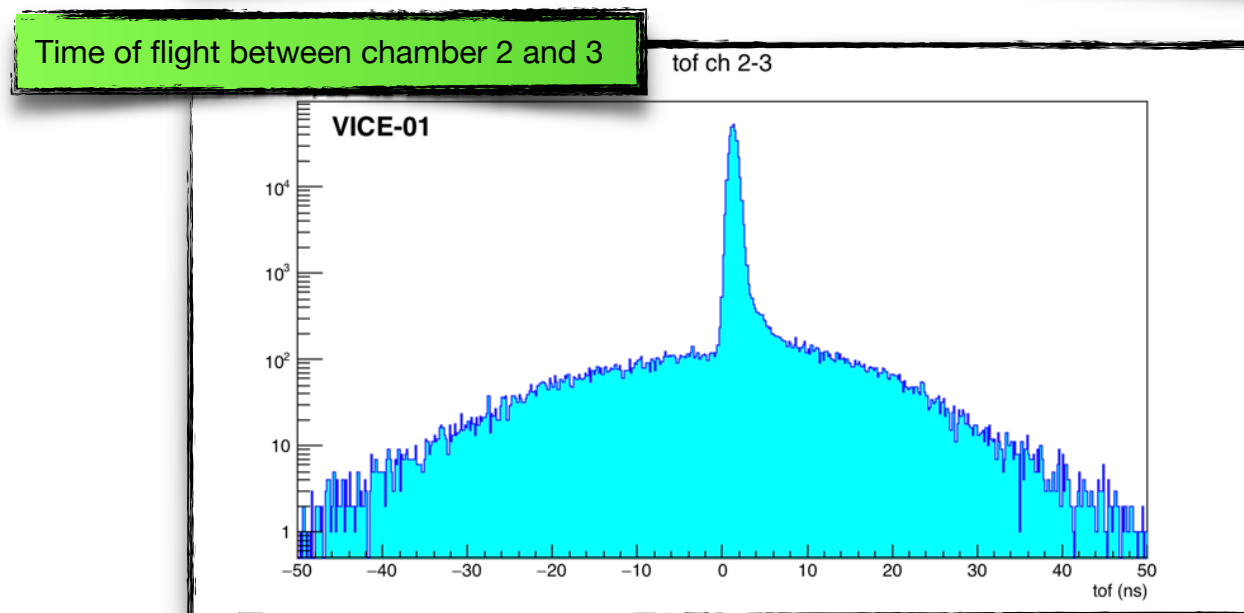
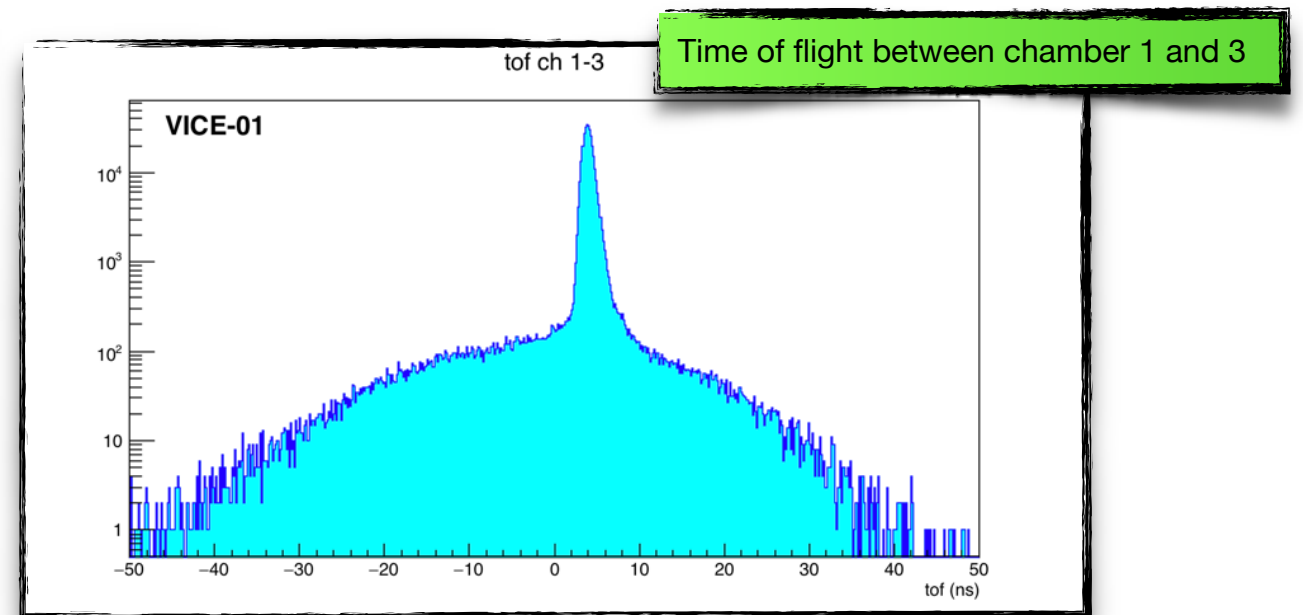
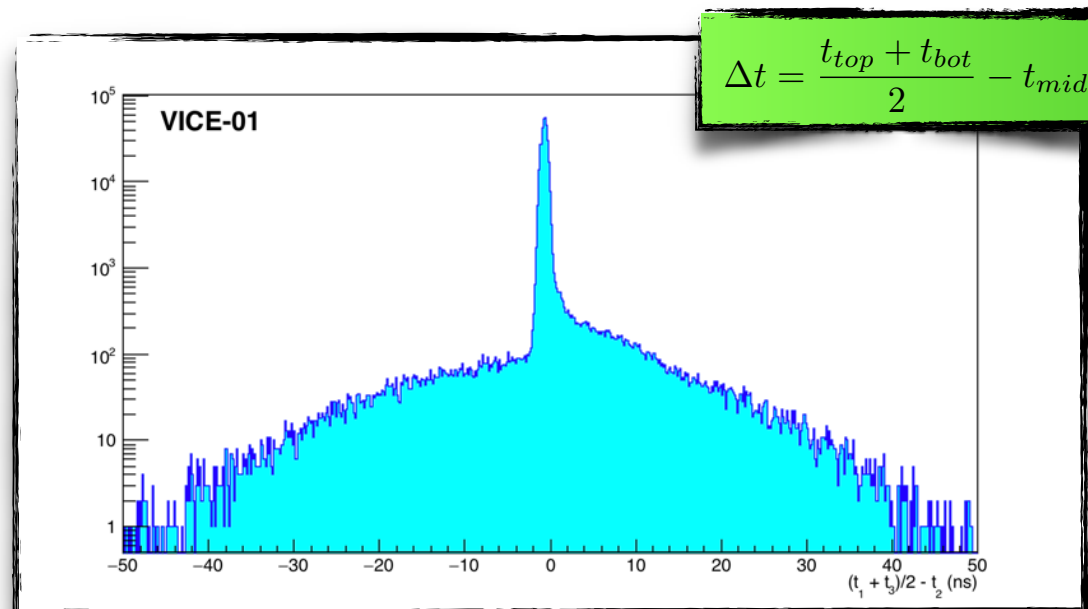
D. De Gruttola (Centro Fermi Roma and Salerno INFN, Italy)

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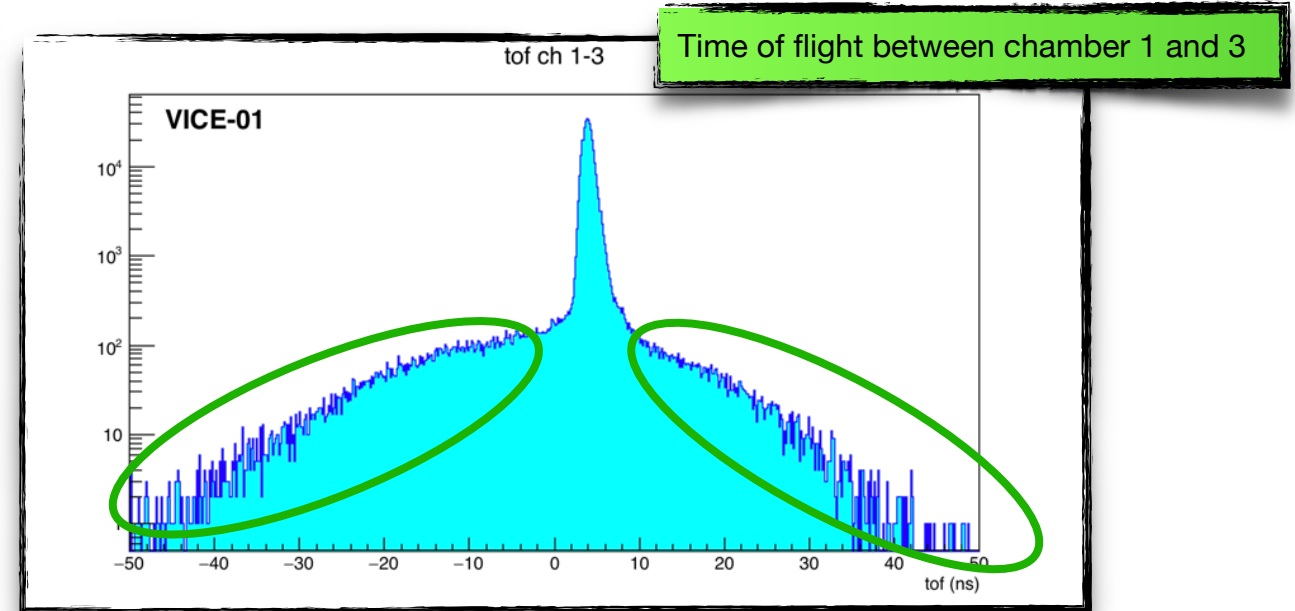
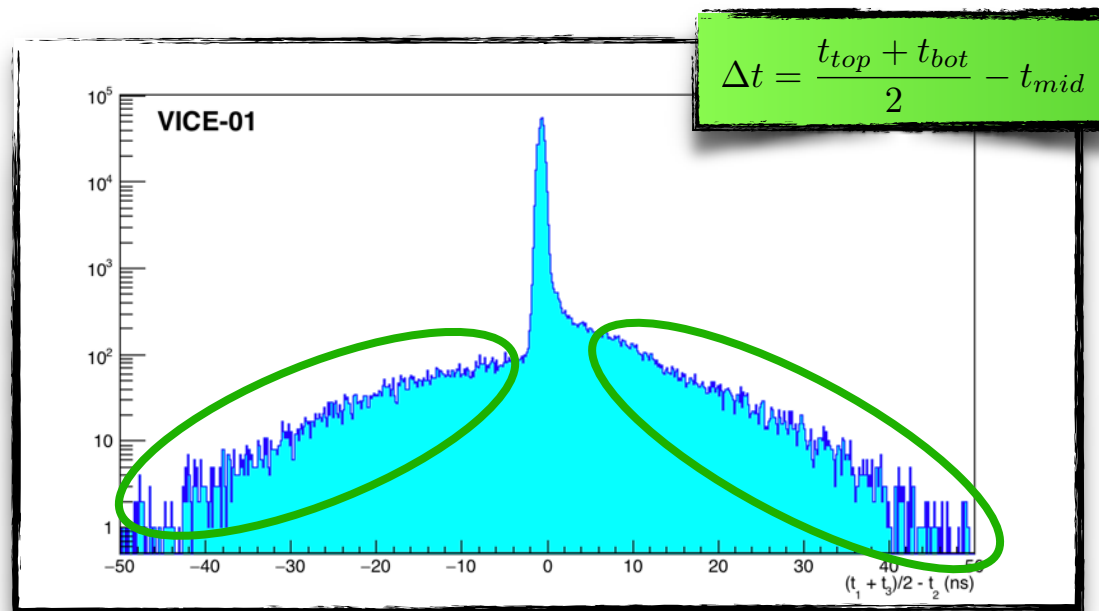
5

Secondary peaks



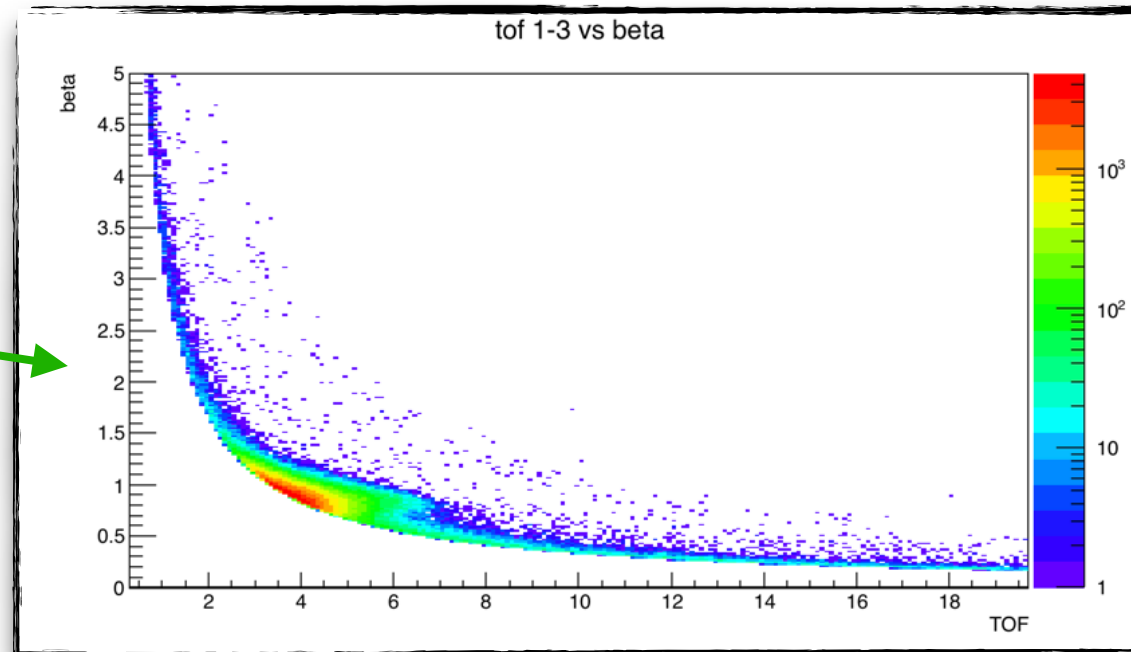
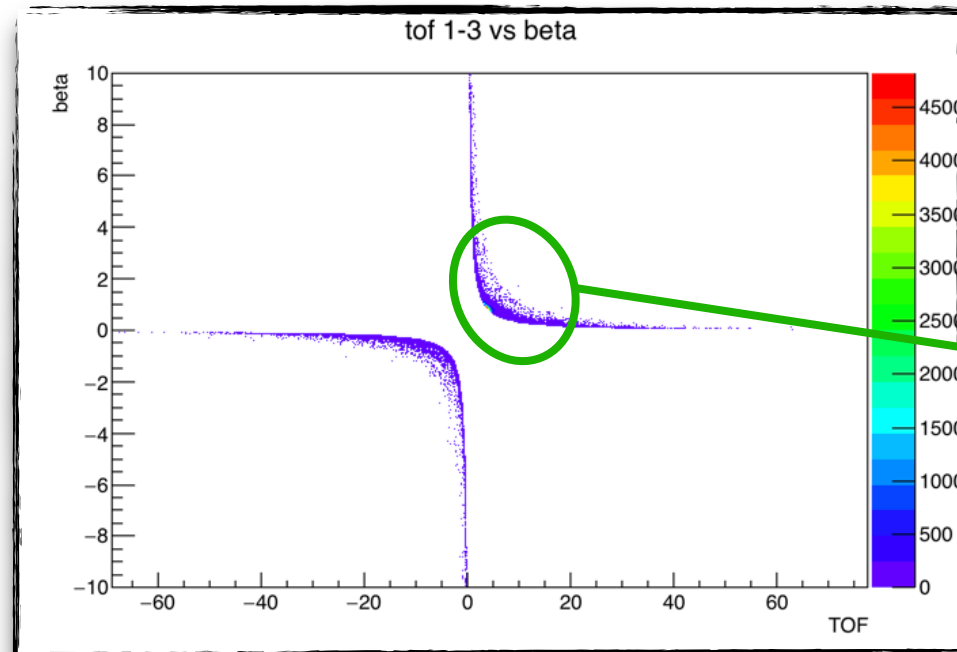
- ◆ Δt to measure σ_t and time of flight
- ◆ No secondary peaks
- ◆ Clock to TDCs provided by the **new trigger card**

Entries outside the peak

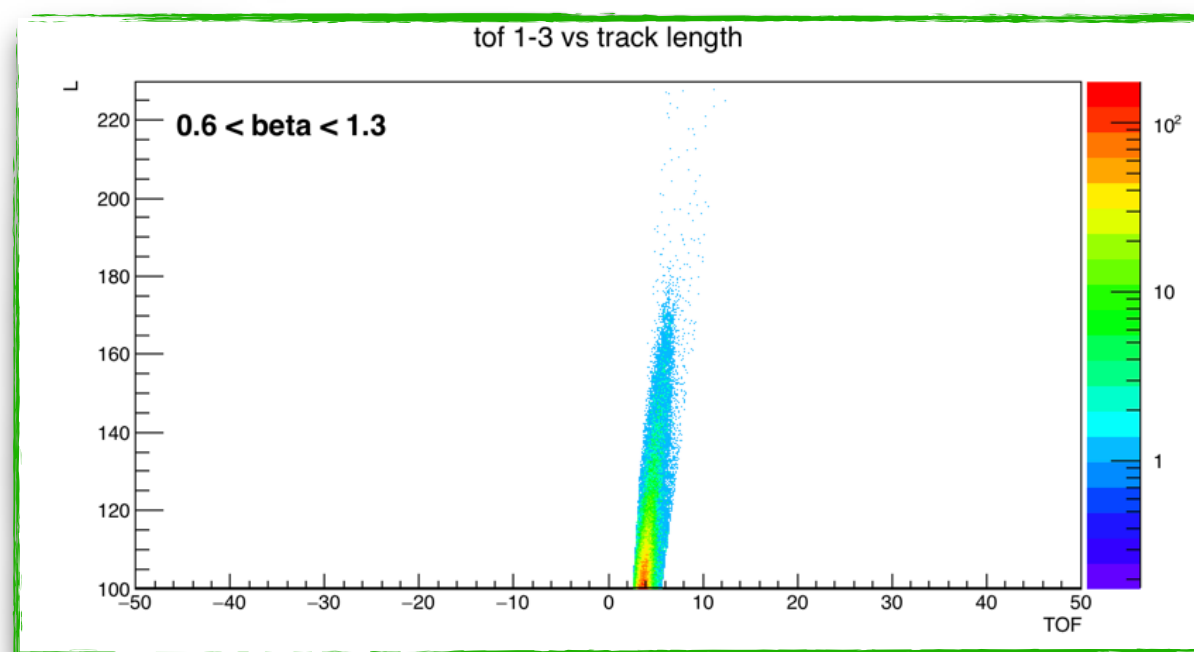
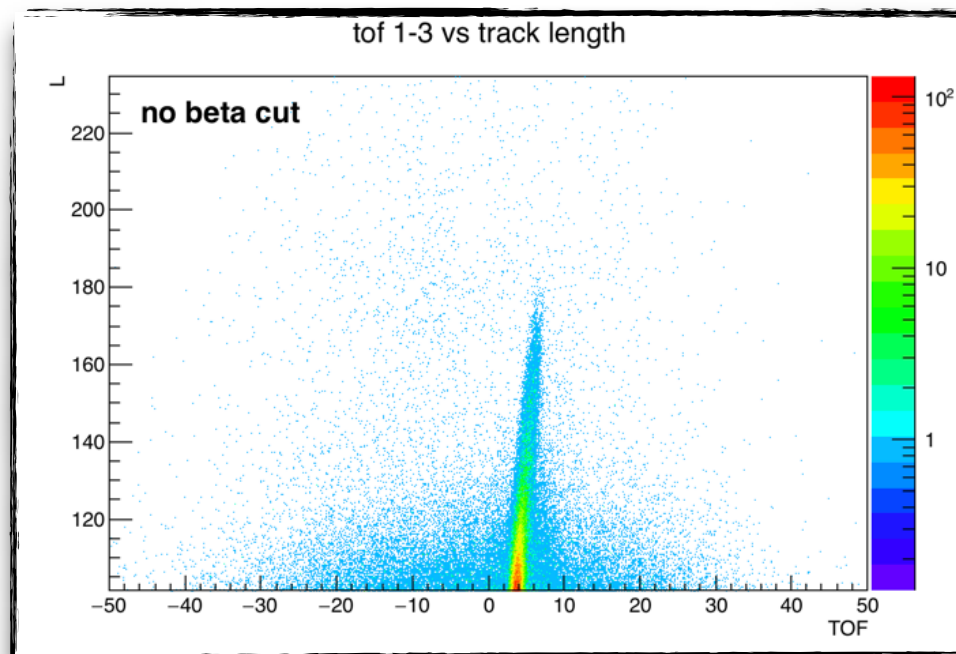


- ◆ All reconstructed tracks were already selected by $\chi^2 < 5$
- ◆ Study the entries outside the peak
- ◆ Correlation with other quantities ongoing
- ◆ First results in the next slides

Time of flight, β and track length



Using β to study track quality



- ◆ By applying a β cut ~10% of tracks are rejected
- ◆ All of them are outside the top peak

Conclusions

- ♦ **Secondary peaks** (25 ns apart) are visible when using time information from the middle chamber (telescopes with clock card)
- ♦ Clock card provides the TDCs with the same clock
- ♦ Clock card useful for **performance studies** and well behaving on all telescopes
- ♦ Other analysis do not use timing information from the middle chamber (to be confirmed)
- ♦ Secondary peaks should **not a problem** for our analysis and results
- ♦ The **new trigger card** also provides the clock
- ♦ **No secondary peaks** are visible (data from VICE-01 - other telescopes to be analyzed)
- ♦ Exploiting these checks, events outside the peak of timing distributions are studied
- ♦ By applying a **β cut** the correlation between TOF and L is cleaned up
- ♦ All tracks outside the peak are rejected (~10%)
- ♦ Could this cut be important to **reduce the background** in some analysis?
- ♦ Study of other quantities ongoing

Daniele De Gruttola <daniele.degruttola@centrofermi.it>

to Referenti ▾

Dear all,

I'm kindly ask you to provide me with the following information related to the telescopes you are responsible for:

gas system
readout electronics
trigger card
GPS
frontend electronics
LV+HV supply
weather station

you can find an example here about what I'm asking:

<https://sites.google.com/centrofermi.it/3etech/home/table-1>

of course there is no need to know the information for the telescopes already included in these two pages.

Best regards

- Request to provide me with some details on the telescopes
- The information will be included in the technical coordination site
- It can help in handling the material and also in speeding up the collection of information for some analysis
- Stefano and Paola reacted up to now