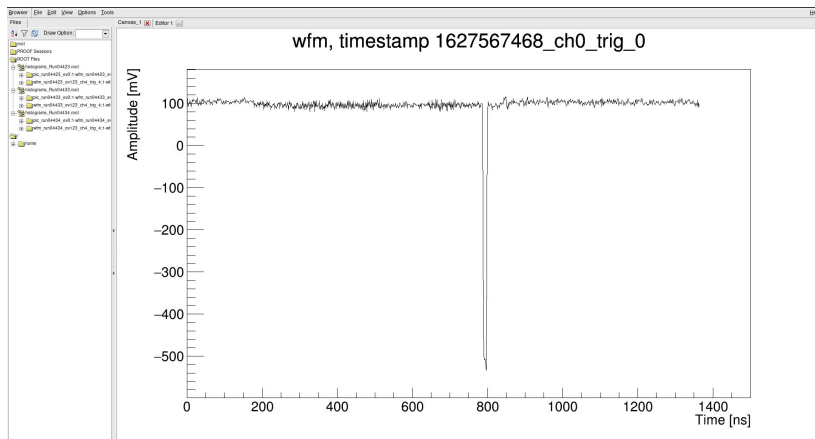# PMT analysis

Cygno reco and analysis meeting - 10/2/2022

David Marques

Gianluca Cavoto
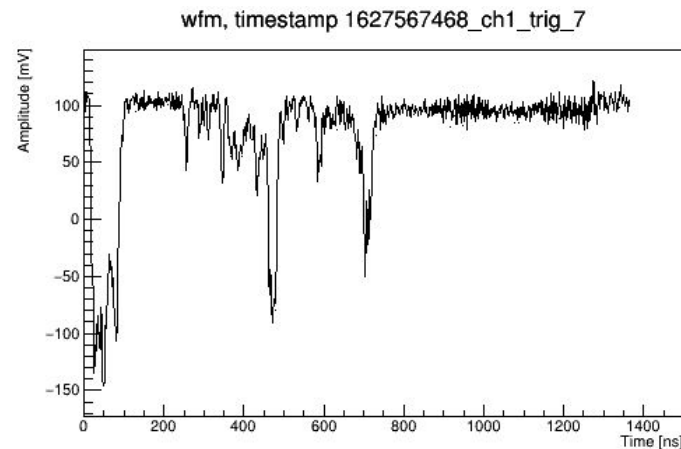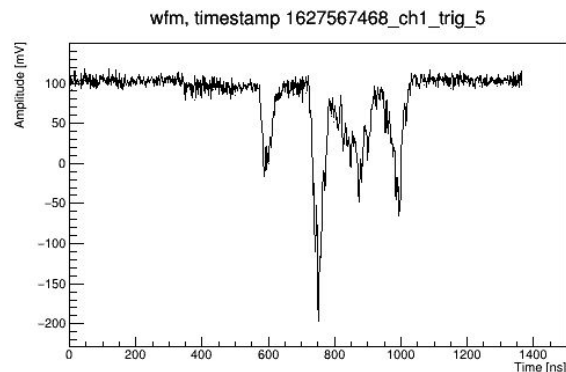
→ ***Goals***

- ◆ Characterise PMT response to different sources

- ◆ Correlate PMT signal in a single event

- ◆ Correlate PMT signals with camera picture

- ◆ **3D tracking**

1. Found the data

2. Started to have a look at it.

● Some examples are shown

1. Understand all the channels
   a. There are 2 separate folders
      i. But they seem the continuation of each other.
   b. There are 8 channels and 9 triggers per image.
      i. Suggestions?
2. Find baseline
   a. Shift waveforms to zero
3. Find time correlation between signals
   a. Is the PMT signal always at the same position? (trigger latency?)
   b. Find trigger rate
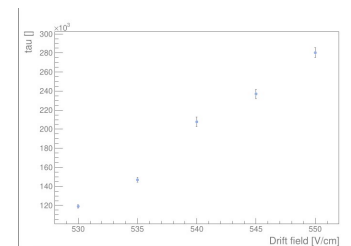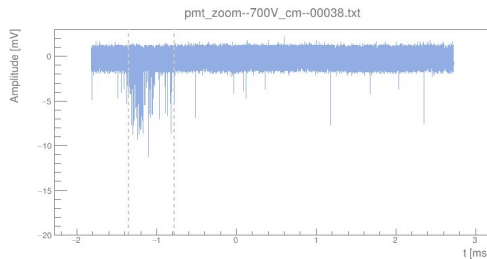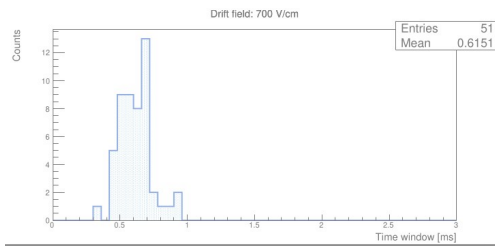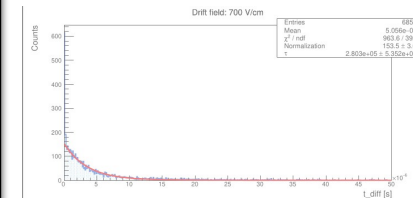4. Start creating a TTree to save and organize all the relevant information
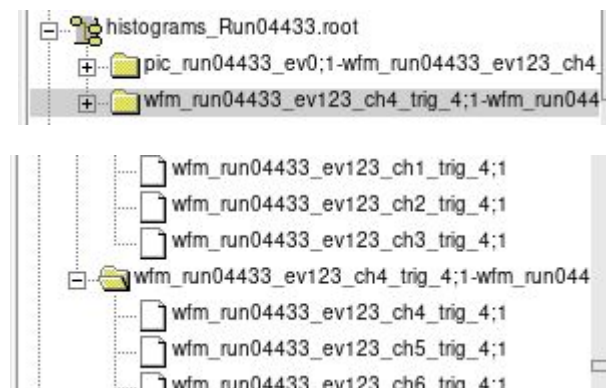
- Basic properties of the waveforms:
  a. Area
  b. Baseline
  c. Signal duration / time window
  d. Maximum amplitude
  e. Number of peaks per wf (number of energy depositions)
  f. Number of minima above threshold
     i. Large structure indicate cosmics
- Using the 4 PMTs to find the track position (X-Y):
  a. **Time and/or amplitude triangulation**
- ***Correlation between images (clusters) and PMT signals.***

Cell Phone Location
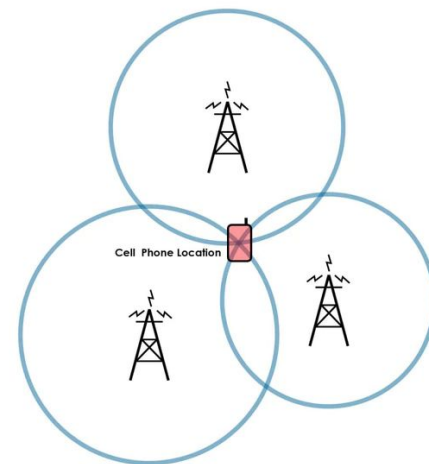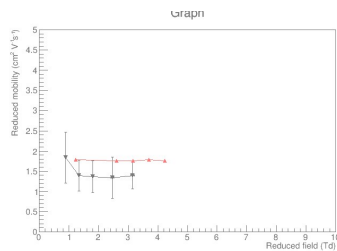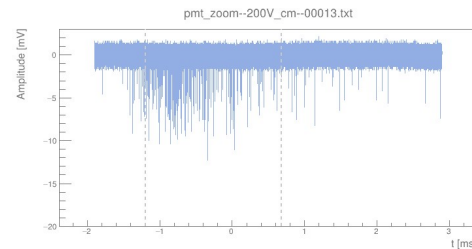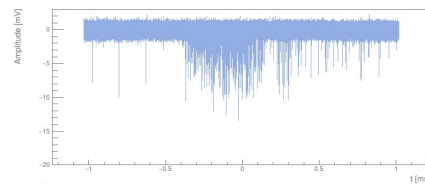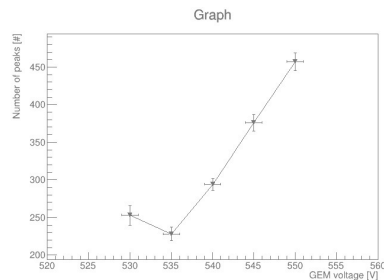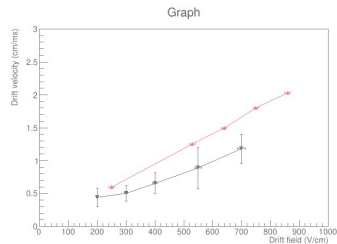
- Working on a preliminary analysis of the PMT waveforms for NID.
  a. Giorgio (will) show some of the late results...

We'll keep you

updated!