

Test Beam analysis

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Overview

- Analysis framework developed in Orsay to reconstruct the test beam data
 - Input: raw data from oscilloscope
 - `/eos/atlas/atlascerngroupdisk/det-hgtd/testbeam/`
 - It was used for the previous paper
 - Check-out and setup:
 - `git clone ssh://git@gitlab.cern.ch:7999/atlas-hgtd/TestBeam/PyAna.git`
 - `cd PyAna & source mysetup.sh`

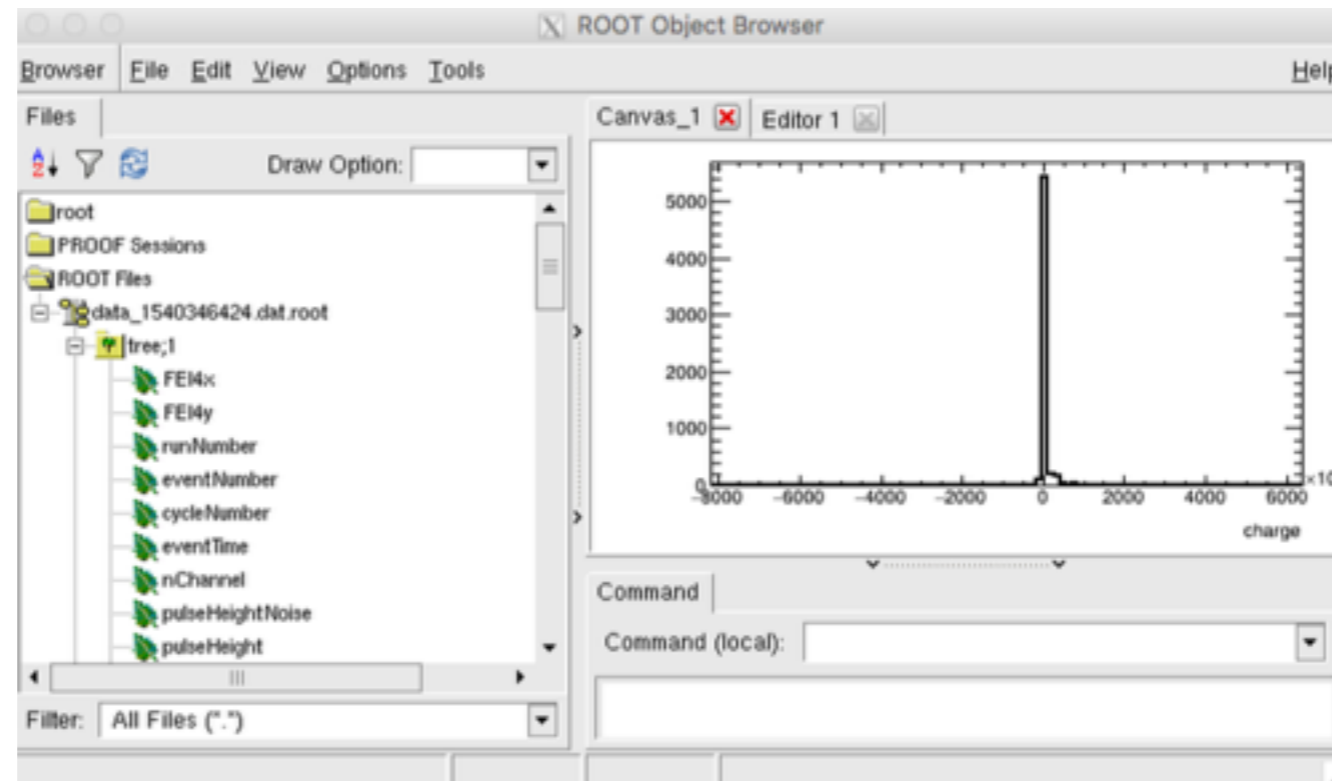
Framework output

- It is a root file containing several variables

<u>Branch Name</u>	<u>variable</u>
pulseHeight	maximum of the pulse amplitude
timeCFD	time reconstruction with a Constant Fraction Discriminator
timeCTD	time reconstruction with a Constant Threshold Discriminator
timeZCD	time reconstruction with a Zero Crossing Discriminator
timeAtMax	time at which the amplitude is maximal
pedestal	pedestal
noise	noise
charge	integral of the pulse divided by the transimpedance
jitter	$N/(dV/dt)$
riseTime1090	<u>RiseTime</u> computed from 10% to 90% of the maximum amplitude
pulseHeightNoise	maximum amplitude computed using only the 2 first ns of the samples

Framework output

- Example of output root file from a single Run



- The full data (from October TestBeam) is under transfer to eos (by Nikola Makovec from Orsay)
- A configuration file is also needed for the test beam (contains needed information about the data taking)