

Xenon doping analysis in pDUNE 2nd Run

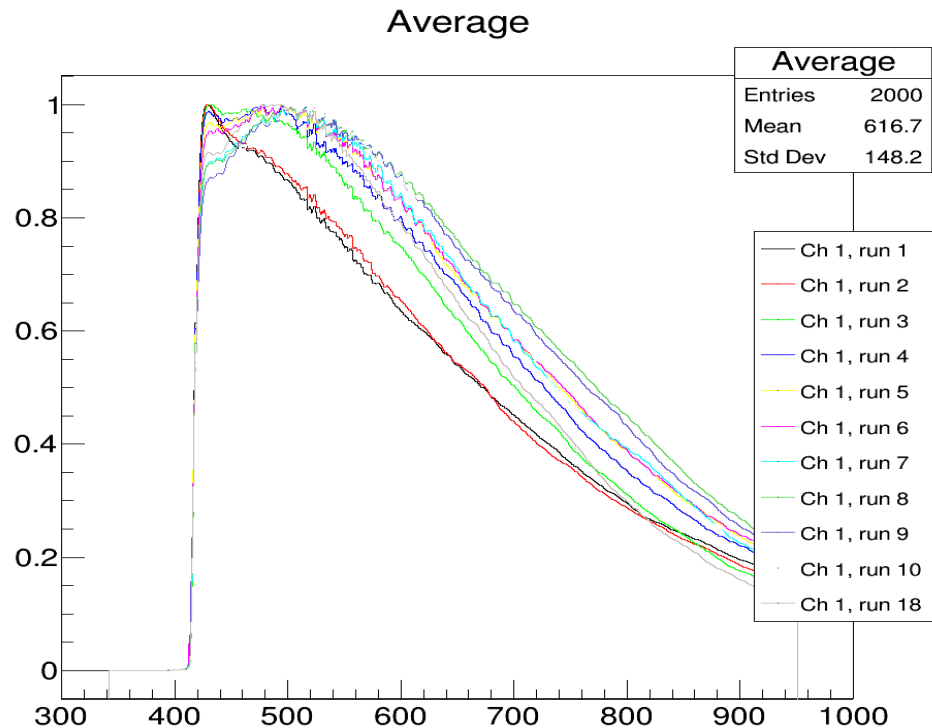
Niccolò Gallice, Luca Bomben

Detector Operation Meeting
06/03/2020



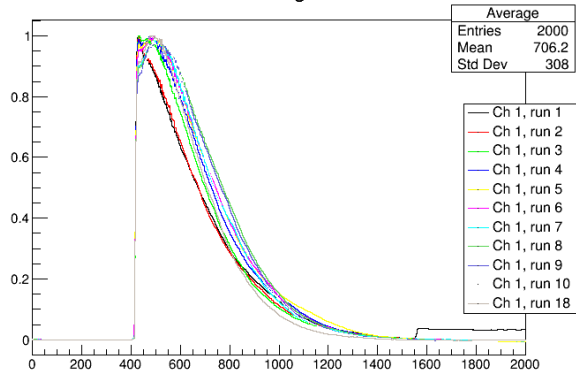
Average waveforms

- External triggers analysis
- Select events with signals in the trigger area
- Select events with no events in the pre-trigger area

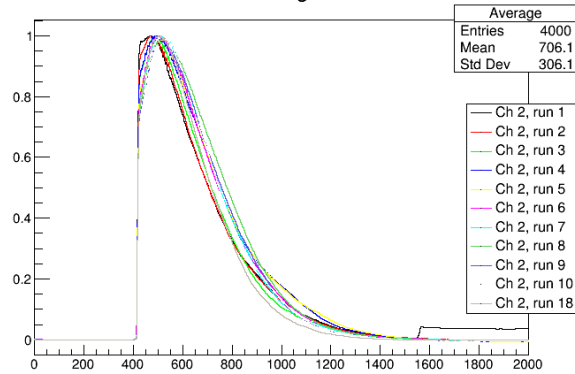


Average waveforms

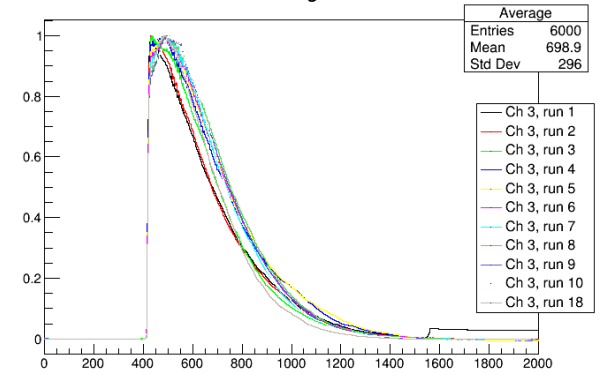
Average



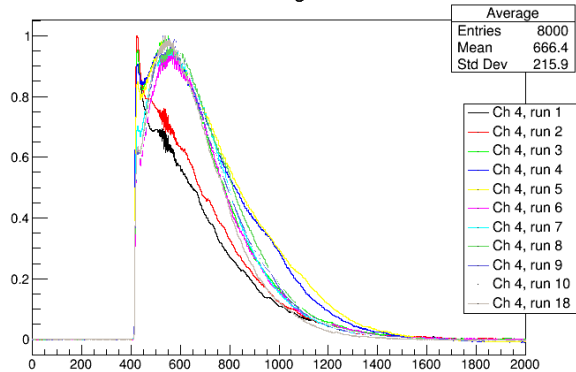
Average



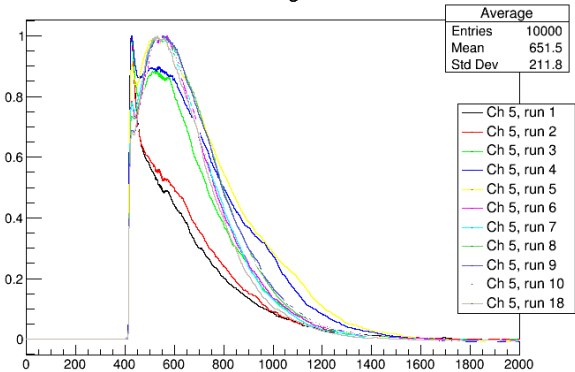
Average



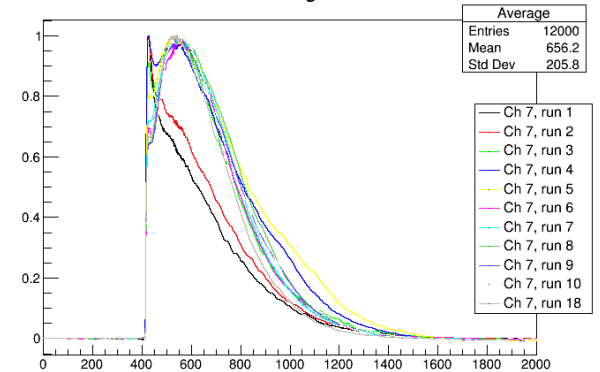
Average



Average

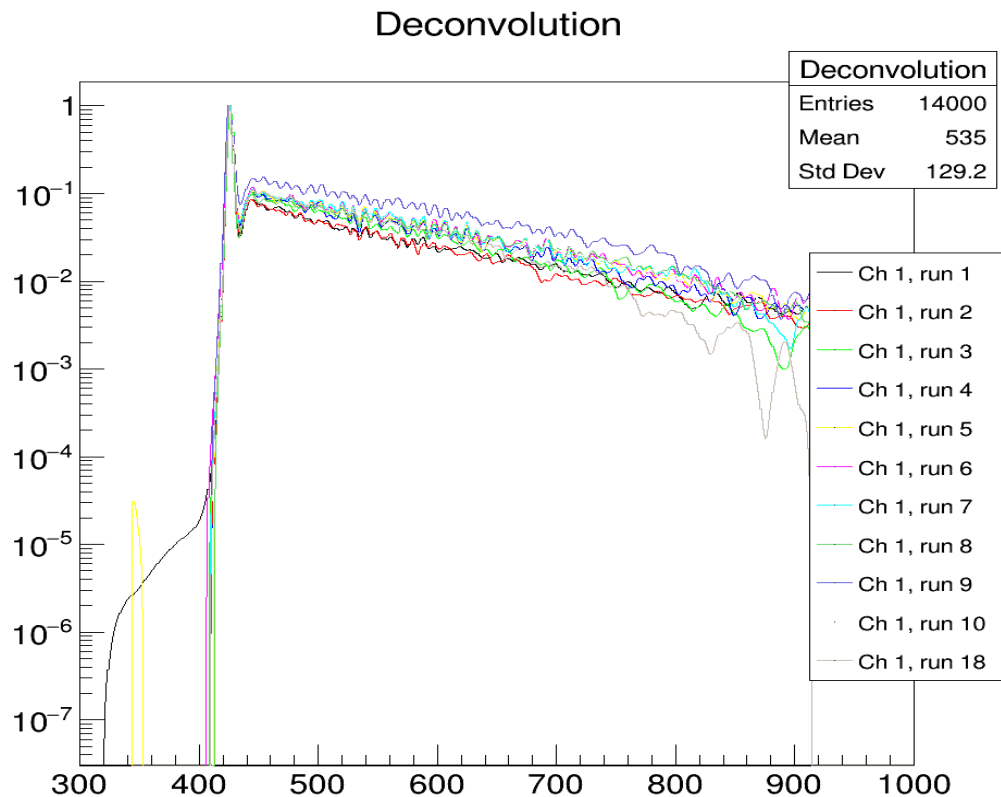


Average



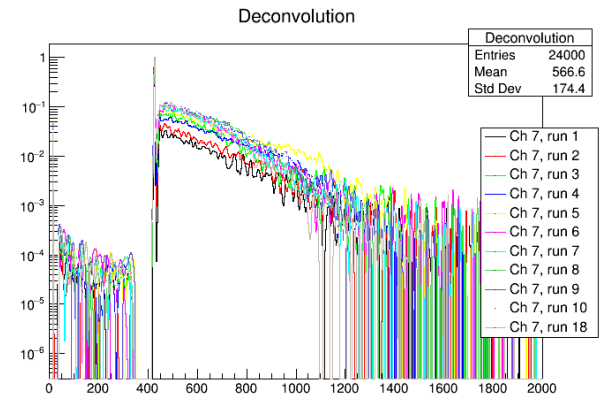
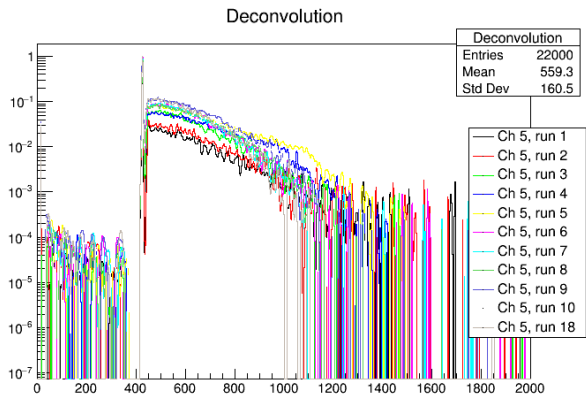
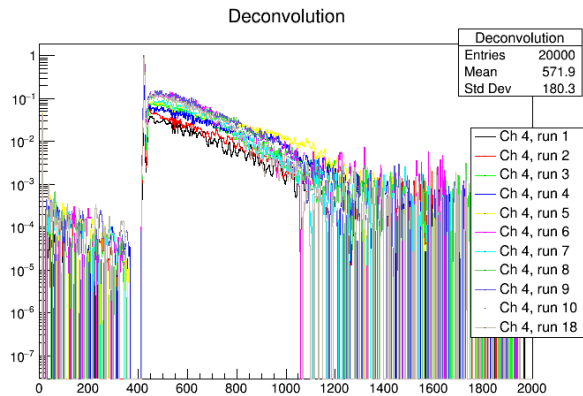
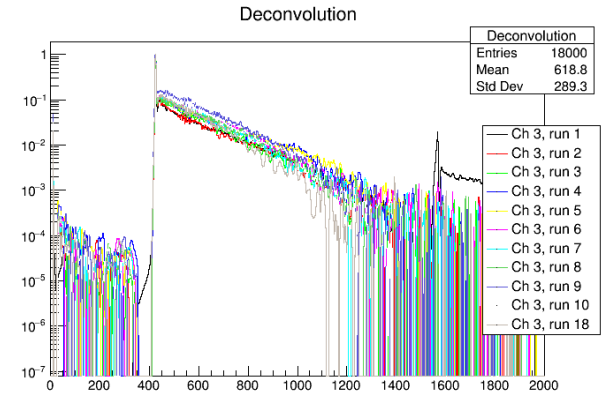
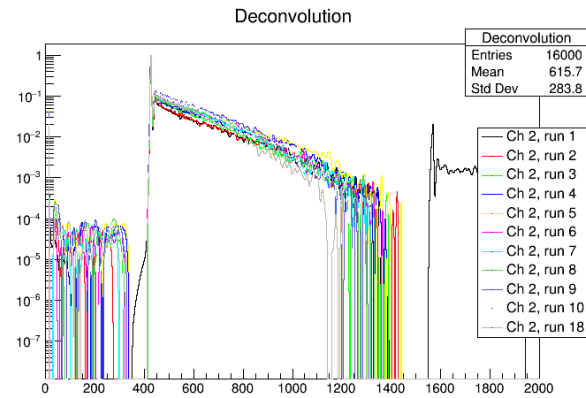
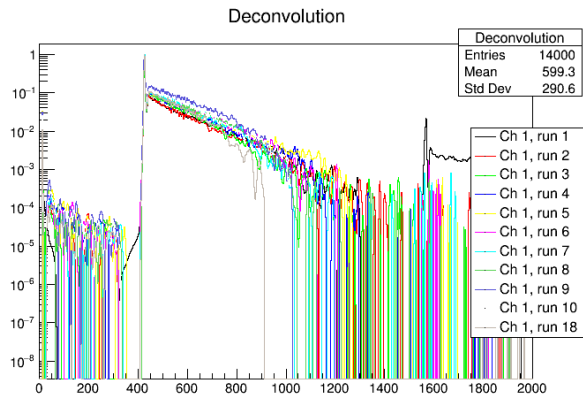
Deconvolved waveforms

- Using response function (single PE) from 50L experiment
- Using Gold Algorithm from TSpectrum class of ROOT



PRELIMINARY

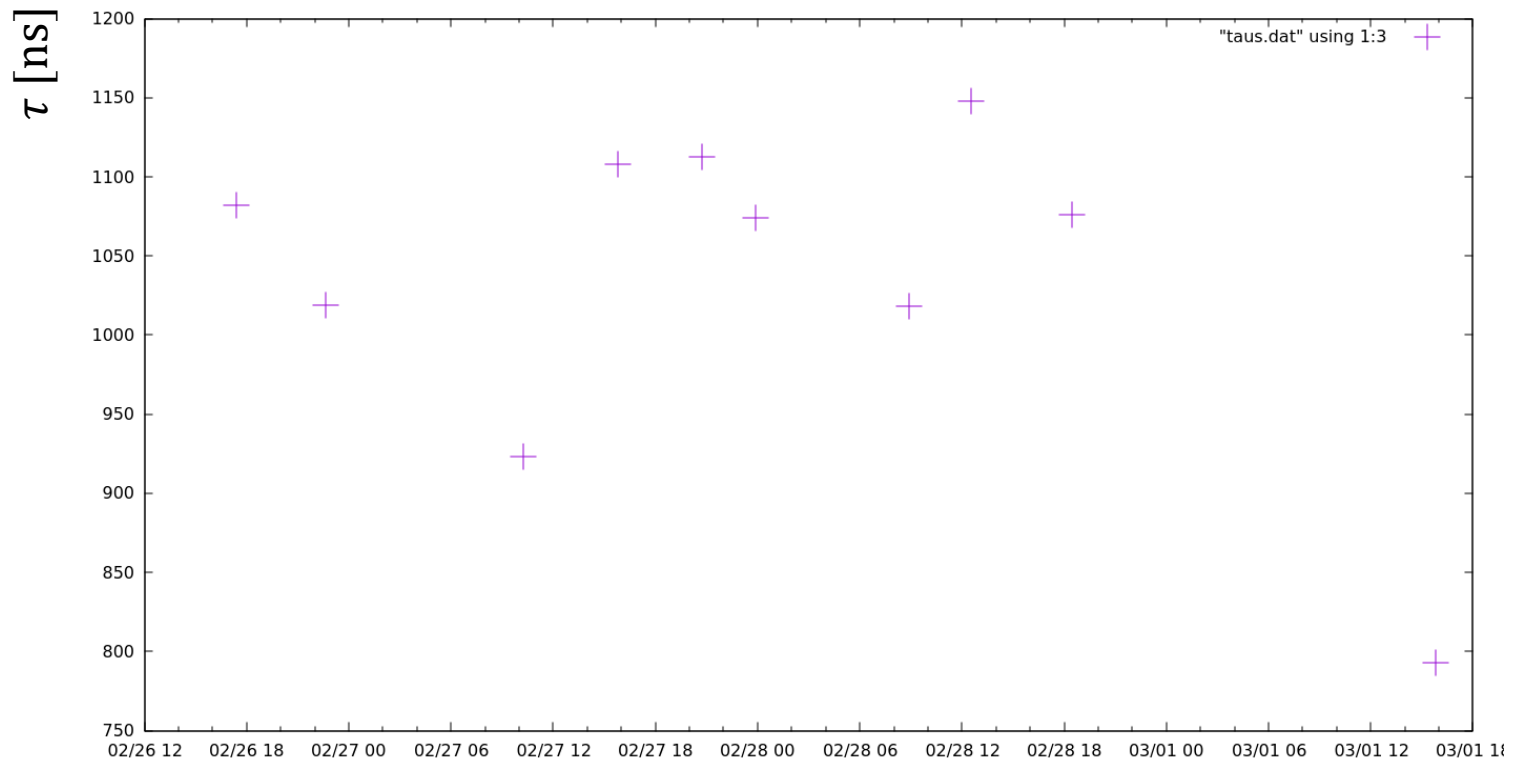
Deconvolved waveforms



PRELIMINARY

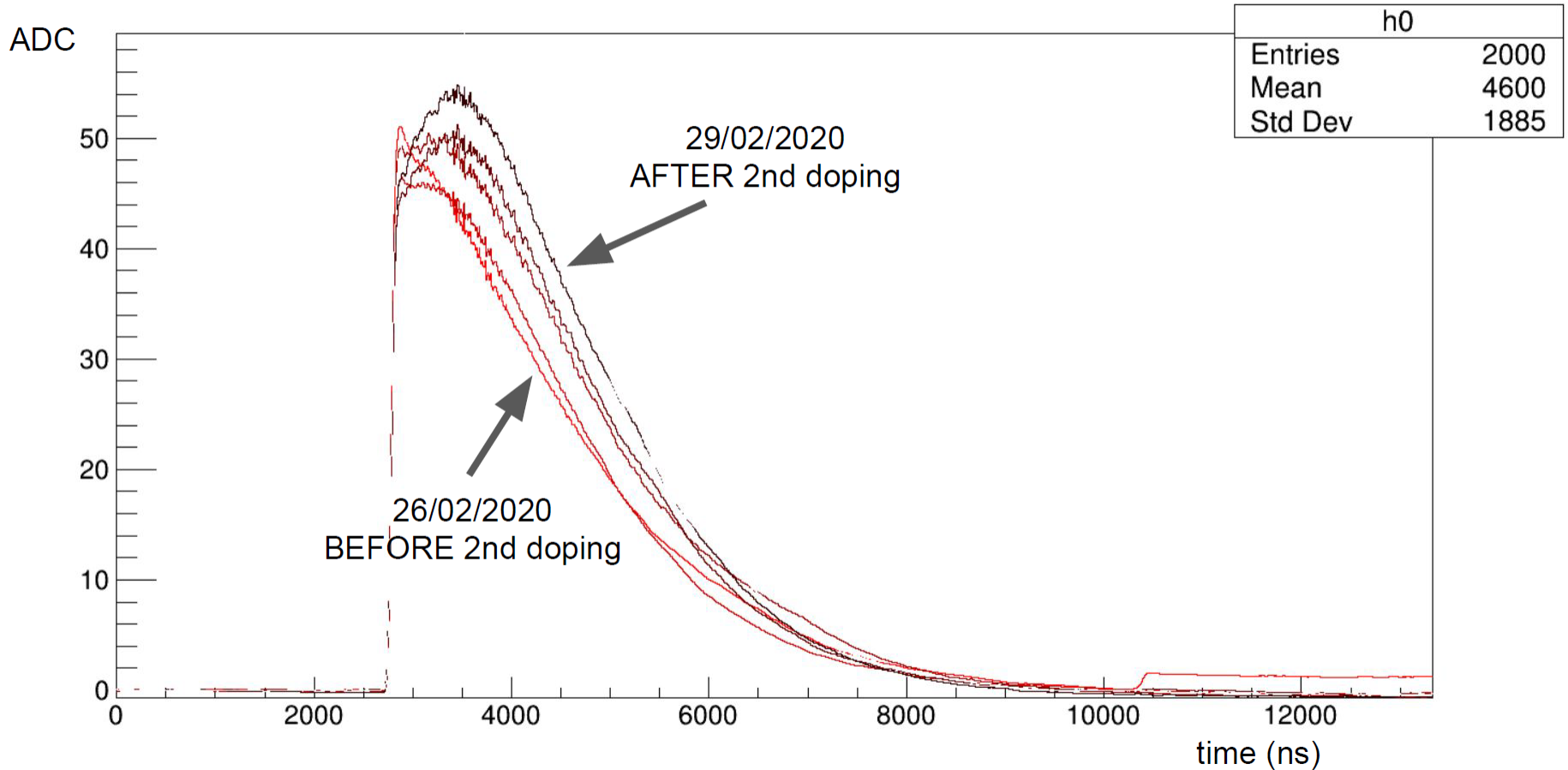
Deconvolved waveforms

- Average of channel 1,2,3 long time constant

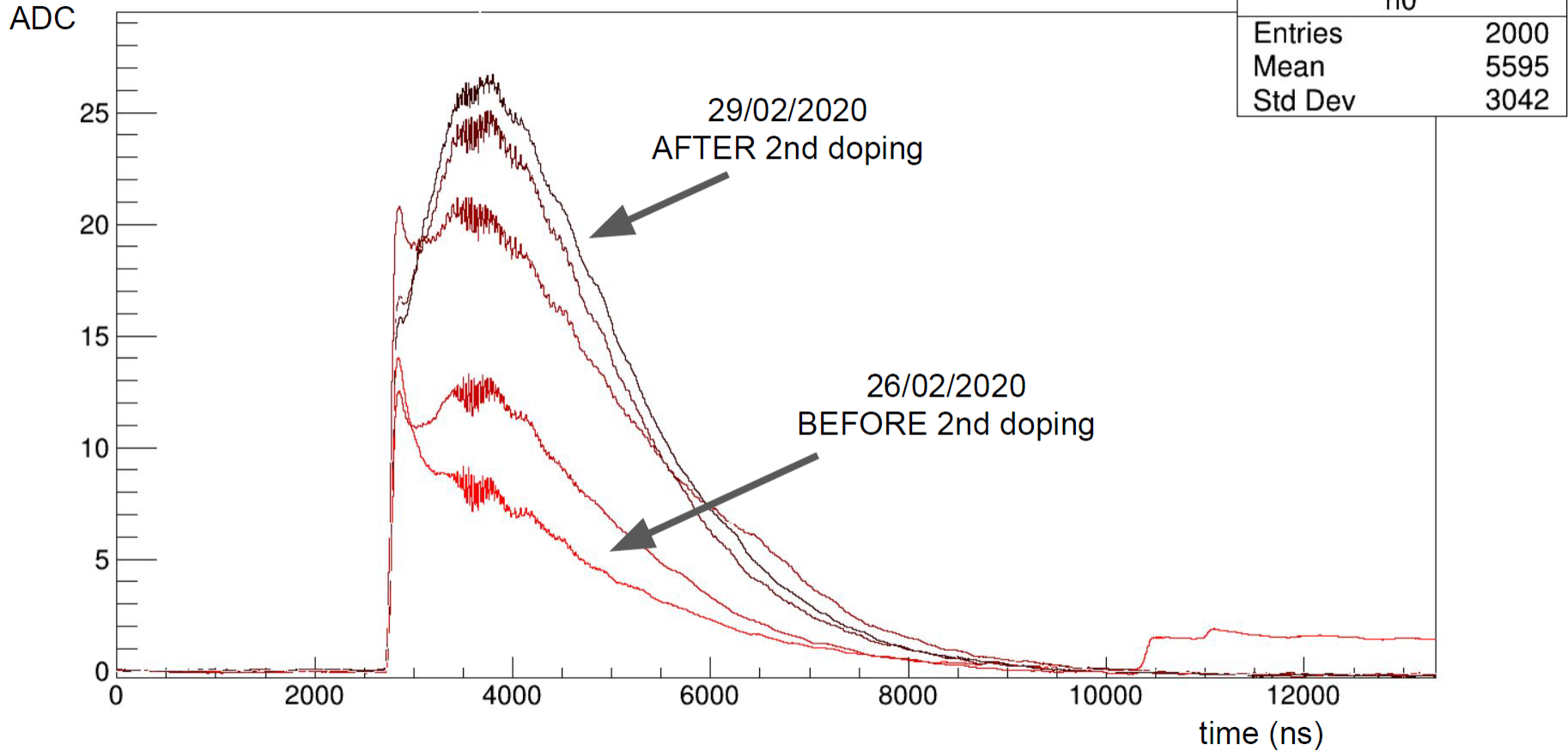


PRELIMINARY

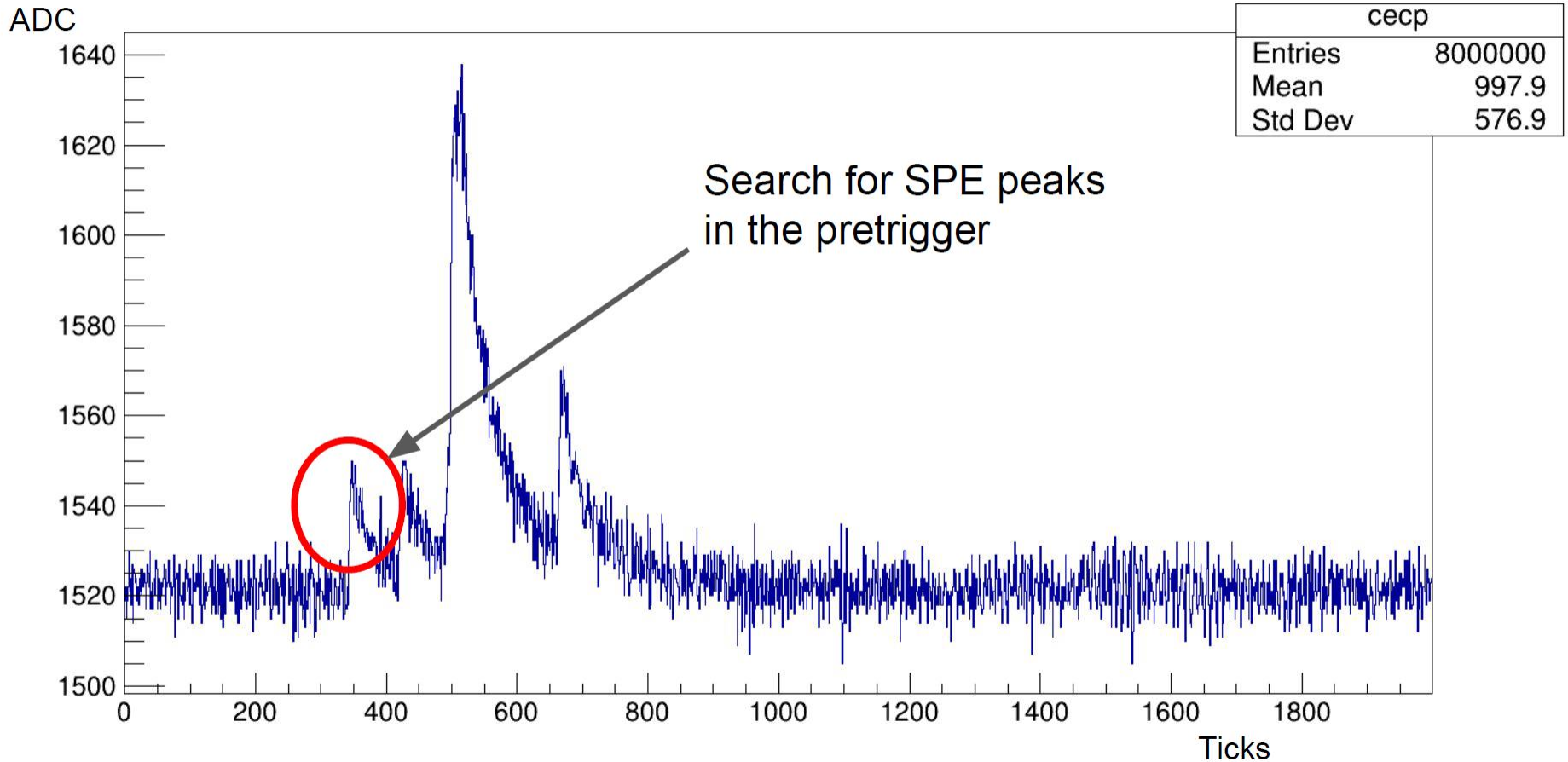
Average wfs - Ar+Xe XARAPUCA



Average wfs - Xe XARAPUCA

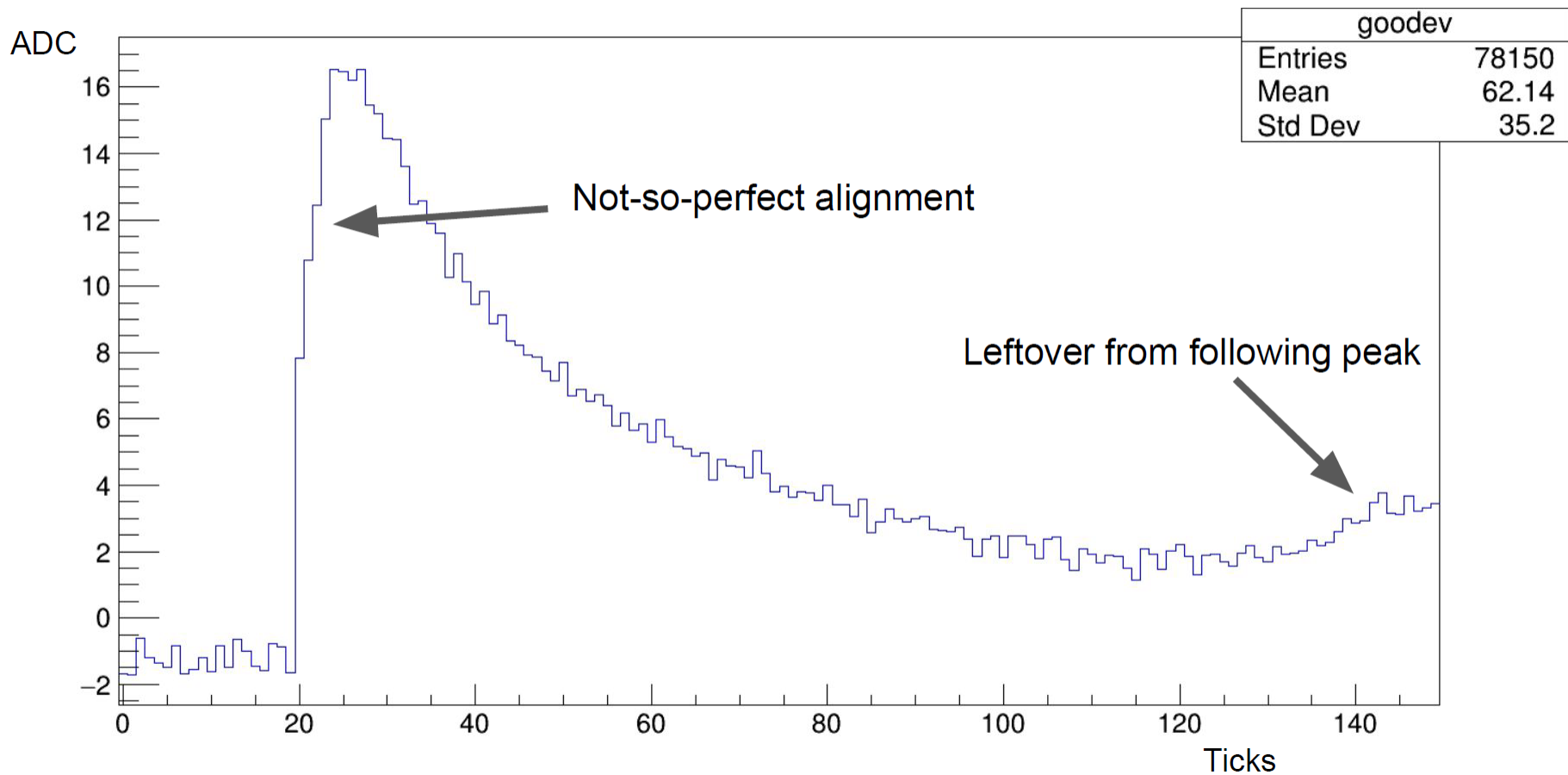


Single PE search in new data



PRELIMINARY

Single PE search in new data - average (WIP)



PRELIMINARY

DUNEScope

- Tool with GUI developed to do an online analysis:
 - Make analysis
 - Visualize event / average / deconvolved
 - Fit deconvolution

Make analysis

Load Raw data analyzed data Next Previous event # 0

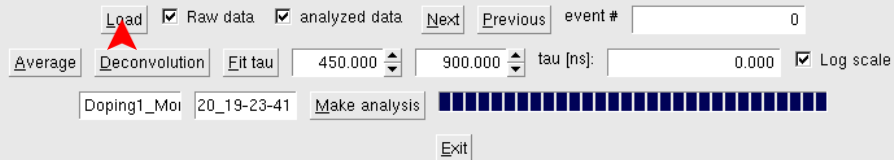
Average Deconvolution Fit tau 450.000 900.000 tau [ns]: 0.000 Log scale

Doping1_Moi 2020-02-20_ Make analysis Exit

Run name (ex: Doping1_Monitoring31)

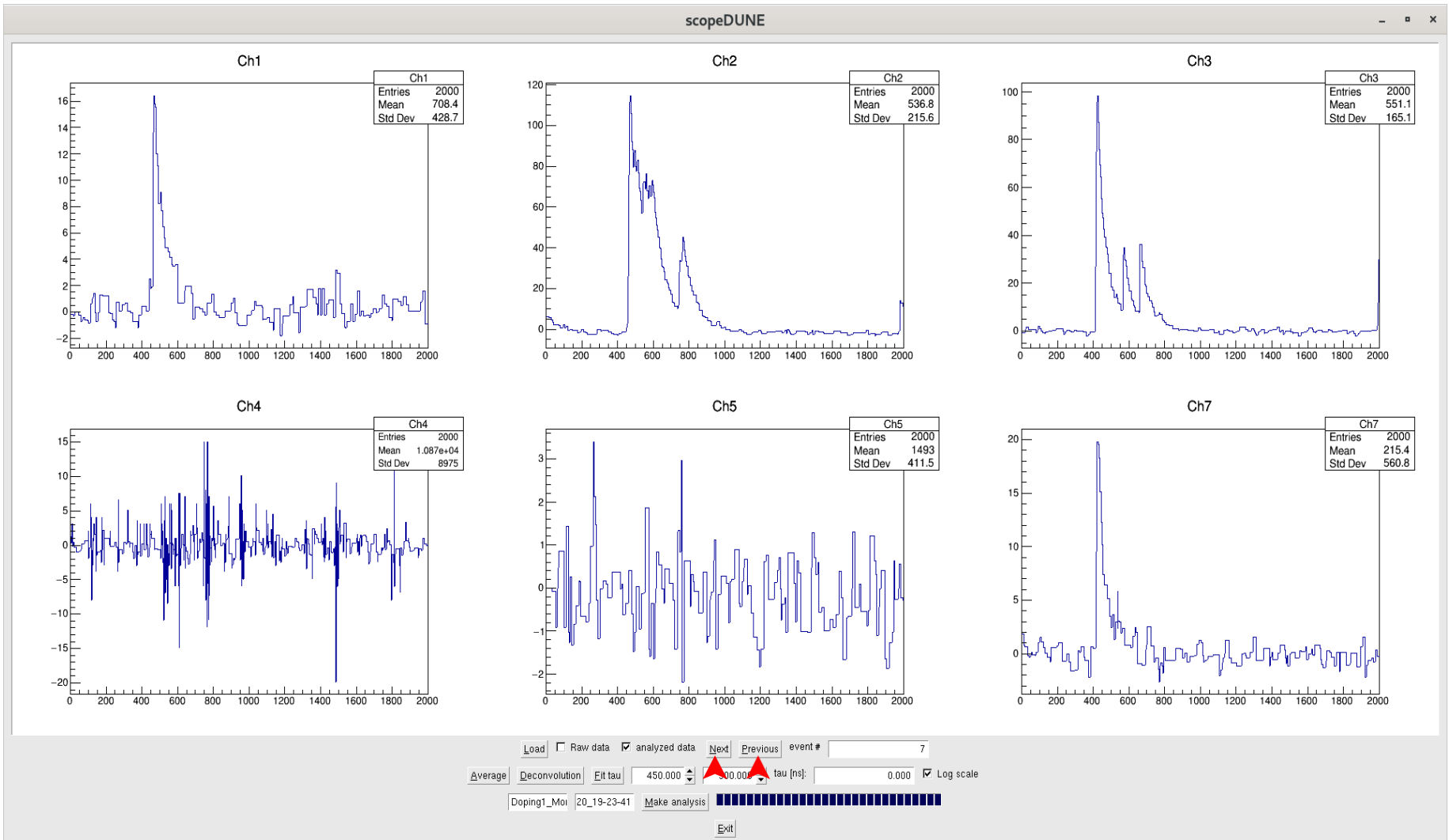
Date & time (ex: 2020_02_13-14_02_30)

Load data

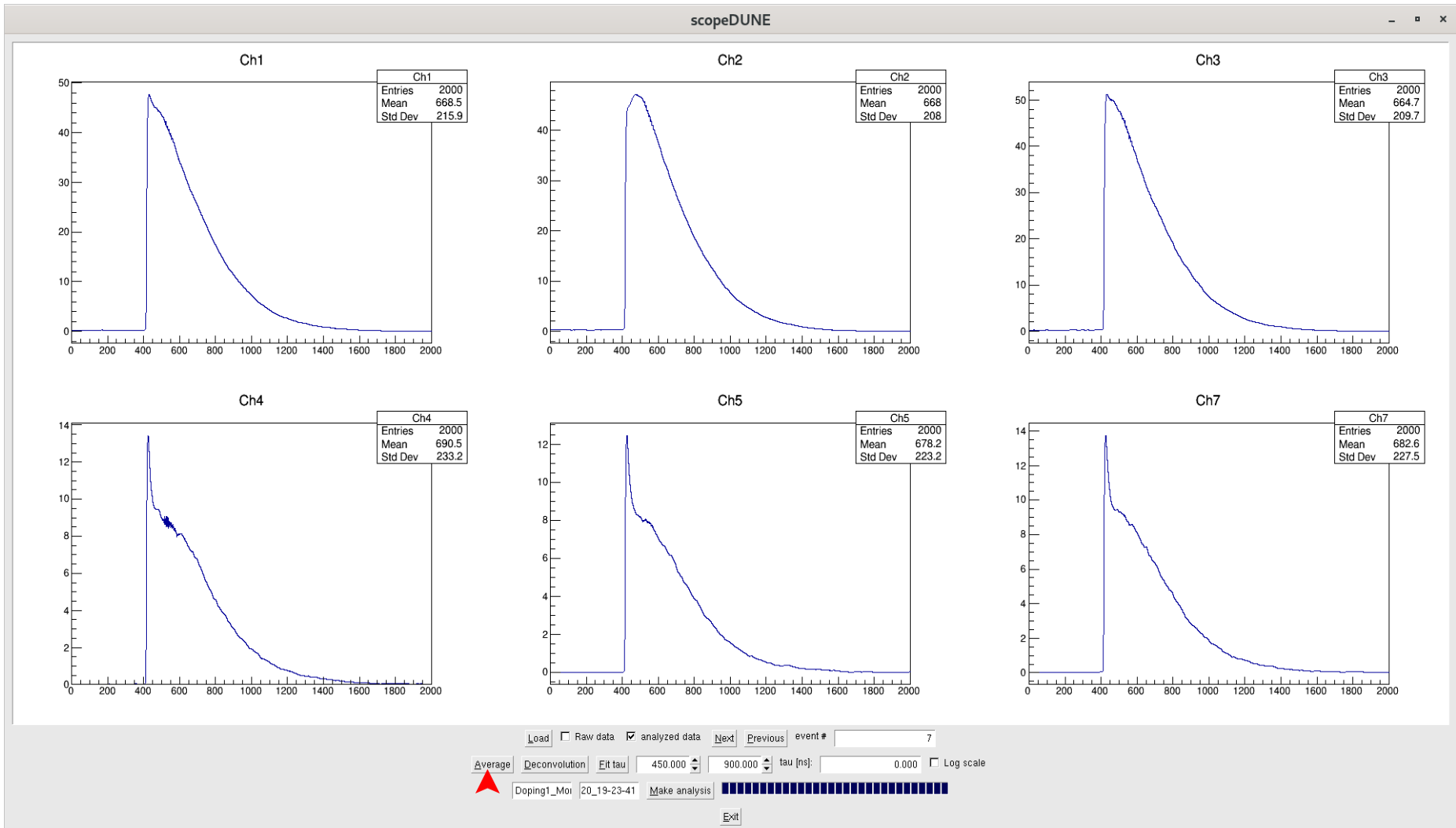


- Load data from analysis
 - Raw data: only raw waveforms
 - Analyzed data: baseline subtraction and denoising

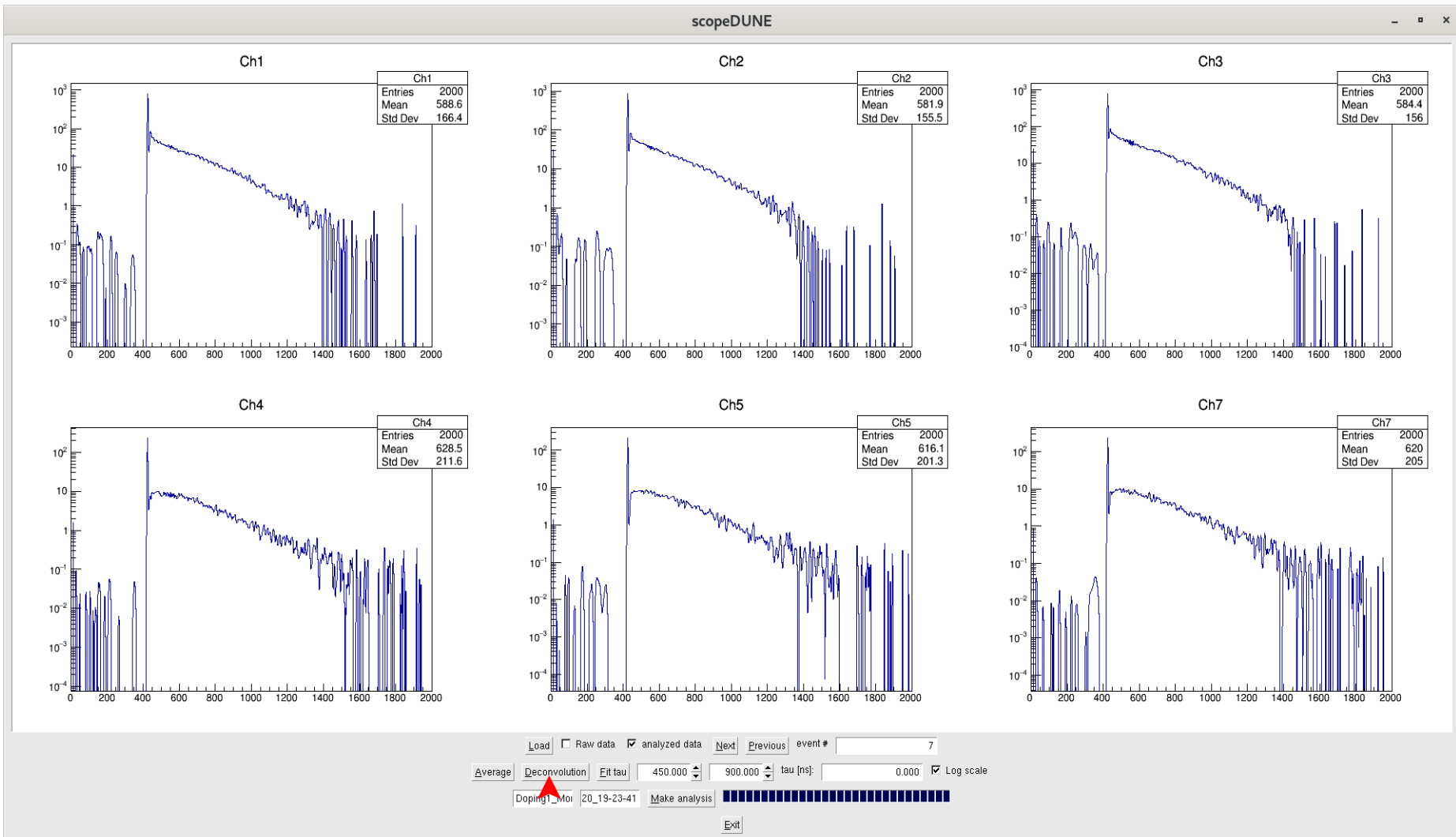
Look at data



Average



Deconvolution



Fit tau deconvolution

