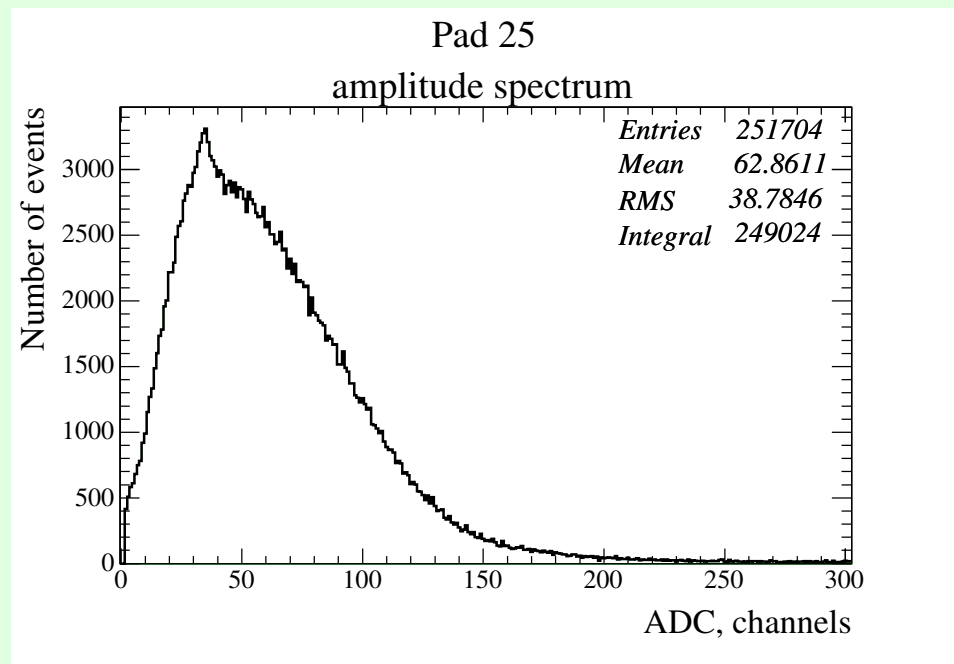
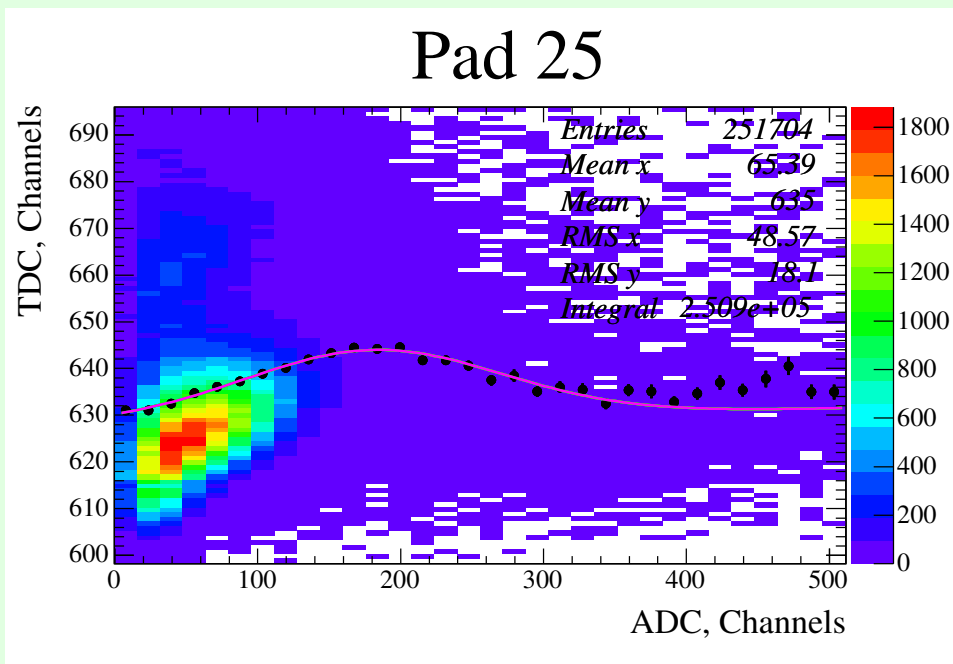

**Progress in correction of TDC data with ADC
information.**

Alexander Barnyakov

TASKS

- Select the good calibration RUNs before Test Beam and after for 16pads of SLOT4
- Find correction functions of amplitude for TDC spectrums collected with CFD and LED
- Make correction and estimate improvement of time resolution

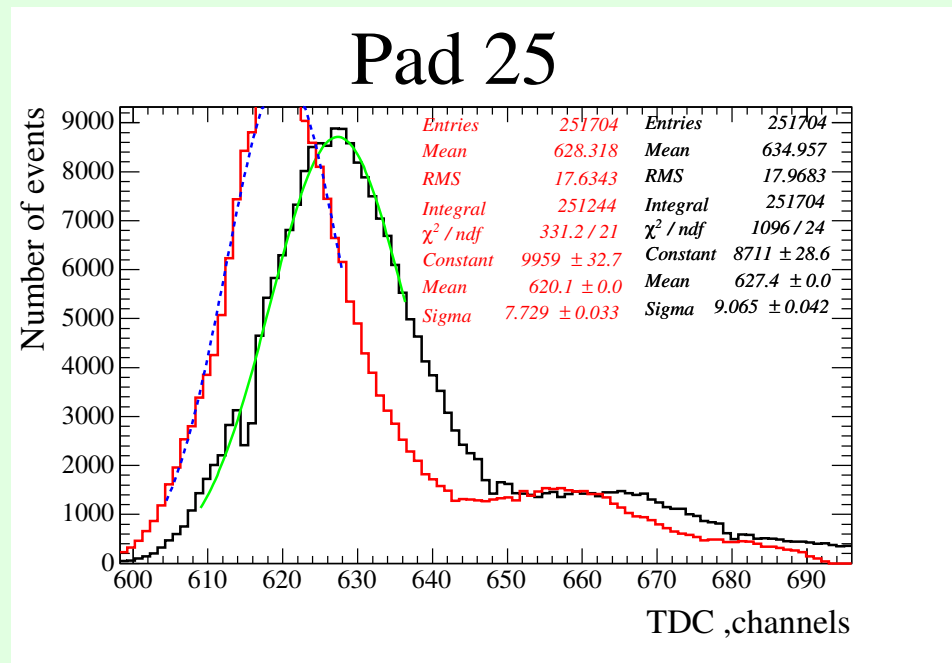
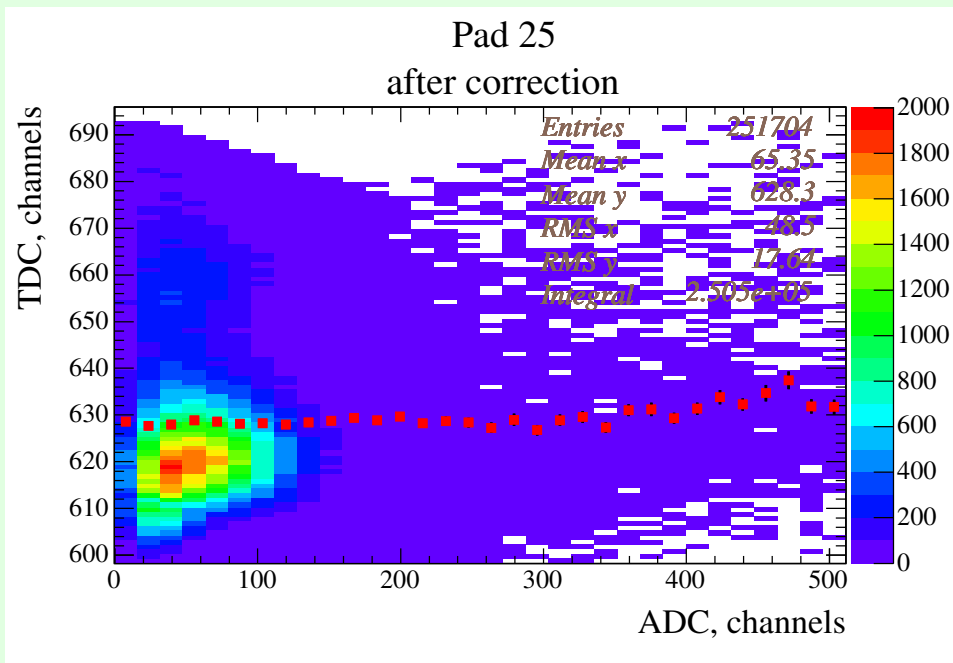
Selected events from calibration runs with CFD



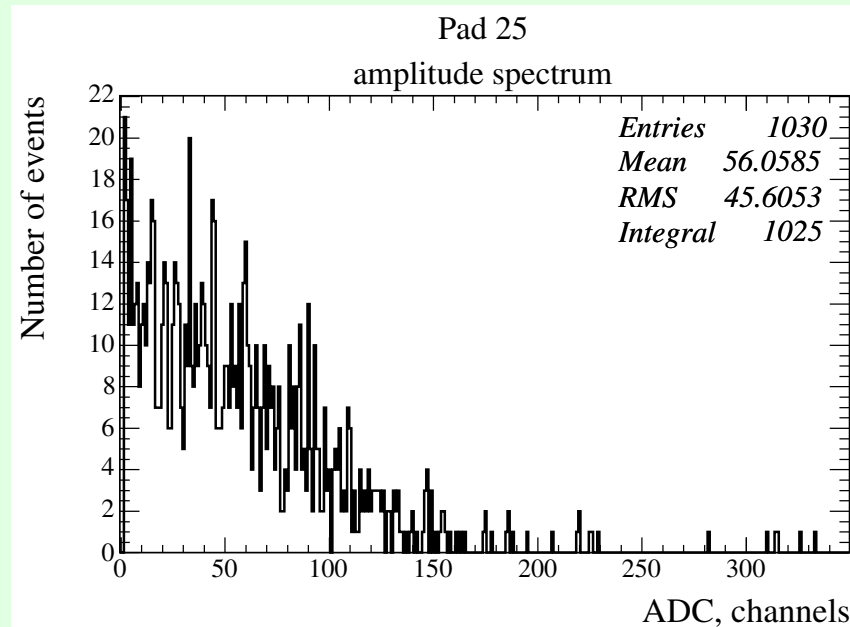
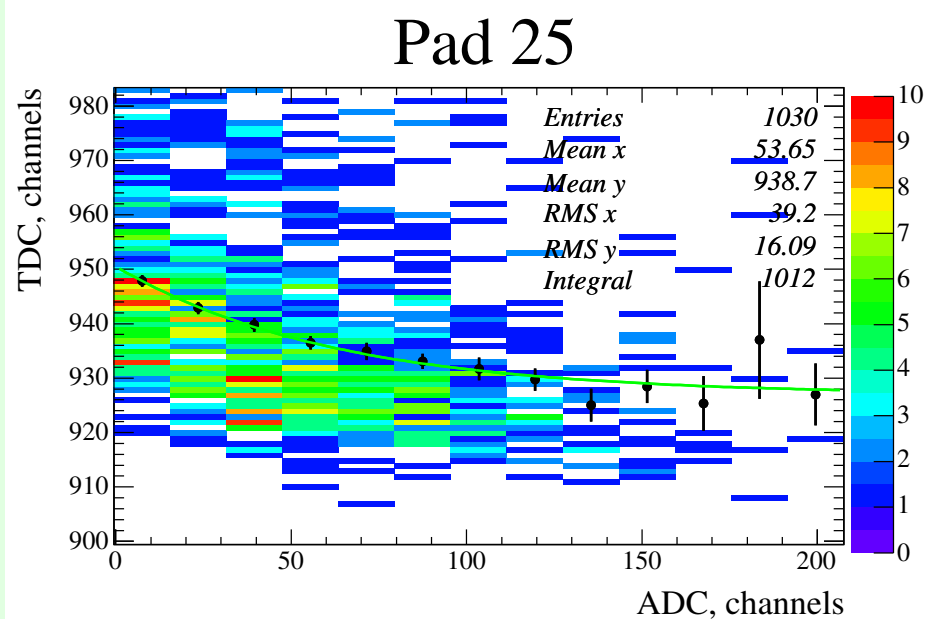
Correction function

$$[0] + [1] \cdot e^{-\frac{(x-[2])^2}{2 \cdot [3]^2}} + [4] \cdot x$$

Data after correction



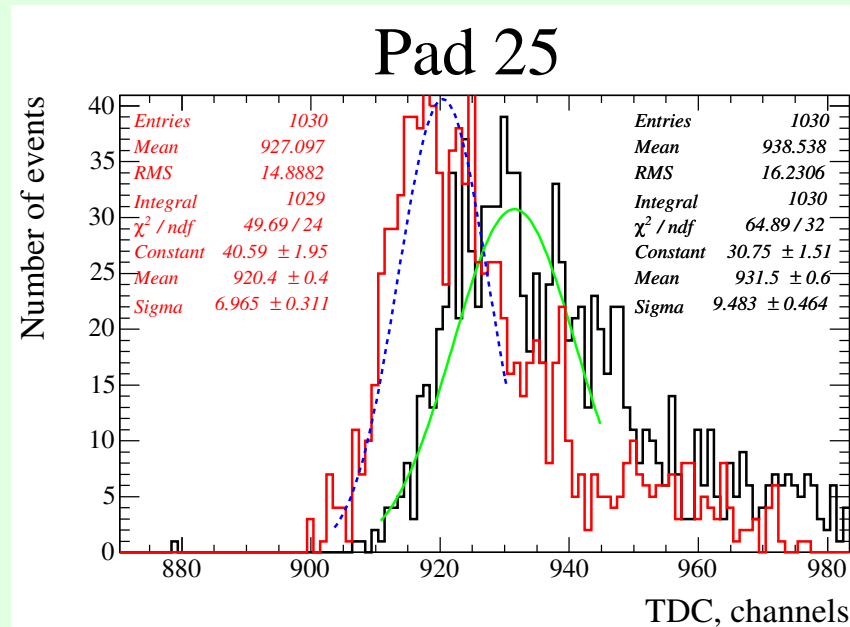
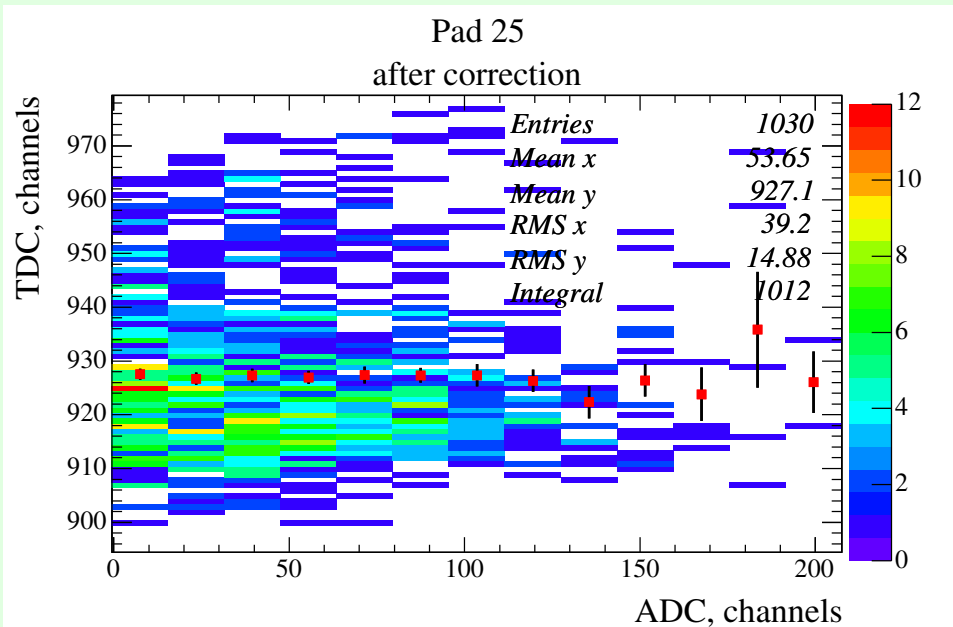
Selected events from calibration runs with LED



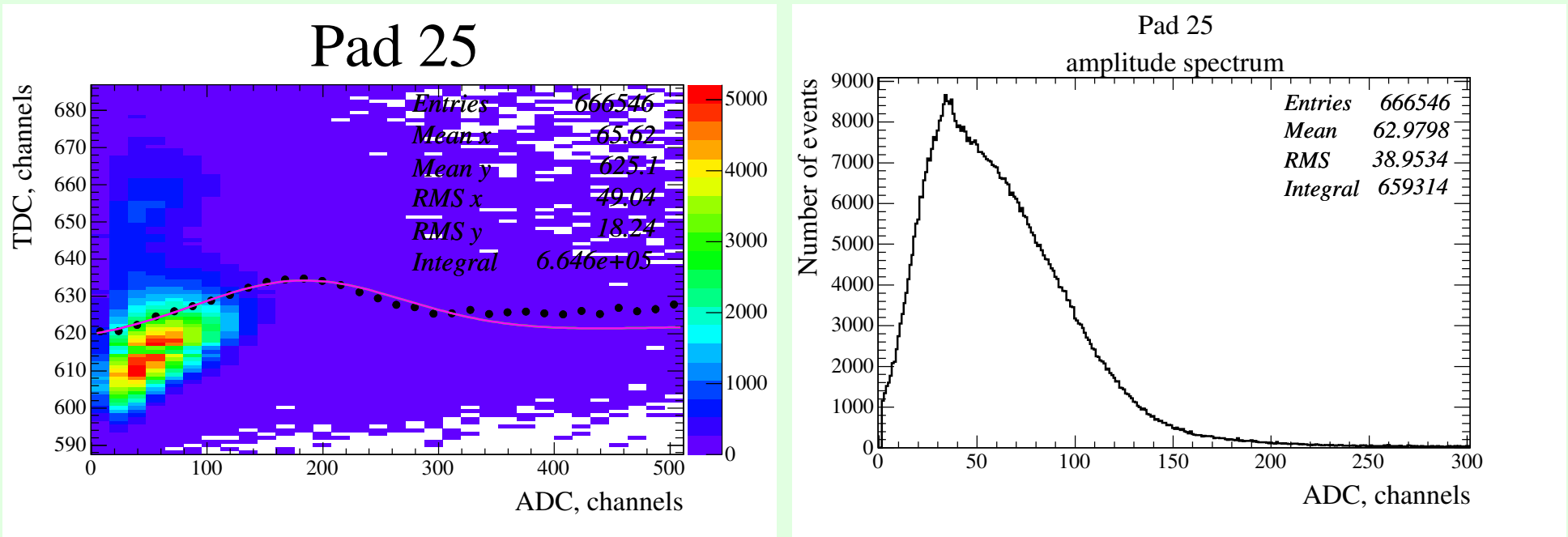
Correction function

$$[0] + [1] \cdot e^{-[2] \cdot x}$$

Data after correction (LED)



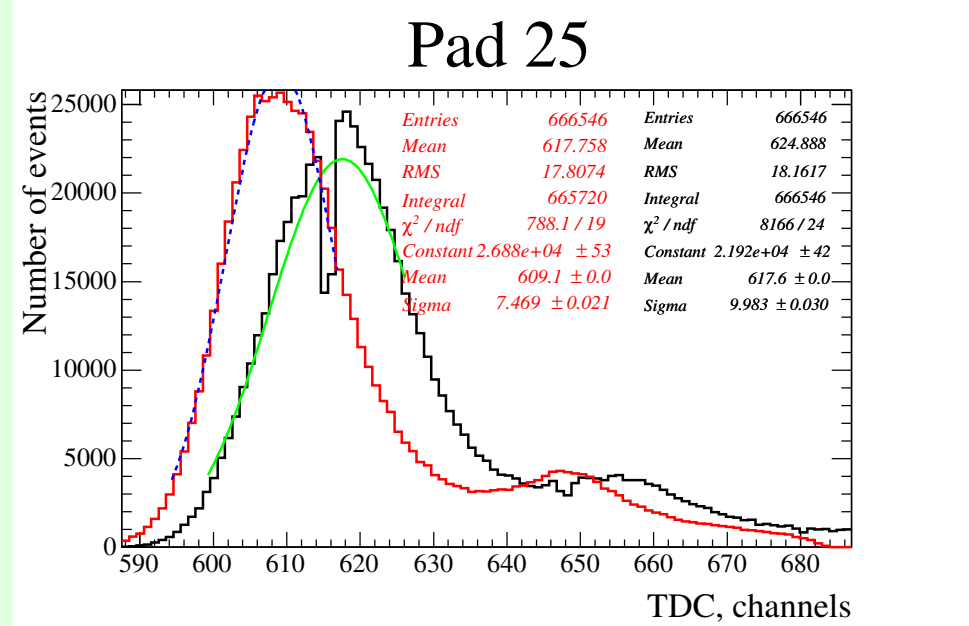
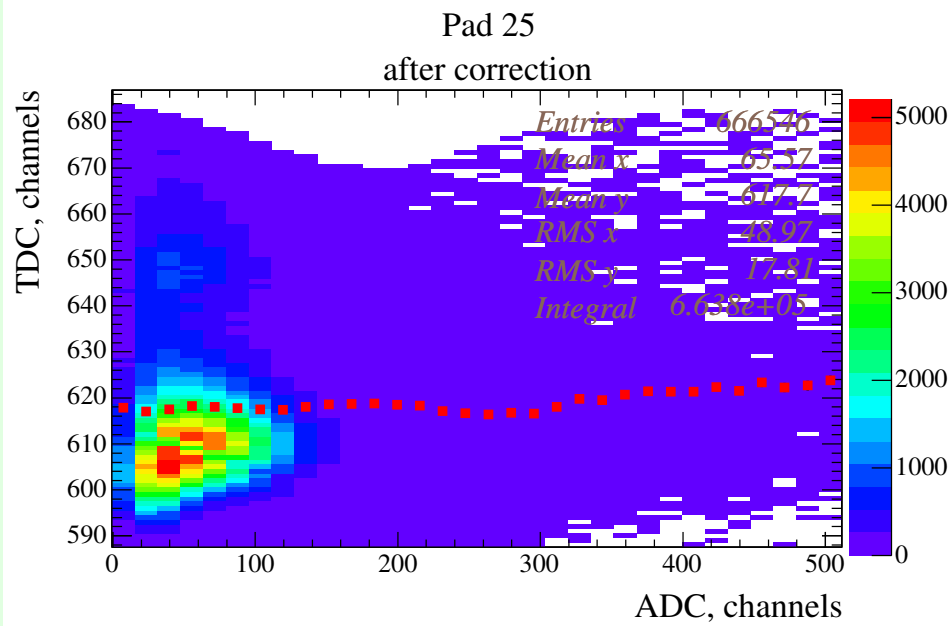
Selected events from calibration runs with CFD after TB



$$[0] + [1] \cdot e^{-\frac{(x-[2])^2}{2 \cdot [3]^2}} + [4] \cdot x$$

	[0]	[1]	[2]	[3]	[4]
before	628.25±0.3	14.56±0.295	180.74±2.15	90.49±2.71	6.43 ± .57 · 10 ⁻³
after	617.71±0.2	15.14±0.192	179.83±1.31	90.89±1.71	7.86 ± .33 · 10 ⁻³

Data after correction



Conclusion

- For working with the data from Pad 24 a special procedure is required
- Correction of TDC spectrums according their amplitude distributions gives us improvement of time resolution in average:
 - for runs before TB: $11.6 \pm 5.4\%$;
 - for runs after TB: $15.4 \pm 7.8\%$.
- Almost all of 16 TDCs have broke channels
- For further improvement of time resolution it is necessary to understand the features and time resolutions of each part of electronic track
- Now I am going to change root script for data correction to apply it for TB data