



RAINDROPS AND MUONS

Darvas Dóra, Wittmann Kevin

Mentors:

Vadai Mihály

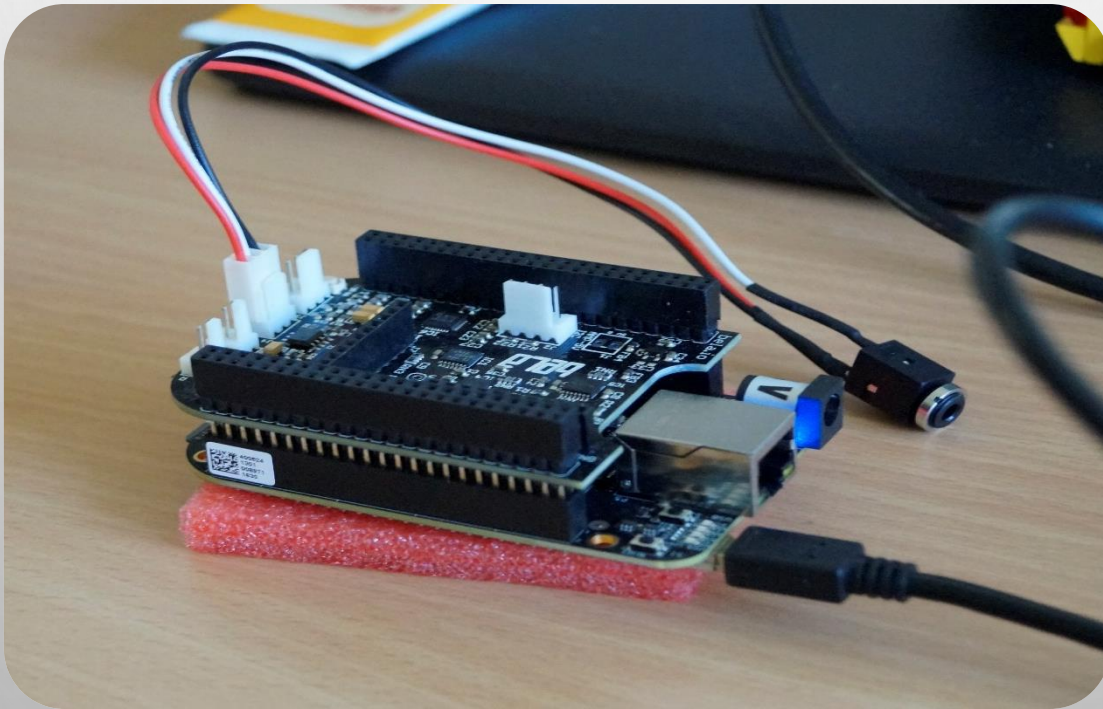
Ady Márton

Málnási-Csizmadia Örs

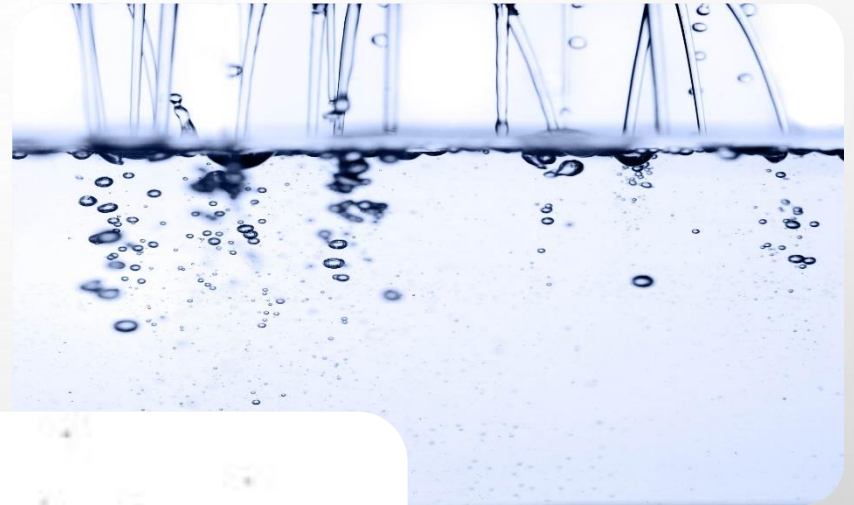
HSSIP 2017

RAINDROPS

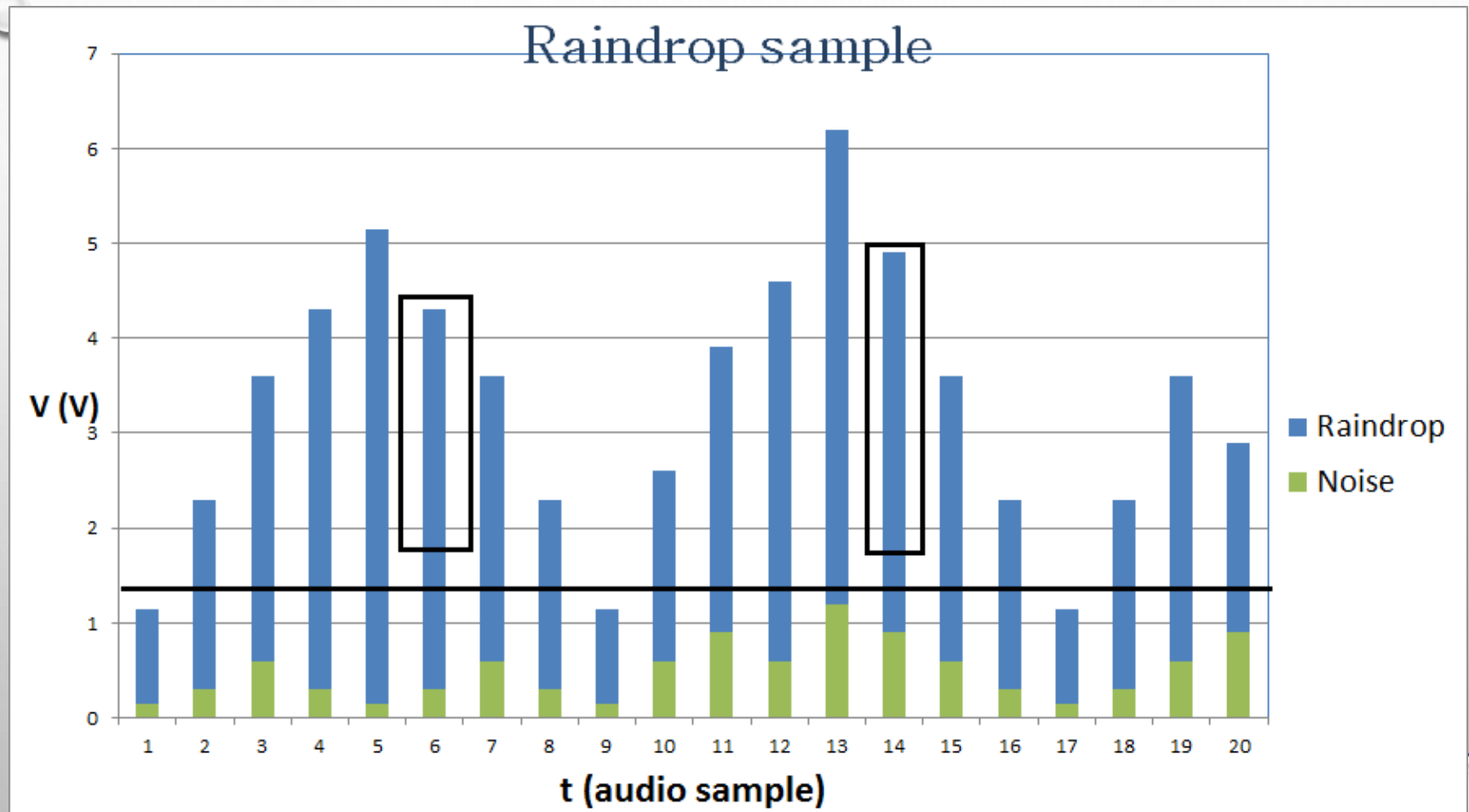
- How do we detect raindrops in a sound file?
- The plan was to suppress background noise and select raindrops.
- We've characterized what the raindrops are.



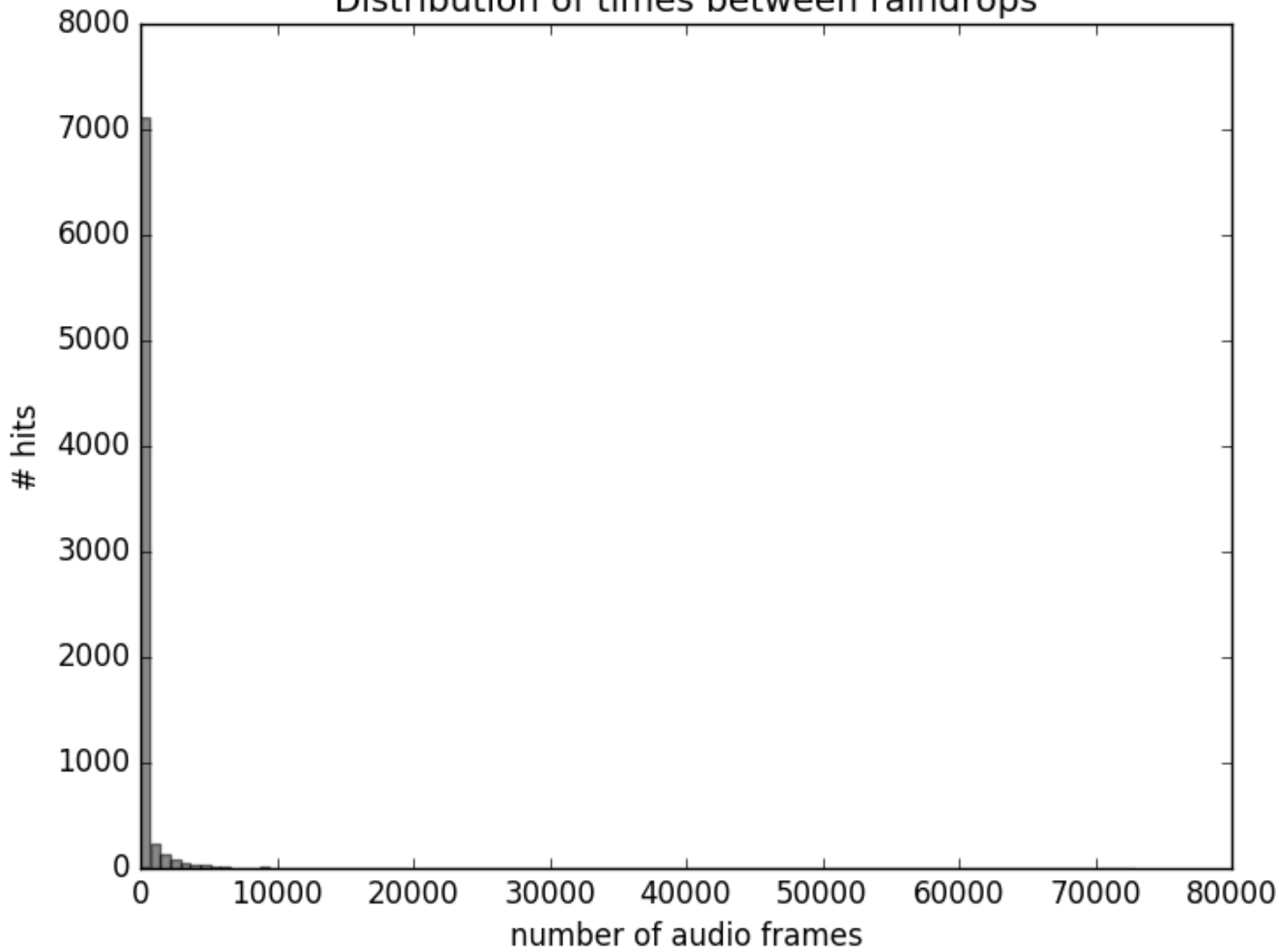
HOW MUCH DO YOU HAVE TO WAIT FOR THE NEXT RAIN DROP TO COME?



Raindrops



Distribution of times between raindrops



Audacity

File Edit View Transport Tracks Generate Effect Analyze Help

Click to Start Monitoring 8 -12-9-6-3-0

ALSA HDA Intel MID: 92HD 2 (Stereo) default

8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0 21.0 22.0

X Audio Track Stereo, 44100Hz 32-bit float

Mute Solo

L R

Project Rate (Hz): 44100 Snap To: Off Selection Start: 00 h 00 m 00.000 s End Length: 00 h 00 m 00.000 s Audio Position: 00 h 00 m 00.000 s

Stopped.

Audacity

Applications Places

Audacity

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Click to Start Monitoring 8 -12-9-6-3-0

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5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0

X Audio Track Stereo, 44100Hz 32-bit float

Mute Solo

L R

Project Rate (Hz): 44100 Snap To: Off Selection Start: 00 h 00 m 34.180 s End Length: 00 h 00 m 34.180 s Audio Position: 00 h 00 m 00.000 s

Stopped.

Audacity

Actual Rate: 44100

Applications Places

Audacity

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Click to Start Monitoring 8 -12-9-6-3-0

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Stopped.

Audacity

Project Rate (Hz): 44100 Snap To: Off Selection Start: 00 h 00 m 00.000 s End Length: 00 h 00 m 00.000 s Audio Position: 00 h 00 m 00.000 s

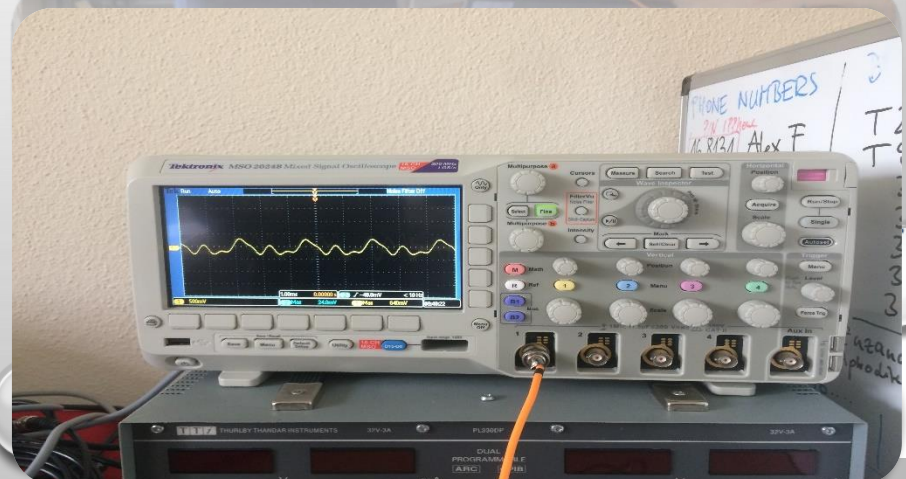
Stopped.

Audacity

Actual Rate: 44100



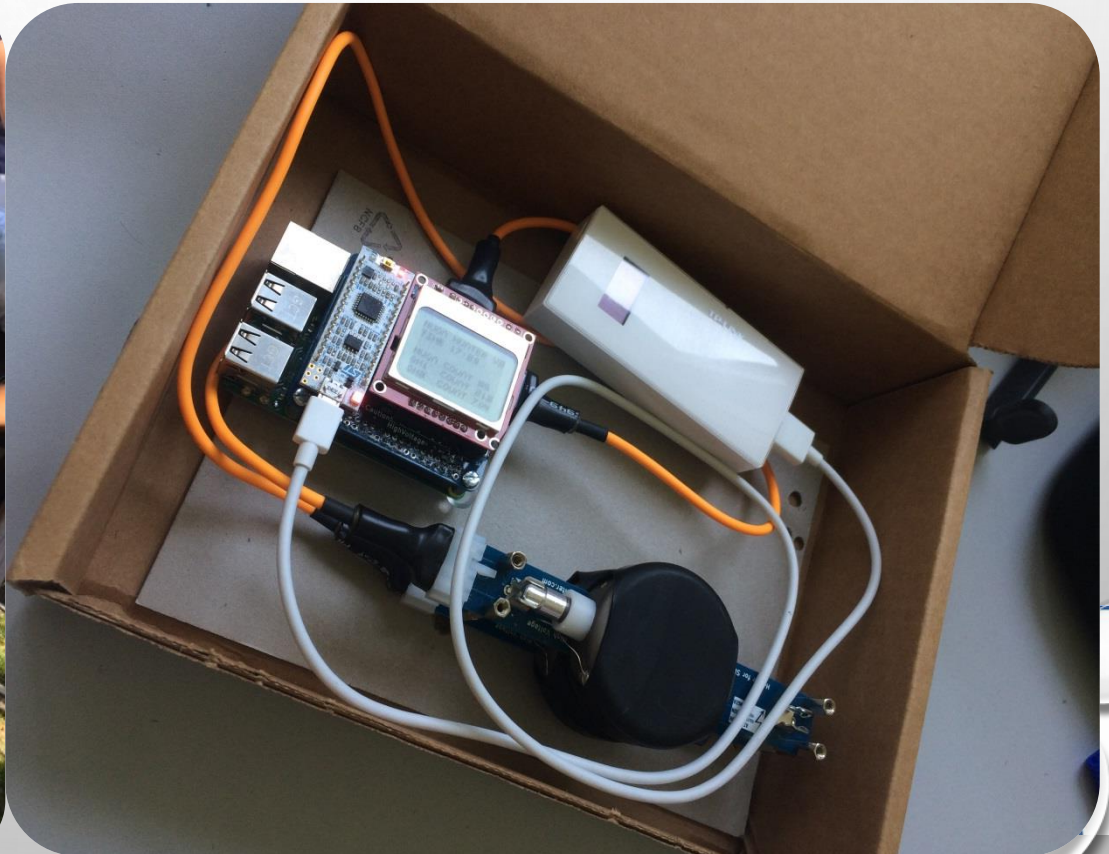
WE LOOKED AT THE SOUND WAVES WITH AN OSCILLOSCOPE.



MEASUREMENT ON THE MOUNTAIN

WE MEASURED 90 MUON/10MINUTES AT CERN (380M).

THERE WERE 170 MUON/10 MINUTES ON THE TOP OF THE SALÈVE (1210M).

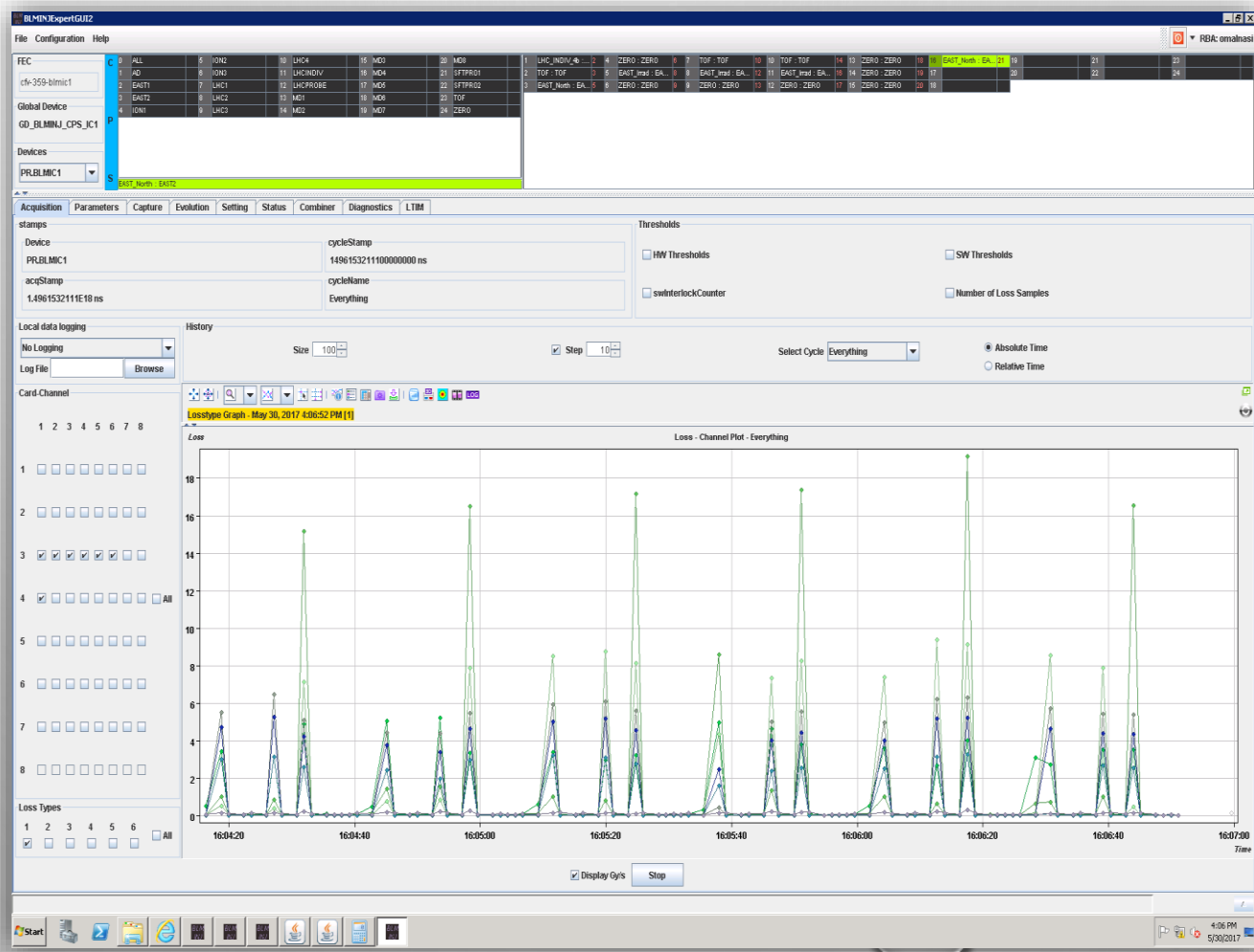


VACUUM

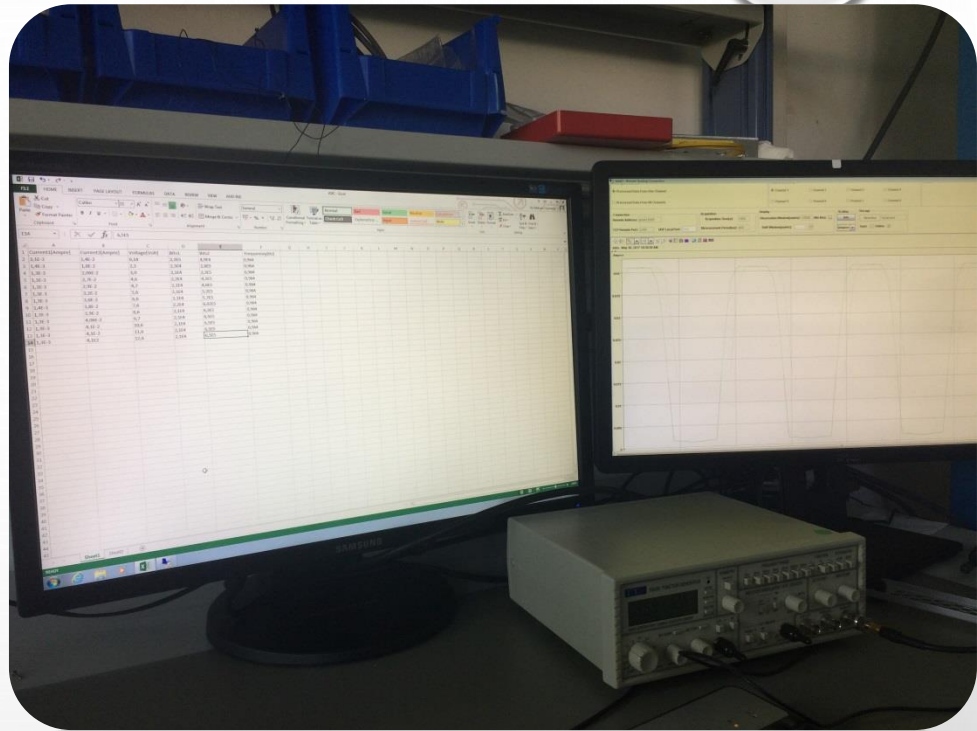


BEAM LOSS

THE PROTONSCYNHROTON PARTICLE LOSS WAS CONSIDERED. THE FIGURE SHOWS THE FUNCTION OF THE FIRST TYPE OF INTEGRAL.



We used these tools



Data Type Selection

Processed Data From One Channel

Processed Data From All Channels

Channel Selection

Channel 1 Channel 2 Channel 3 Channel 4

Channel 5 Channel 6 Channel 7 Channel 8

Actions

Connection

Remote Address:

TCP Remote Port: UDP Local Port:

Acquisition

Acquisition Time[s]:

Measurement Period[us]:

Display

Observation Window[points]: Min-Max:

Shift Window[points]:

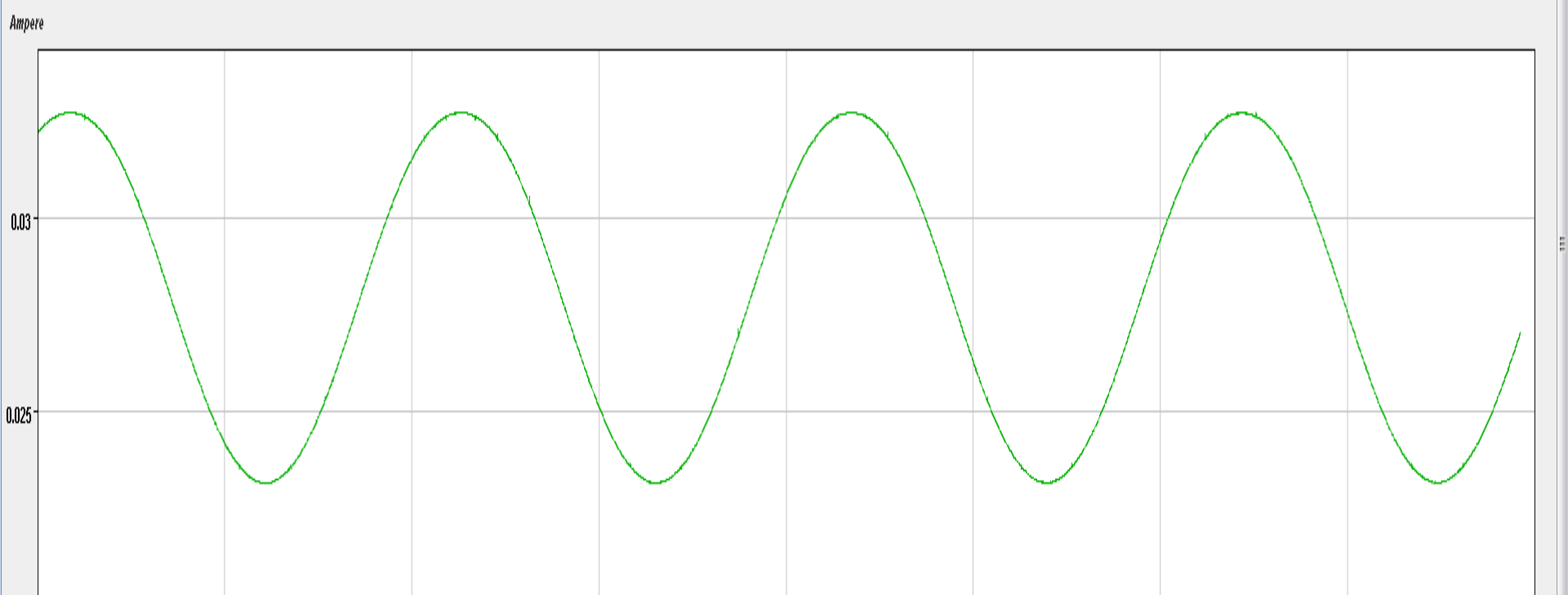
Scaling

Storage

Save: Online:



data - May 30, 2017 4:18:15 PM



THANK YOU FOR YOUR ATTENTION



REFERENCES

[HTTPS://CERNBOX.CERN.CH/INDEX.PHP/S/2KSRWJNLX9EMY6W?PATH=%2F](https://cernbox.cern.ch/index.php/s/2ksrwjnlx9emy6w?path=%2F)

PASSWORD: muonmuon

