



REINFORCE

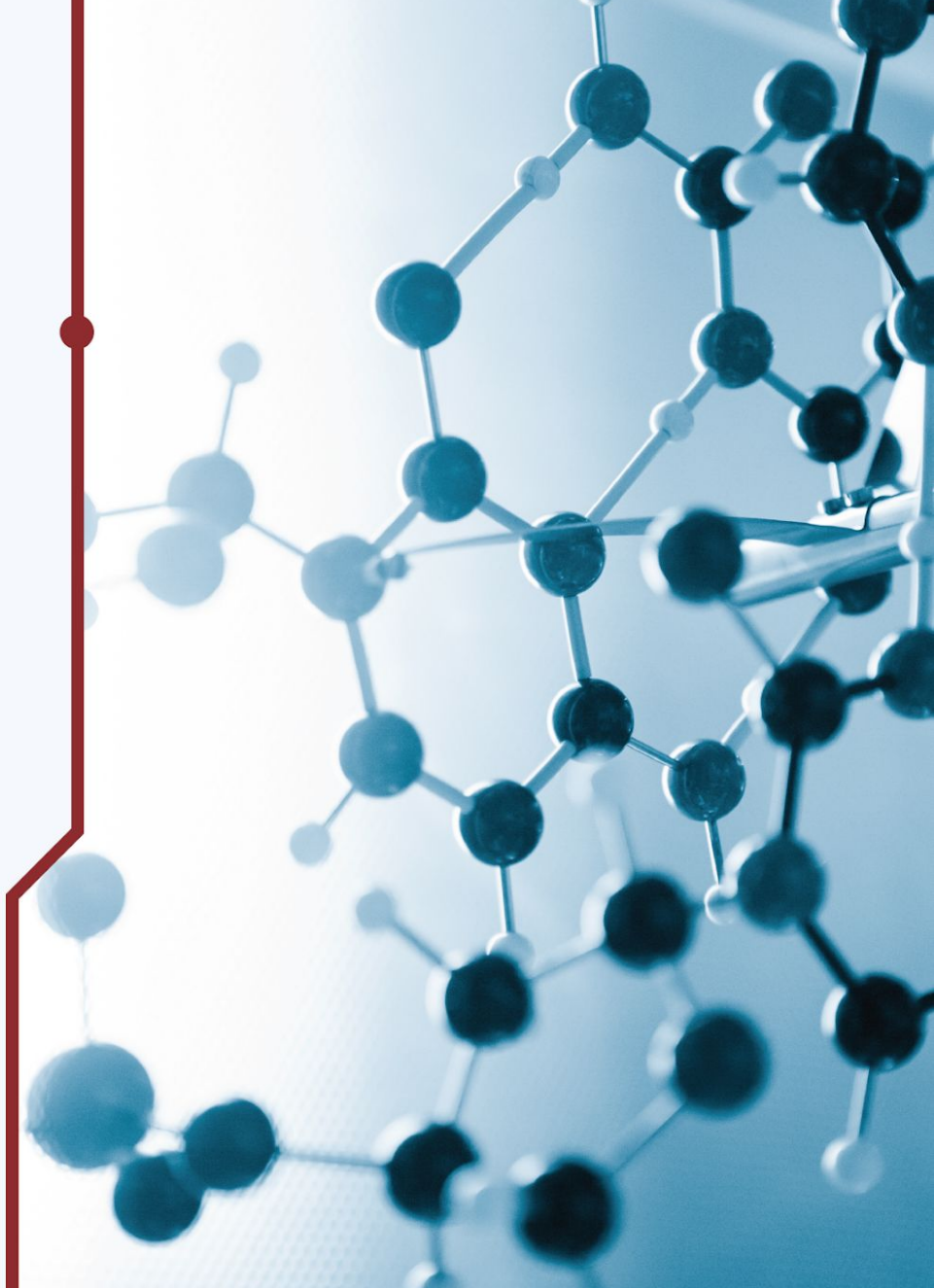
REsearch INfrastructures FOR Citizens in Europe

The REINFORCE project

Virgo incontra il Polo Tecnologico di Navacchio...
alla ricerca di connessioni

21 March, 2021

Gary Hemming (EGO)
REINFORCE Technical Manager



theLisboncouncil
think tank for the 21st century





REINFORCE
REsearch INfrastructures FOR Citizens in Europe

ABOUT ▾

DEMONSTRATORS ▾

NEWS ▾

OUTREACH ▾

PLATFORM FOR ARTISTIC INTERVENTION

PROJECT RESULTS ▾

GOALS



Citizens engagement to contribute to online frontier science



Creation of an active community of citizens who actively participate in scientific endeavors



Introduction of Responsible R&I in frontier Citizen Science Landscape



Impact assessment of frontier citizen science in science and society



Creation of a policy roadmap for other large RI willing to implement citizen science projects



Explore the potential of frontier citizen science for inclusion and diversity

Get in touch with us

WELCOME TO THE ZOONIVERSE

People-powered research

[See All Projects](#)

FEATURED PROJECTS



SNAPSHOT KAROO



AÑO NUEVO ISLAND - ANIMAL
COUNT



NOTES FROM NATURE -
TERRESTRIAL PARASITE



GWITCHHUNTERS



GWitchHunters ✓

Language English ▾

ABOUT CLASSIFY TALK COLLECT RECENTS LAB

We'd love to find out about your experience on this project. Please take 5 minutes to fill in this anonymous survey <https://survey3.zsi.at/index.php/474782?lang=en>

Attend an Interactive Citizen Science Workshop

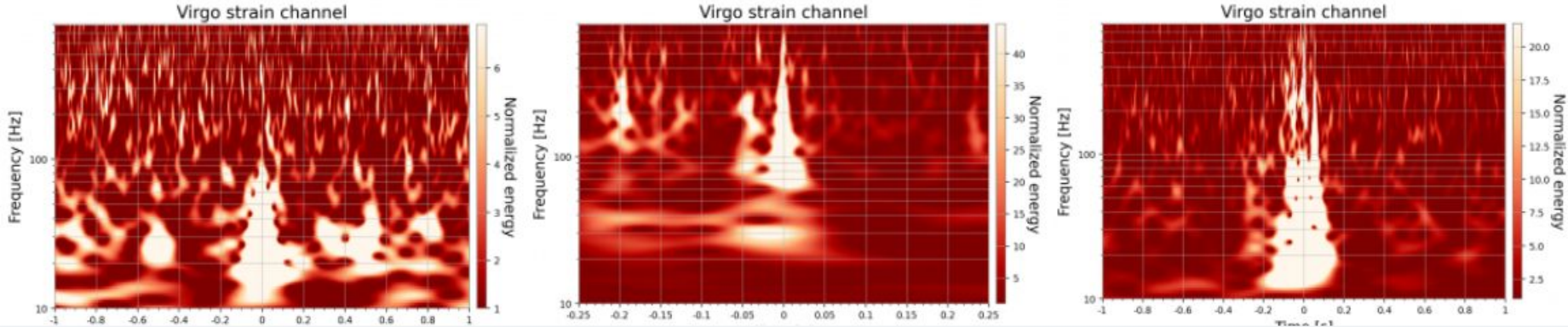
Would you like to know how citizens can play an active role in the advance of ground-breaking research and share your views and experiences? Attend the interactive workshop organized by REINFORCE! For more information and the program of the event take a look [here](#).

Help us to improve our
Gravitational Wave detectors and
unlock the secrets of the Universe!

[Learn more](#)

Get started ↓

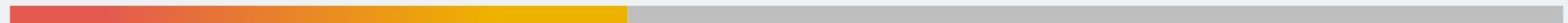
This Project is organized in increasing order of difficulty. We suggest starting in the Playground to get familiar with our data and practice with some basic "noise hunting", then progress to the next levels in ascending order of difficulty. At each level, you will discover new challenging tasks. And, if it is not enough for you, we have some special challenges that you can take on your mobile device via the Zooniverse app!

[Playground - What is a glitch?](#)[Level 1 - Catch the noise](#)[Level 2 - Find them all!](#)[Level 3 - Watch out the sensors!](#)[Mobile Challenge - Noise Profilers](#)

5 people are talking about **GWitchHunters** right now.

[Join in](#)

GWITCHHUNTERS STATISTICS



39% Complete

2,136

Volunteers

281,194

Classifications

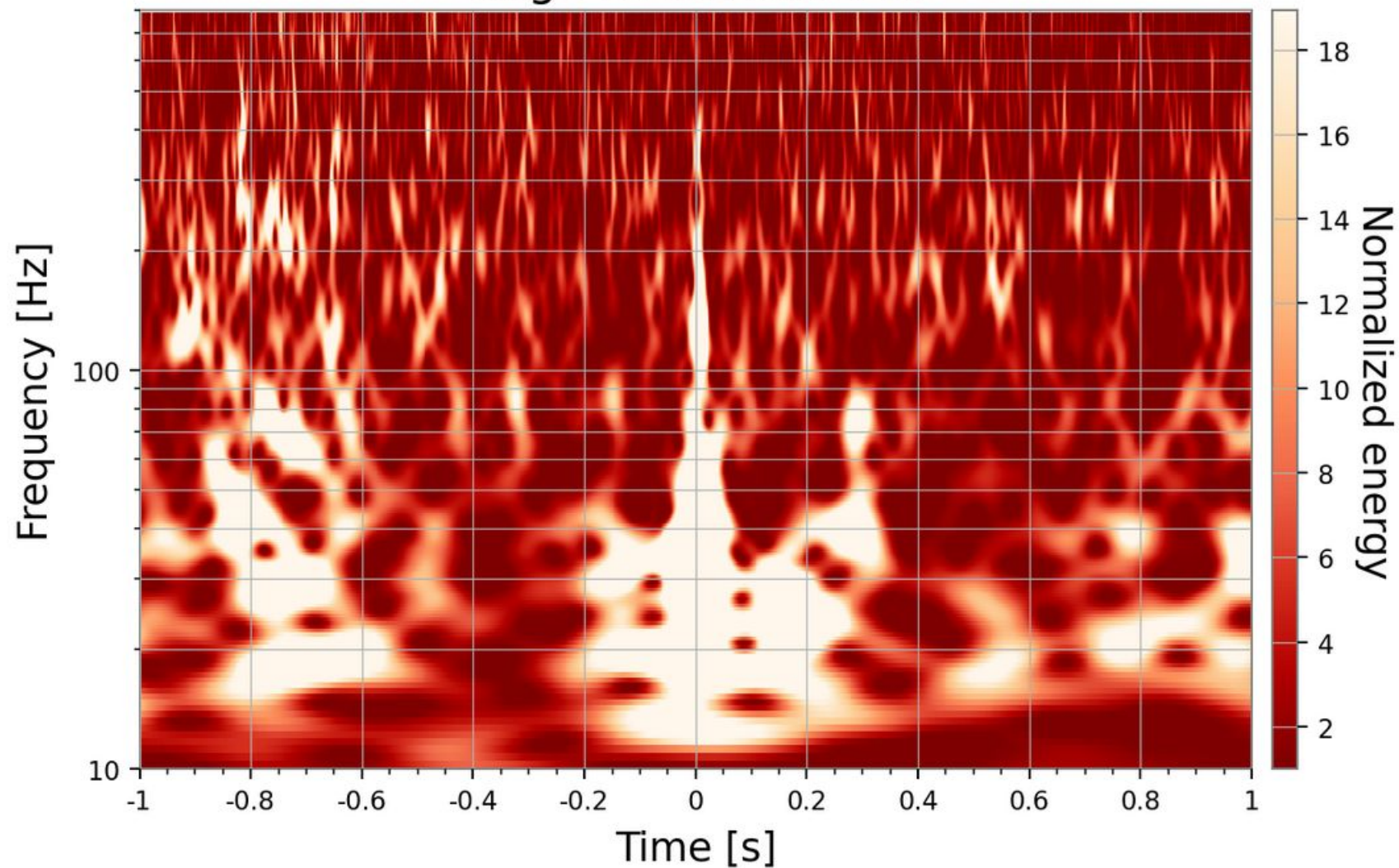
18,300

Subjects

4,028

Completed Subjects

Virgo strain channel



🔔 You should sign in!

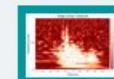
TASK

TUTORIAL

Do you see a glitch? Can you identify its class?



Blip



Extremely Loud



Helix



Koi Fish



Low Frequency Burst



Scattered Light



Scratchy



Tomte

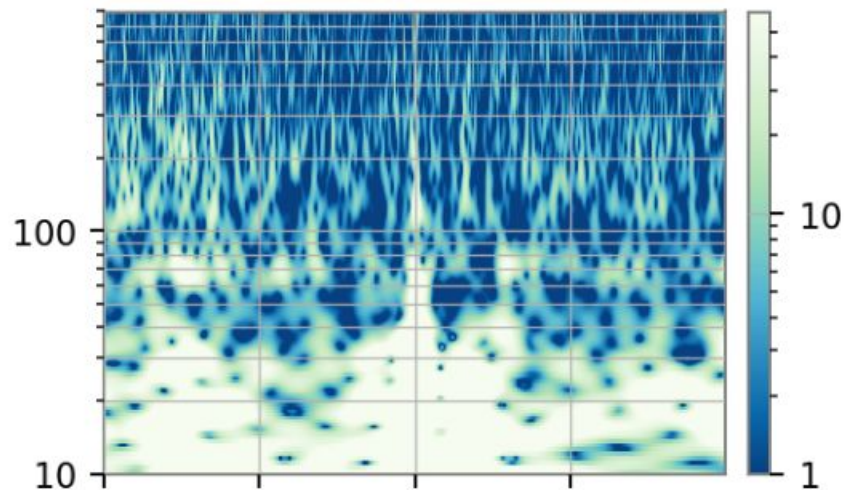


Violin Mode

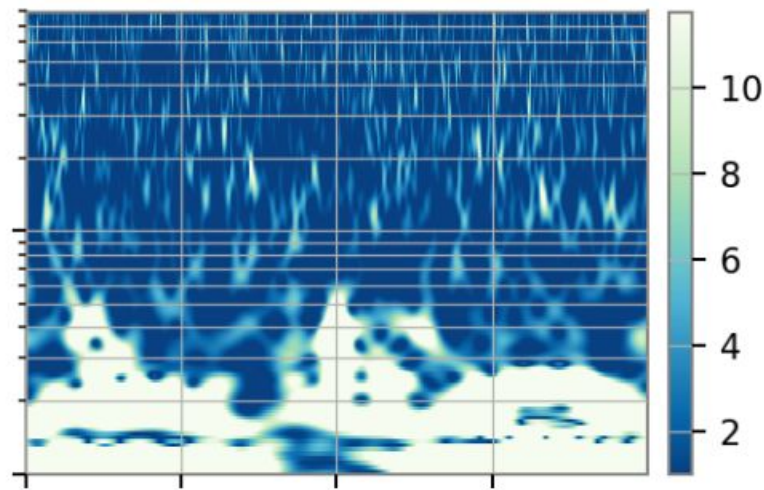


I do not see anything!

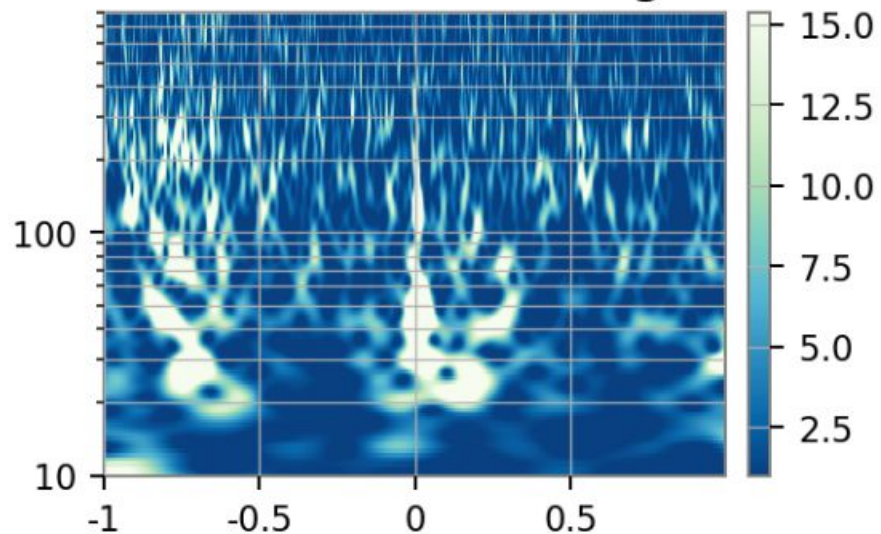
Power in the IMC



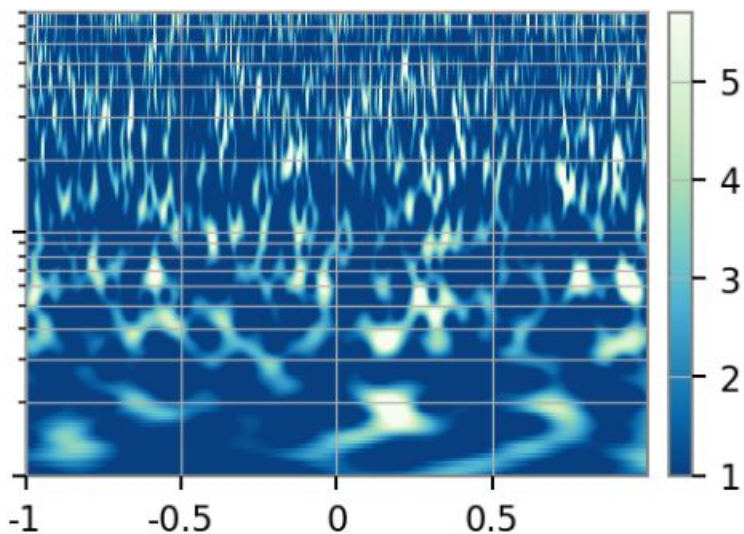
Power in the WA



Differential arm length



BS accelerometer



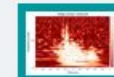
TASK

TUTORIAL

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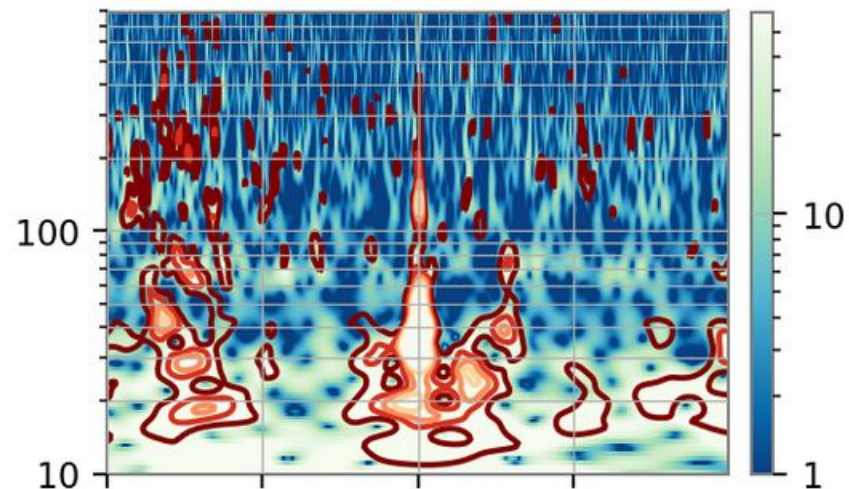


Violin Mode

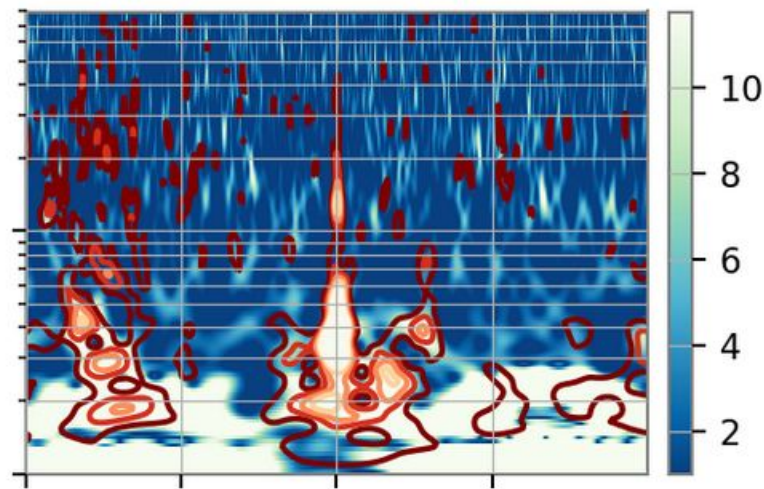


I do not see anything!

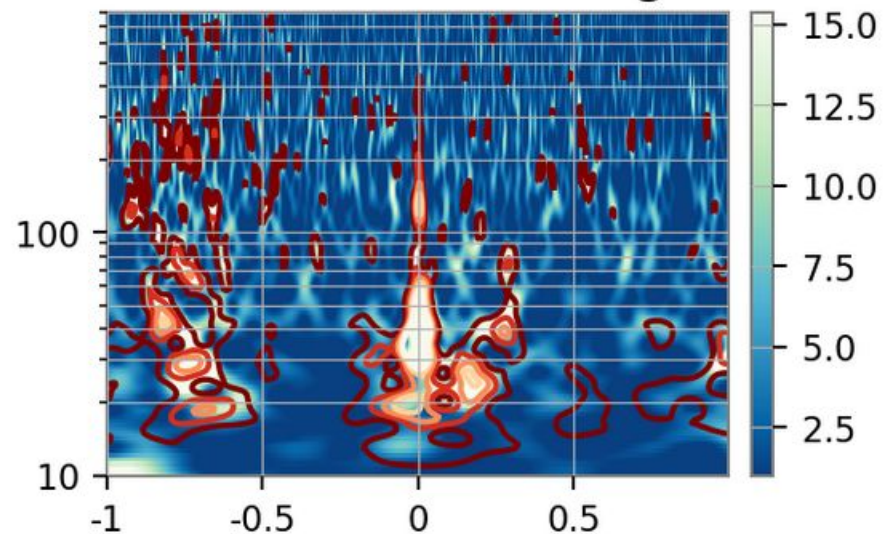
Power in the IMC



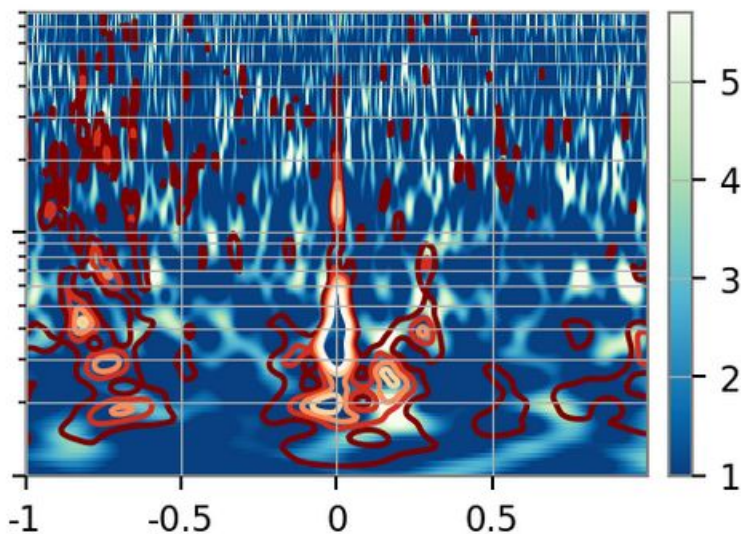
Power in the WA



Differential arm length



BS accelerometer



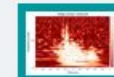
TASK

TUTORIAL

Do you see a glitch? Can you identify its class?



Blip



Extremely Loud



Helix



Koi Fish



Low Frequency Burst



Scattered Light



Scratchy



Tomte



Violin Mode



I do not see anything!



Deep Sea Explorers ✓

ABOUT CLASSIFY TALK COLLECT RECENTS LAB

Deep sea explorers great work! The scientists of KM3NeT thank you for your contribution! You have reached 10,000 classifications! How much more can you do until the end of March? Let's find out...

Announcements :

Workshop announcement : Would you like to know how citizens can play an active role in the advance of ground-breaking research and share your views and experiences? Attend the **interactive workshop** organized by REINFORCE! For more information and the program of the event take a look [here](#).

Survey : We'd also love to find out about your experience on this project! Please take 5 minutes to fill in the anonymous survey <https://survey3.zsi.at/index.php/734131?lang=en>

Great work! Looks like this project is out of data at the moment!

[See the results](#) or [dismiss this message](#)

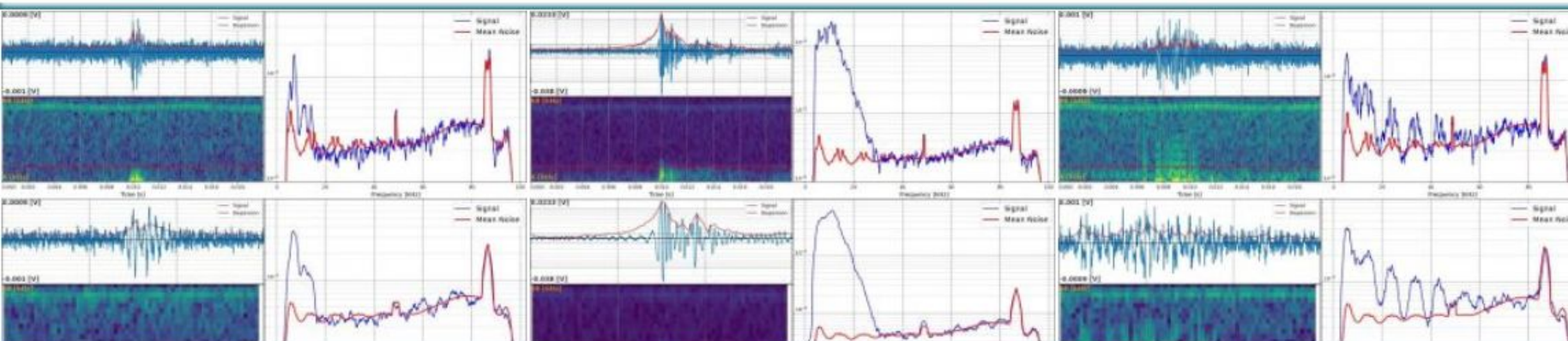
Help us to study bio-activity in the deep sea! With your help, we will better understand marine sources of noise in the KM3NeT detector, making our search for neutrinos

Get started ↓

You can classify light (BIOLUMINESCENCE) or acoustic (BIOACOUSTICS) signals. Of course, you can also do both!

BIOLUMINESCENCE 1: Peak counting

BIOACOUSTICS 1: Cetacean click identification



1 person is talking about **Deep Sea Explorers** right now.

Join in

DEEP SEA EXPLORERS STATISTICS

100% Complete

389

Volunteers

11,692

Classifications

528

Subjects

528

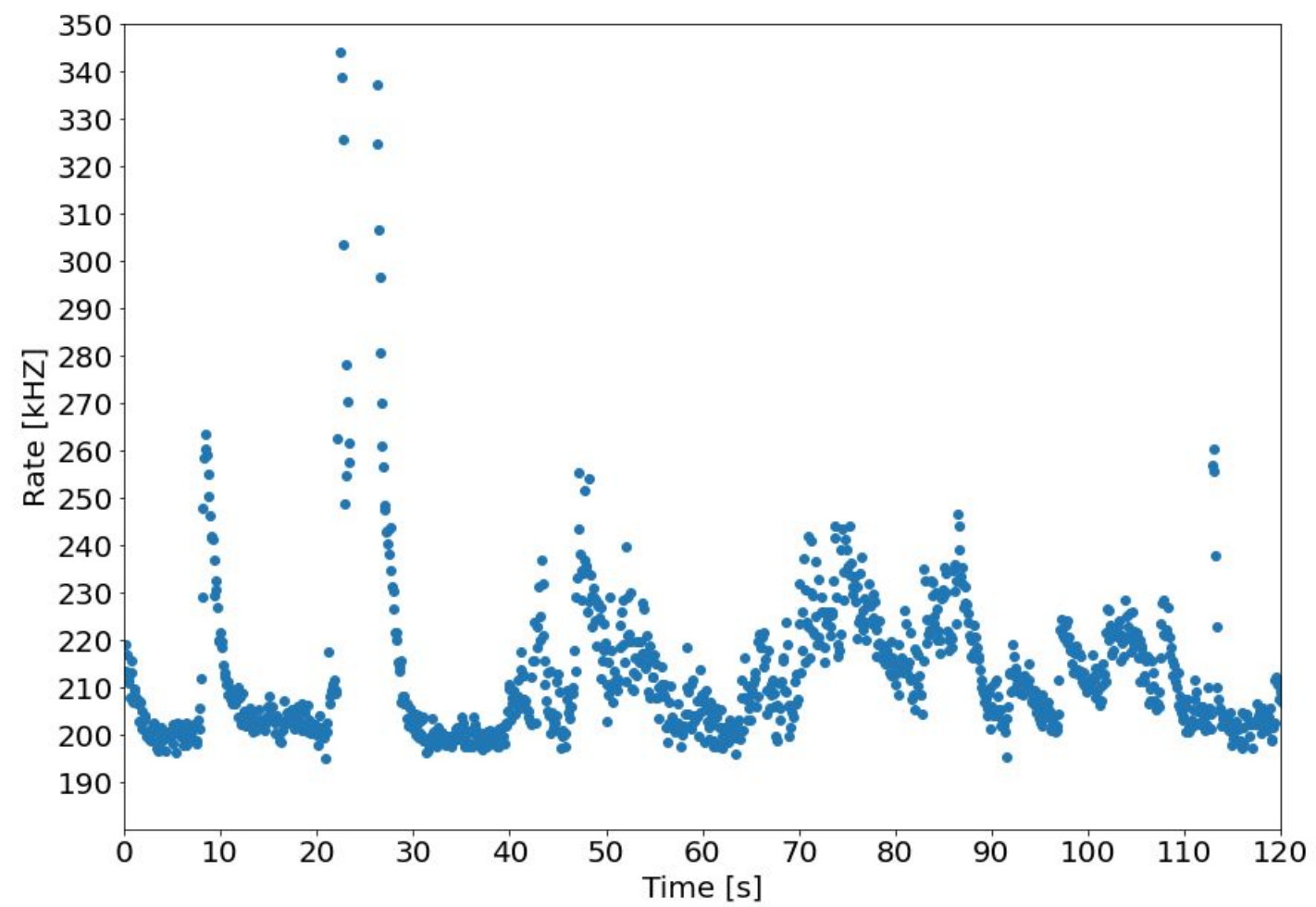
Completed Subjects

WORDS FROM THE RESEARCHER

ABOUT DEEP SEA EXPLORERS

EXTERNAL PROJECT LINKS

FINISHED!



SWITCH TO DARK THEME

TASK

TUTORIAL

What is the classification of this event?

One peak

Two peaks

Multiple peaks

Weird

NEED SOME HELP WITH THIS TASK?

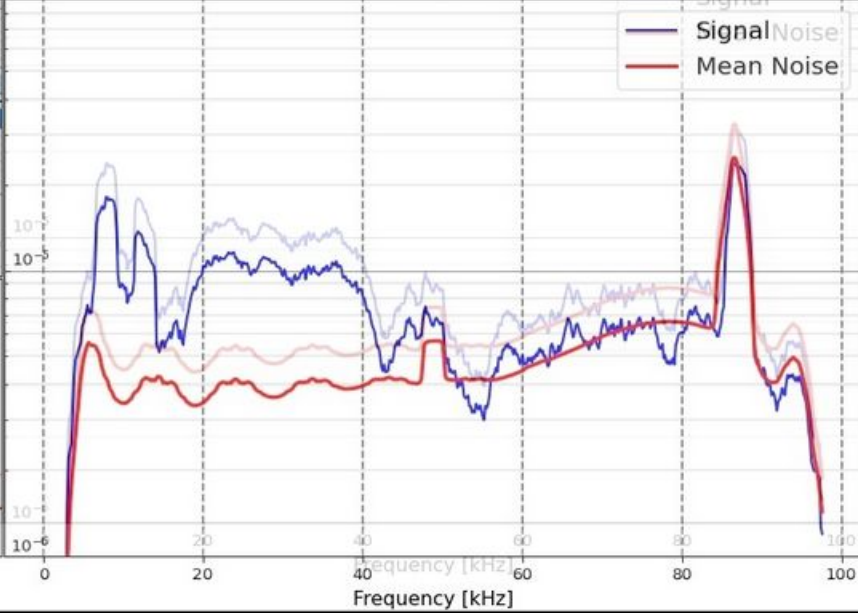
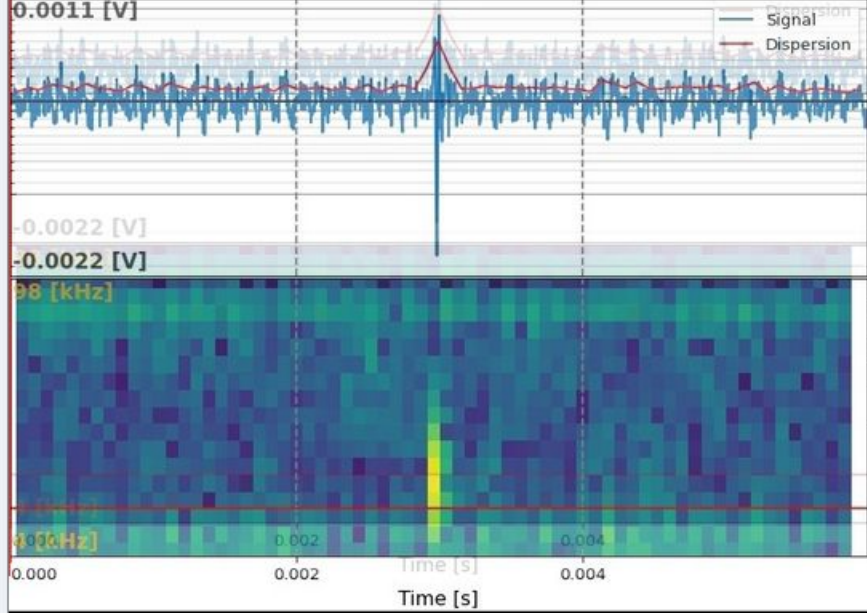
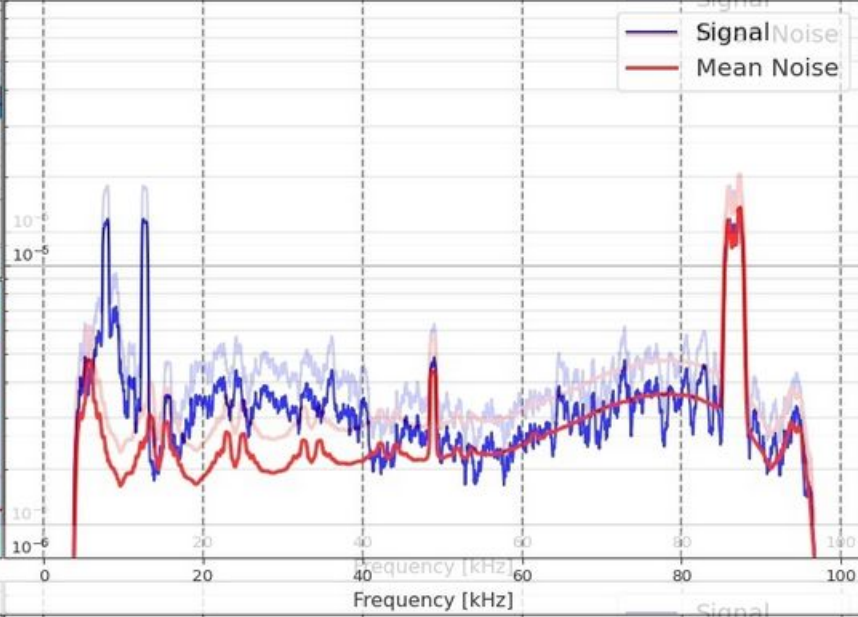
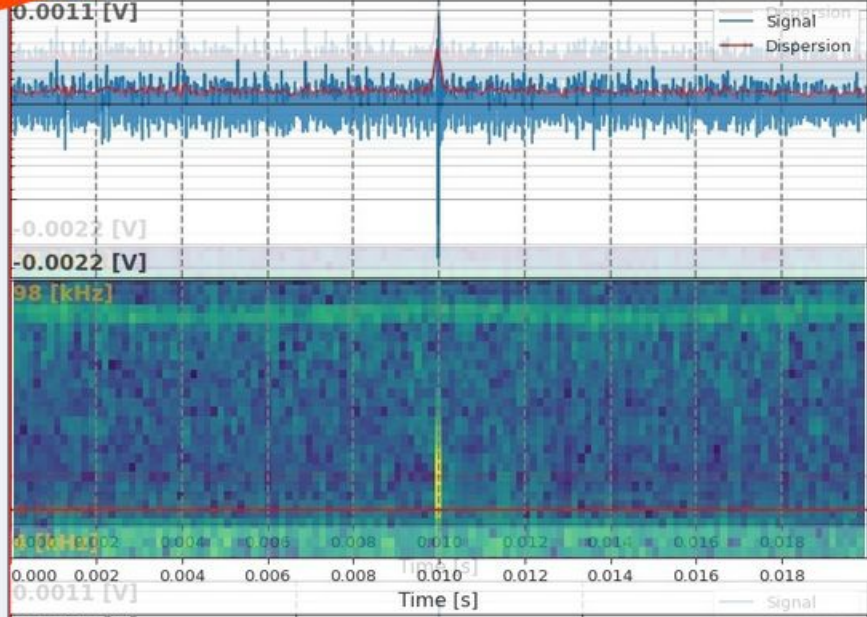
Done & Talk

Done



FIELD GUIDE

FINISHED!



TASK

TUTORIAL

What is your proposed identification?

Sperm whale

Short-finned pilot whale

Pure noise

Something else

NEED SOME HELP WITH THIS TASK?

Done & Talk

Done



SWITCH TO DARK THEME

FIELD GUIDE



New Particle Search at CERN

ABOUT CLASSIFY TALK COLLECT RECENTS LAB

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Help the ATLAS scientists look for
signs of massive, long-lived
particles produced in the Large
Hadron Collider, which could be a
sign of new physics!

[Learn more](#)

Get started ↓

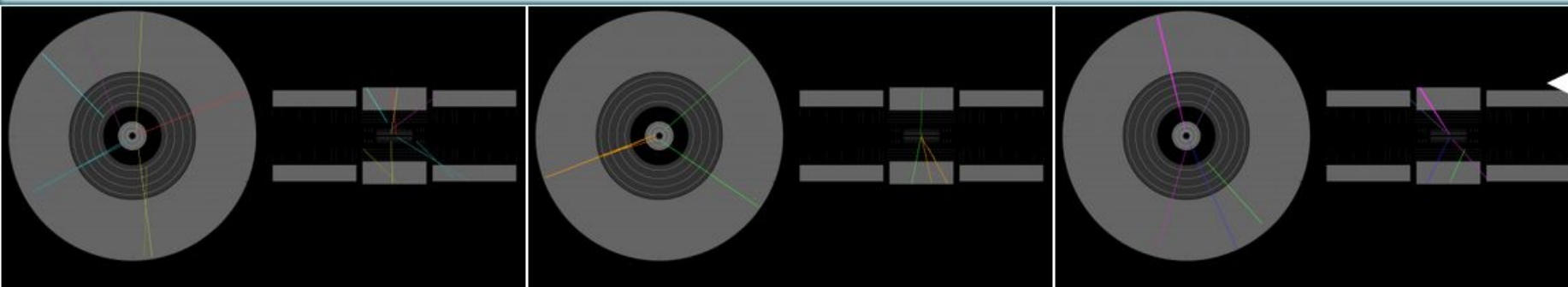
The project consists of three stages. We strongly recommend you take part in them in order. In Stage 1, you will identify Displaced Vertices, which are the signatures of long-lived particles. In Stage 2, you will identify the signatures of known particles (electrons, muons, photons) in the ATLAS detector. In Stage 3 you will: a) search for Higgs boson decays to a pair of photons and b) look for long-lived particles decaying far from the beam collision point. NOTE: In stages 2 and 3 you will be directed to an external online tool called HYPATIA. It is run by the research team of this project and is not hosted on Zooniverse.

Stage 1 - Displaced Vertex Identification

Stage 2 - Particle Identification

Stage 3a - Study of Higgs Bosons

Stage 3b - Discovery of Long Lived Particles



3 people are talking about **New Particle Search at CERN** right now.

Join in

NEW PARTICLE SEARCH AT CERN STATISTICS



4% Complete

1,320

Volunteers

55,081

Classifications

5,080

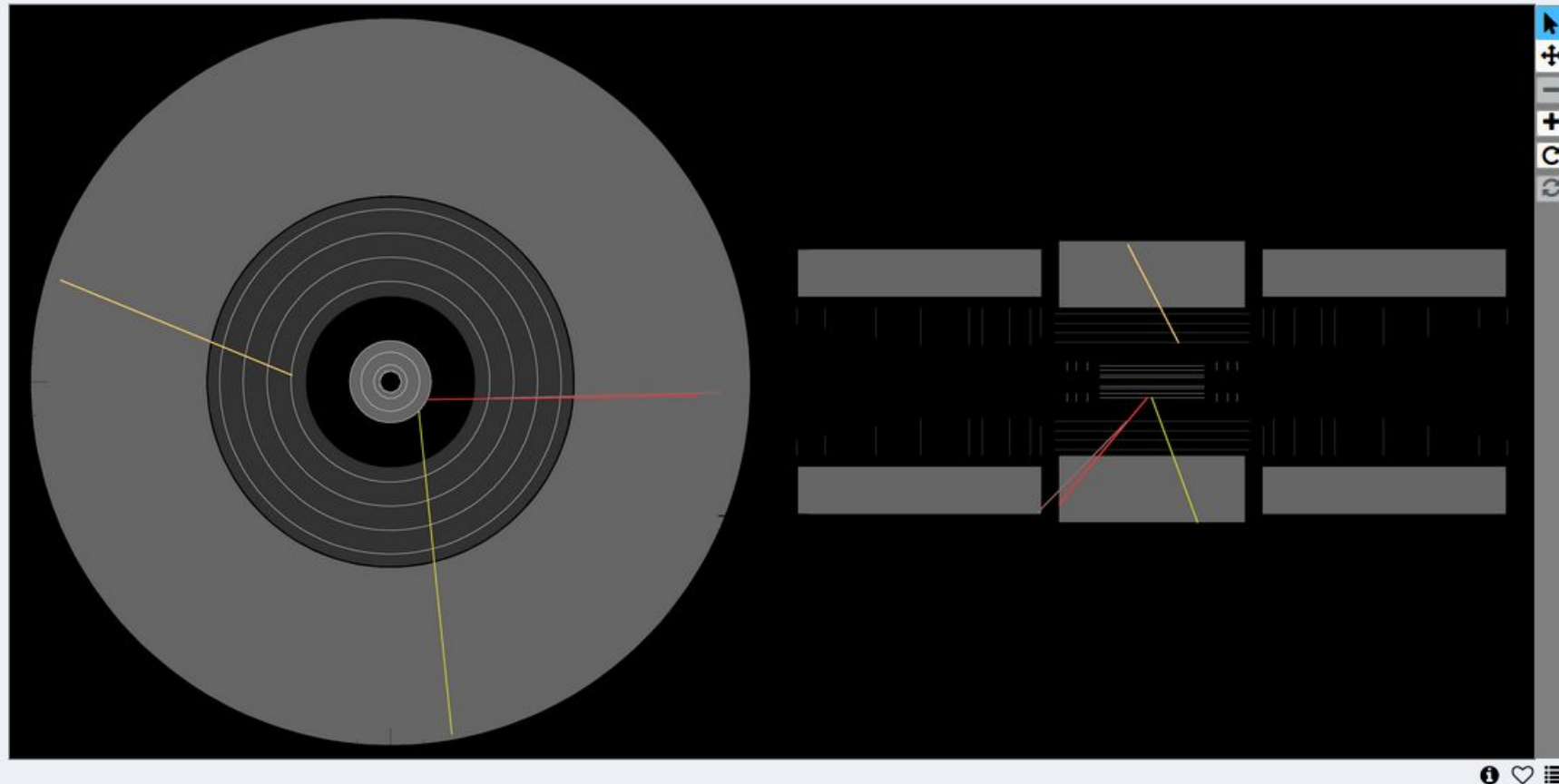
Subjects

946

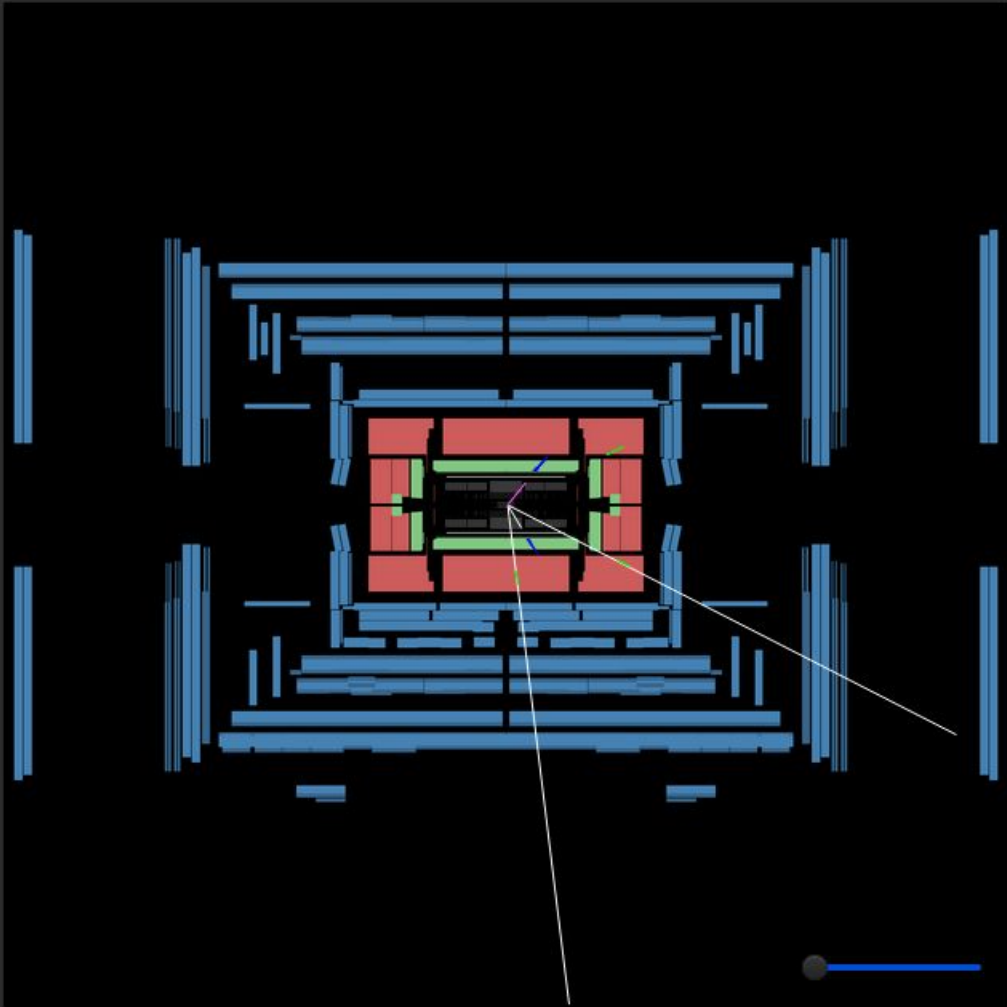
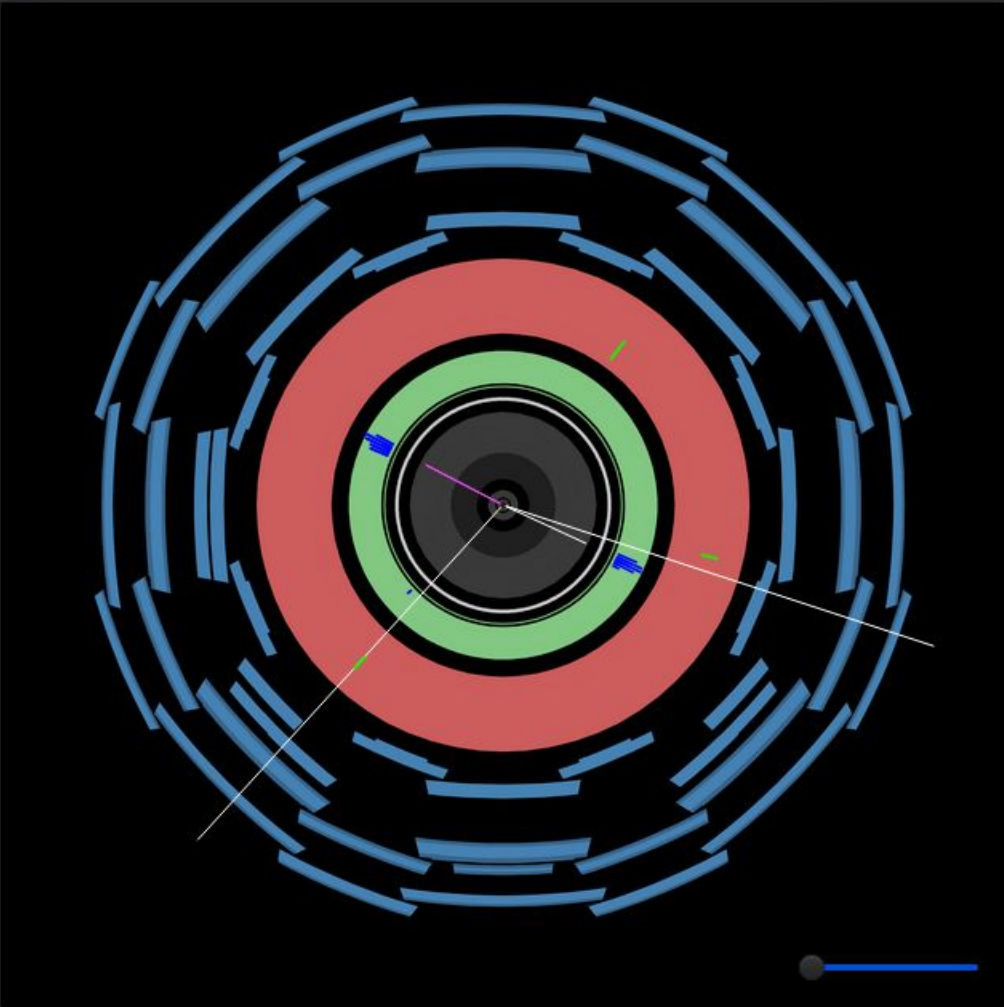
Completed Subjects

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SWITCH TO DARK THEME



+ Electron

+ Muon

+ Photon

+ Conv. Photon

- Delete

→ Next

🔍 Help

Particle	+/-	p _T [GeV]	φ [rad]	θ [rad]
track_1	-	52.1	2.66	0.89
track_2	-	14.43	-0.32	1.45
track_3	+	7.54	-2.31	0.47
track_4	+	28.28	-0.43	1.03
cluster_1		56.12	2.67	0.86

Particle	+/-	p _T [GeV]	e/μ/γ
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Cosmic Muon Images ✓

ABOUT CLASSIFY TALK COLLECT RECENTS LAB

We'd love to find out about your experience on this project! Please take 5 minutes to fill in the anonymous survey <https://survey3.zsi.at/index.php/734131?lang=en>

Congratulations everyone! Thank you for your contribution! You are getting close to 50,000 classifications! How fast can you get there? Keep up the good work [here](#)!

Attend a Citizen Science Interactive Workshop

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Using Muon Tomography we can
probe the internal structure of
massive objects, like volcanoes,
with particles from stars and
galaxies far far away... help us
identify these particles inside our
detectors

Get started ↓

Take a look into events registered by our detectors and help us to categorise their signal. In both of the workflows in the project you are welcome to try and find the proper particle tracks and extra particle strikes on the detector surfaces. The "Introductory" workflow looks at simpler cases, where our computer proposes a track. The "FreeStyle" workflow looks at events where the proposition of a track becomes difficult for our machine but it should be easy if you spent some time in the "Introductory" workflow.

FreeStyle

COSMIC MUON IMAGES STATISTICS

50% Complete

510

Volunteers

47,684

Classifications

8,840

Subjects

4,896

Completed Subjects

3 people are talking about **Cosmic Muon Images** right now.

Join in

WORDS FROM THE RESEARCHER



"I am very excited about this project because at last we get the chance to investigate our methods in great detail with the help of people from

ABOUT COSMIC MUON IMAGES

We are a team of young researchers from different walks of science. We place muon detectors all around the globe and we study the inner structure of massive objects from **volcanoes** to ancient **tombs** and from underground **tunnels** to **blast furnaces**.

Jacques is in charge of the group activities being the most experienced researcher he takes care of the design and the calibration of our detectors, and plans the future

EXTERNAL PROJECT LINKS

[REINFORCE](#)

[Cosmic Muons Images](#)

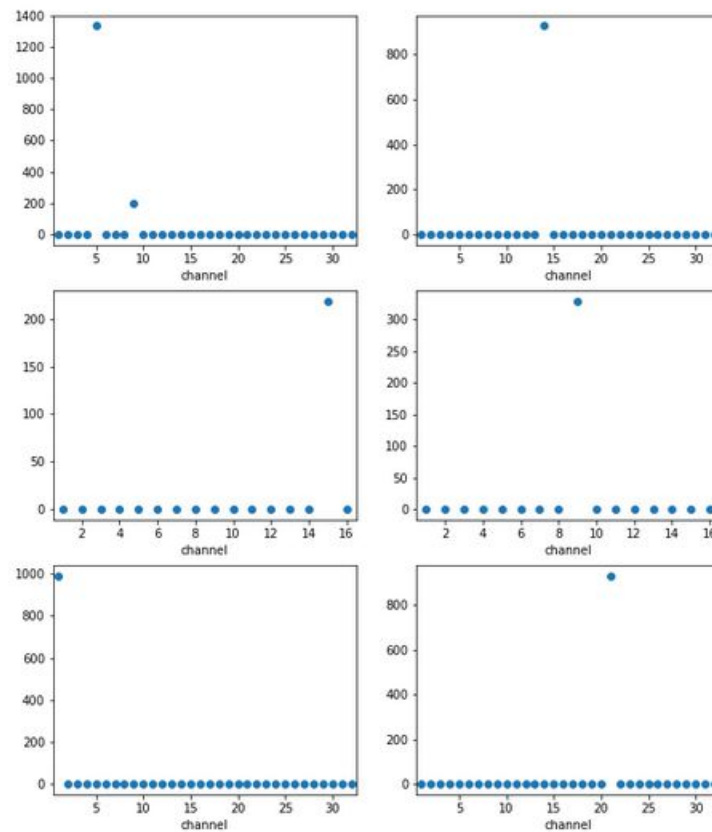
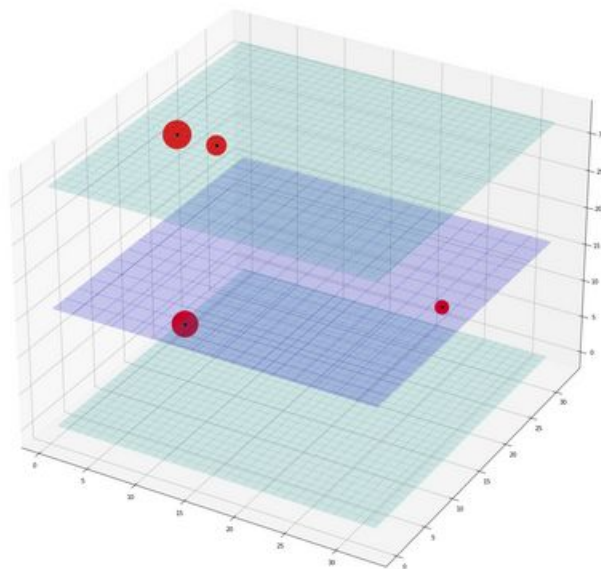
[Diaphane](#)

[Arche](#)

[Institute des 2 Infinis Lyon](#)

Attend a Citizen Science Interactive Workshop

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TASK

TUTORIAL

Is there a pattern?

Note: finding the proper lines by eye is not always easy. You can answer "Yes..." and if your trials in the next step fail, you can always come back here and change your answer.

yes i can see a pattern (track or track with extra points)

no track and nothing remarkable

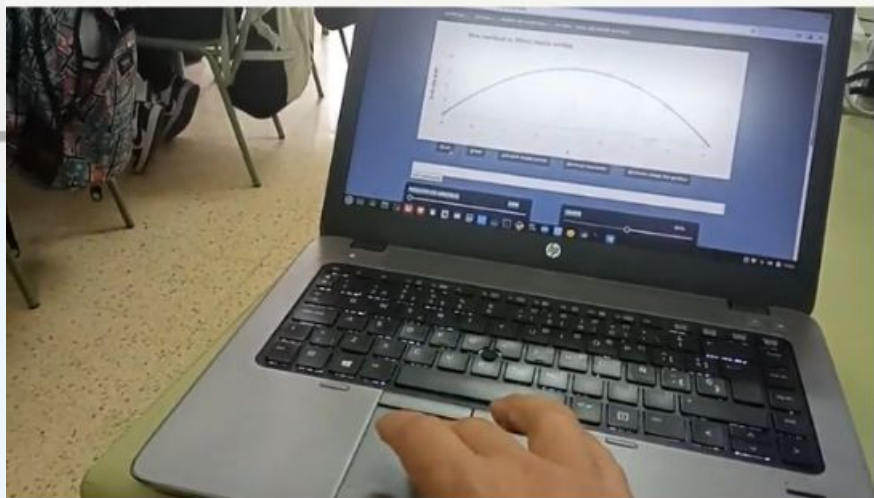
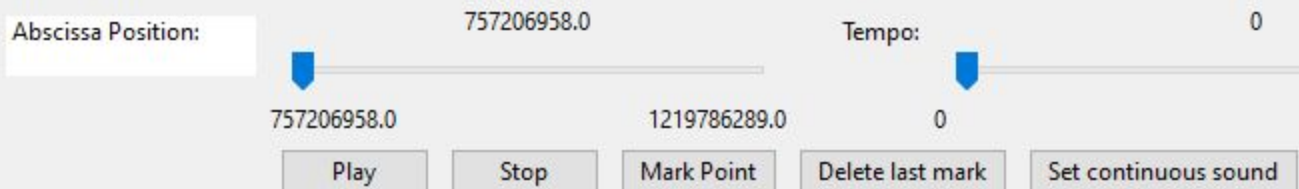
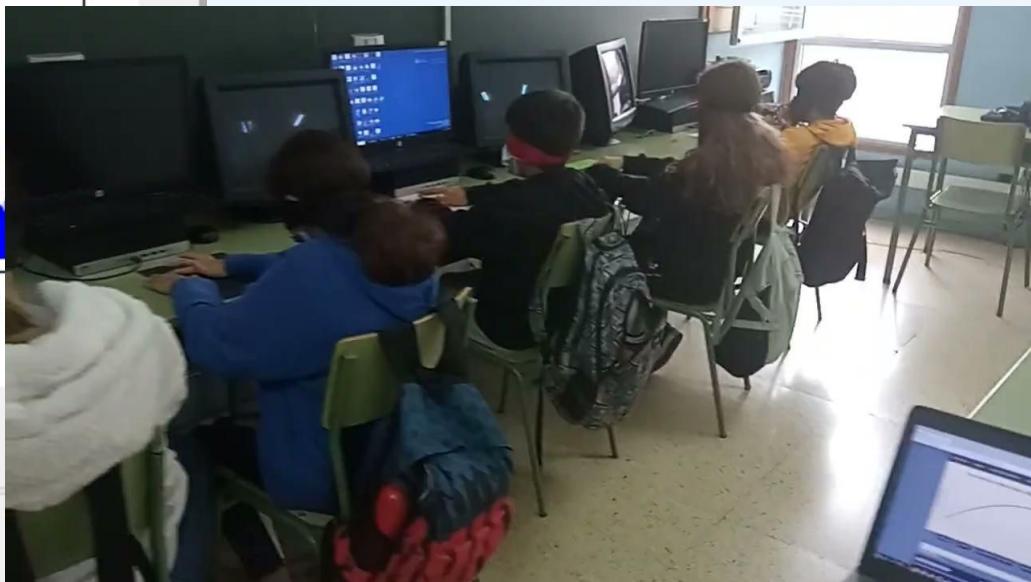
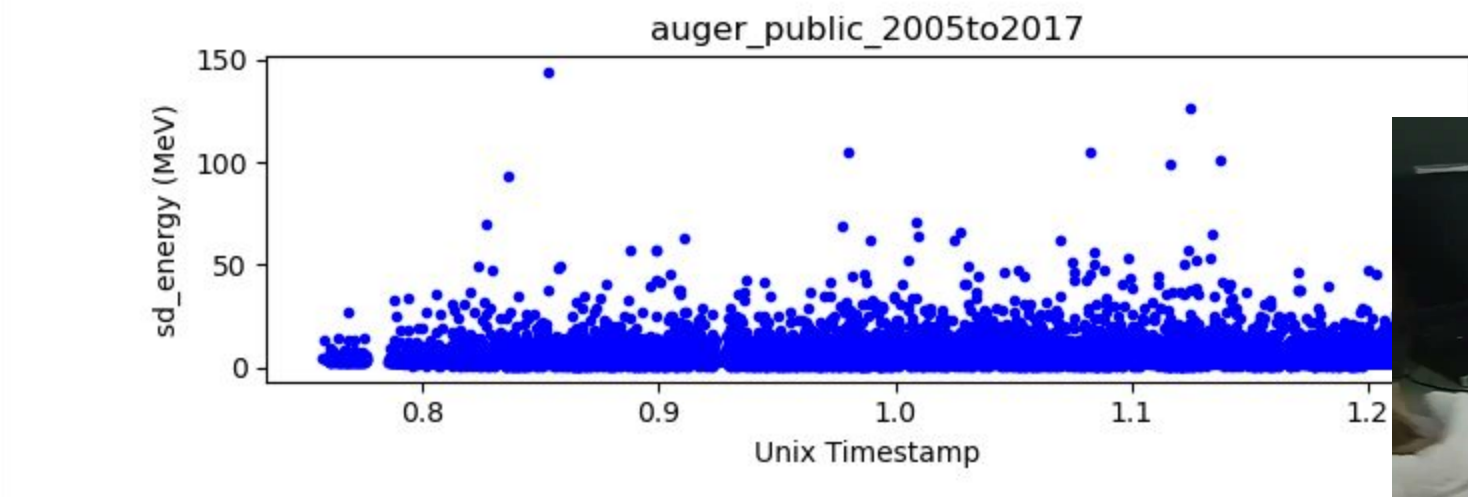
NEED SOME HELP WITH THIS TASK?

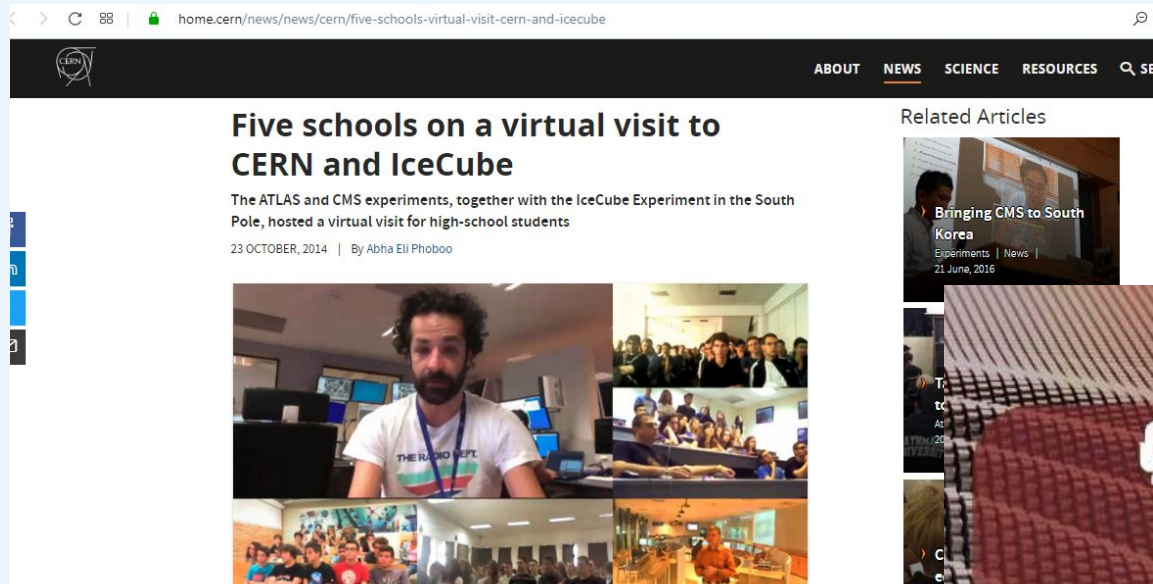
Done & Talk

Done



SWITCH TO DARK THEME





HOW TO HELP SCIENTISTS IN THE GRAVITATIONAL WAVE NOISE HUNT

16 OCTOBER
15:00 - 16:15 CEST

WEBINAR

SPEAKERS

- Chris Lintott - Zooniverse
- Stavros Katsanevas - EGO
- Massimiliano Razzano - University of Pisa
- Beatriz Garcia - CONICET
- Julia Casanueva - Virgo
- Francesca Spagnuolo - EGO
- Emmanuel Chaniotakis - EA

REINFORCE
REsearch INFrastructures FOR Citizens in Europe

@ReinforceEU



High-Level Roundtable and Interactive Workshop

Opening Research Infrastructures
How citizens can play an active role in the advance of
ground-breaking research?

24th March 2022
15:00 - 16:30 CET



**Claudia
Fabó Cartas**

Project Officer of ECSA
European Citizen
Science Association



**Emmanuel
Tsesmelis**

Senior Physicist,
Head of Relations
with Associate
Members &
Non-Member States
(CERN)



**Marina
Manzoni**

Policy Officer at
European Commission



**Stavros
Katsanevas**

REINFORCE Project
Coordinator



**Francesco
Mureddu**

Director at The Lisbon
Council



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REsearch INFrastructures FOR Citizens in Europe



REINFORCE

REsearch INfrastructures FOR Citizens in Europe

Join the community



Reinforceeu.eu



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