



# IPPOG – BRASIL

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# Overview

- Follow-up of my presentations in IPPOG Meetings of 2109 and 2020
- Unfortunately, the pandemic delayed several plans ☹️ but we did not stay still 😊
- Focus on the **Working Group of Particle Physicists, Science Education Experts and Teachers** created during the process of the Brazilian association to IPPOG in 2017
  - *Mailing list with 161 members*
  - *We call it **IPPOG-Brasil***

# Goals of the Working Group

## IPPOG - Brasil

- Represent Brazil in IPPOG
- Promote contact between the various actors (researchers, teachers, interested public in general) involved in outreach activities and teaching of high energy physics
- Disseminate IPPOG activities and actions in the entire country
- Disseminate local initiatives for outreach and teaching of high energy physics among the members
- Motivate broader and inter-institutional projects

# Perspectives presented in 2019/2020

- We need to expand the number of active people/institutions in the group and the number/scope of projects
- Some ideas:
  - *Create a meeting point in the web for particle physicists interested in outreach and the public*
  - *Create a network with school teachers*
  - *Enhance social and traditional media presence*
- RENAF AE has signed an agreement with the Brazilian Physical Society (SBF in Portuguese) to support the IPPOG-Brasil group
  - *SBF will host the IPPOG-Brasil web page in order to create a meeting point and repository of activities and educational material about Particle Physics*

# IPPOG-Brasil Web Portal



- The meeting point in the web for particle physicists interested in outreach and the public was created!
- In 2021, a working group was formed to create the IPPOG-Brasil Web portal
- It was built to be a channel of communication between the scientific community and the public regarding Particle Physics Outreach
- It is entirely in Portuguese to include people that do not speak other languages
- <http://www1.fisica.org.br/ippog/>

# IPPOG-Brasil Web Portal



- Official launch in the Spring Meeting of the Brazilian Physical Society during Steve's presentation 😊



# IPPOG-Brasil

## Coordination Team

- In order to **expand the number of active people/institutions in the group and the number/scope of projects** a coordination group was created:
  - *Brazilian IPPOG representative: **Marcelo Munhoz (ALICE - USP)***
  - *Brazilian Physical Society representative: **Sandro Fonseca (CMS - UERJ)***
  - *International Masterclasses Coordinator: **Marcia Begalli (ATLAS - UERJ)***
  - *Global Cosmics Coordinator: **Marisilvia Donadelli (ATLAS - UERJ)***
  - *IPPOG-Brasil Web Portal Editor: **Luiz Cleber (PP Theoretician - UFLA)***
  - *Teachers Network Coordinator: **Ivã Gurgel (Science Education Researcher - USP)***
  - *Diversity, Inclusion and Accessibility Coordinator: **Graciella Watanabe (Science Education Researcher - UFABC)***
- Members of the IPPOG Forum from Brazil

# Brazilian Physical Society



- The Brazilian Physical Society (SBF) **is hosting** the IPPOG-Brasil web portal
  - *A very strategic place for visibility and reliability*
- The agreement RENAFAE-SBF will also facilitate the connection with the Brazilian Physical Society members, researchers and physics teachers alike
  - *For instance, more than 300 physics teachers are SBF members*
- It will also allow access to the Brazilian Physical Society social media in order to disseminate IPPOG-Brasil activities among physics enthusiasts



# Masterclasses in Brazil



- A new project approved by the Brazilian National Funding Agency (CNPq) will guarantee funds for a strategy to expand Masterclasses through the country



– *It is the creation of a National Institute of Science and Technology focused in the Brazilian participation at CERN*

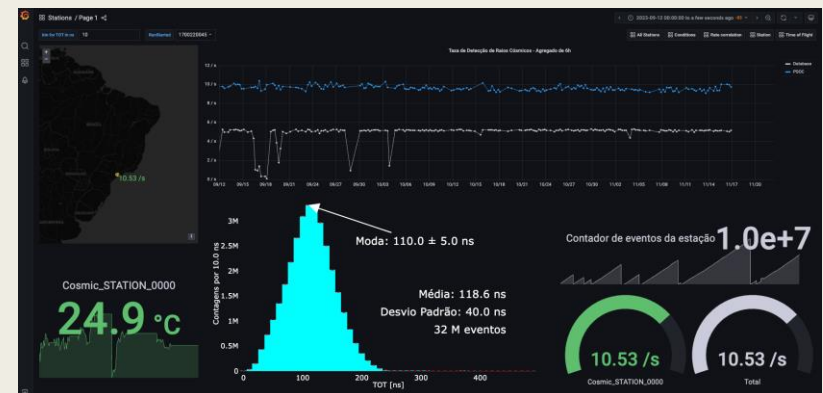
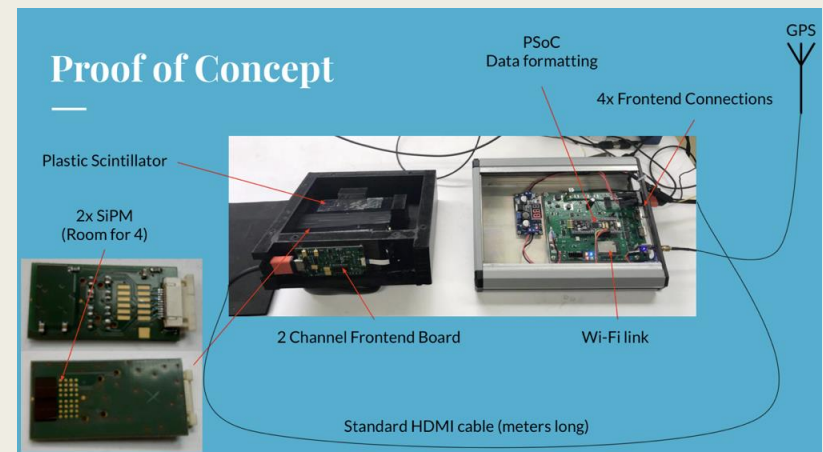
- We have funds for:
  - *A Workshop for future local Masterclasses organizers*
  - *Travels of experient organizers to help out in new places*



# Cosmic Ray Detectors Network in Schools



- Create a cosmic ray detector network in high schools involving students and teachers in the detector assembly and data analysis, motivating them in studying particle physics topics and spinoff technologies
- First version of the detector, web interface for the data collection and a web page to present the project (<https://celeste.if.usp.br>) is ready!



# Cosmic Ray Detectors Network in Schools

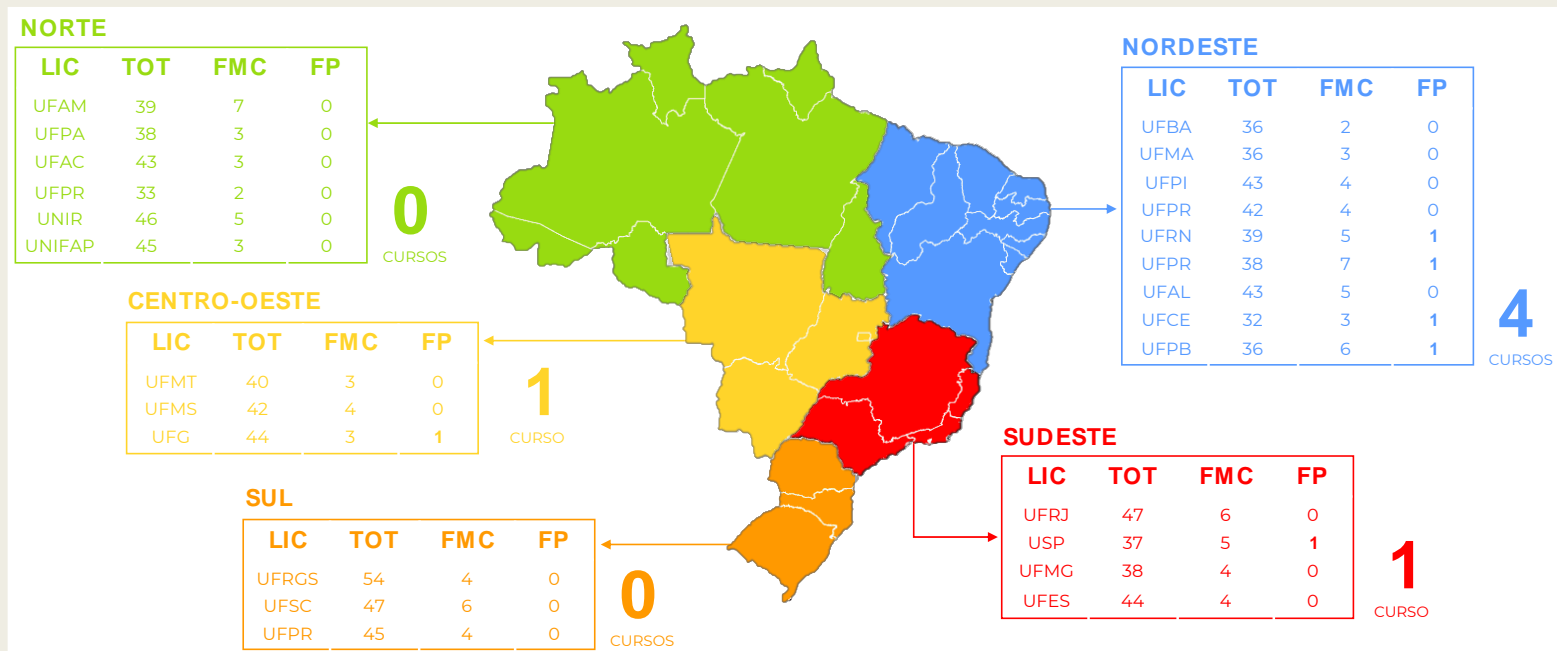


- During 2022, two hands-on Workshops with high school teachers and students were organized, in order to set up a pilot for the project
- A Teaching Learning Sequence to be used with the detector was finalized in 2023
  - *Master dissertation of João Pedro Ghidini from USP*
- Participation in the International Muon Week in 2023



# Physics Teachers Network

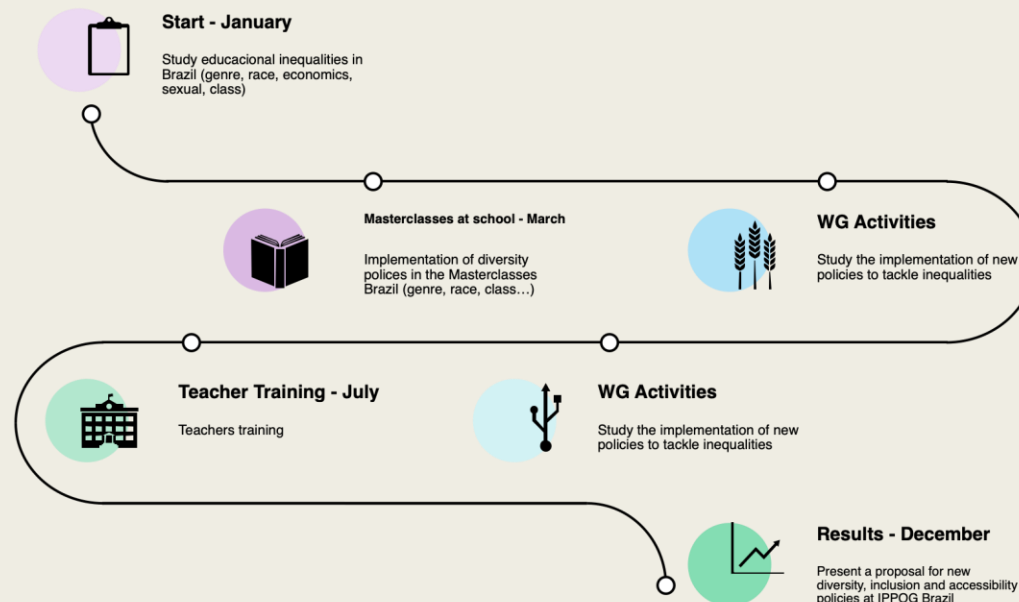
- Main goal: create a channel for experience exchange among teachers seeking knowledge and training in Particle Physics
- Strategies:
  - *Studies and improvements in the curriculum of physics teaching graduation courses*



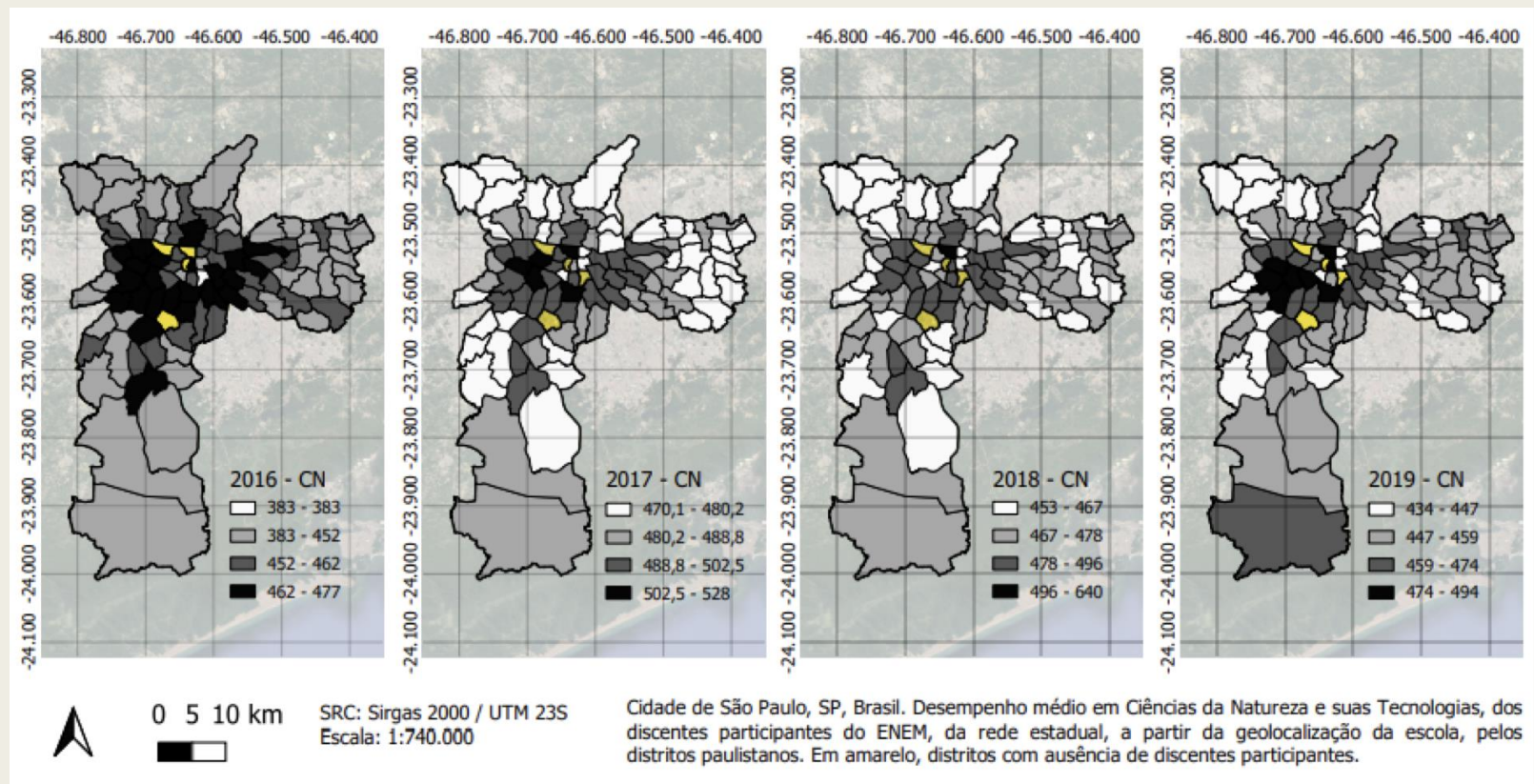
# Physics Teachers Network

- Main goal: create a channel for experience exchange among teachers seeking knowledge and training in Particle Physics
- Strategies:
  - *Studies and improvements in the curriculum of physics teaching graduation courses*
  - *Preparation of courses for physics teachers*
    - Course offered in 2023 during school winter vacation
  - *IPPOG-Brasil Web Portal as a communication channel*
    - Forum for discussions and material provider
  - *Creation of monthly webinars to exchange experiences*
  - *Regular IPPOG-Brasil Virtual Meeting*
    - First edition organized in 2020 was very successful in terms of number and variety of participants

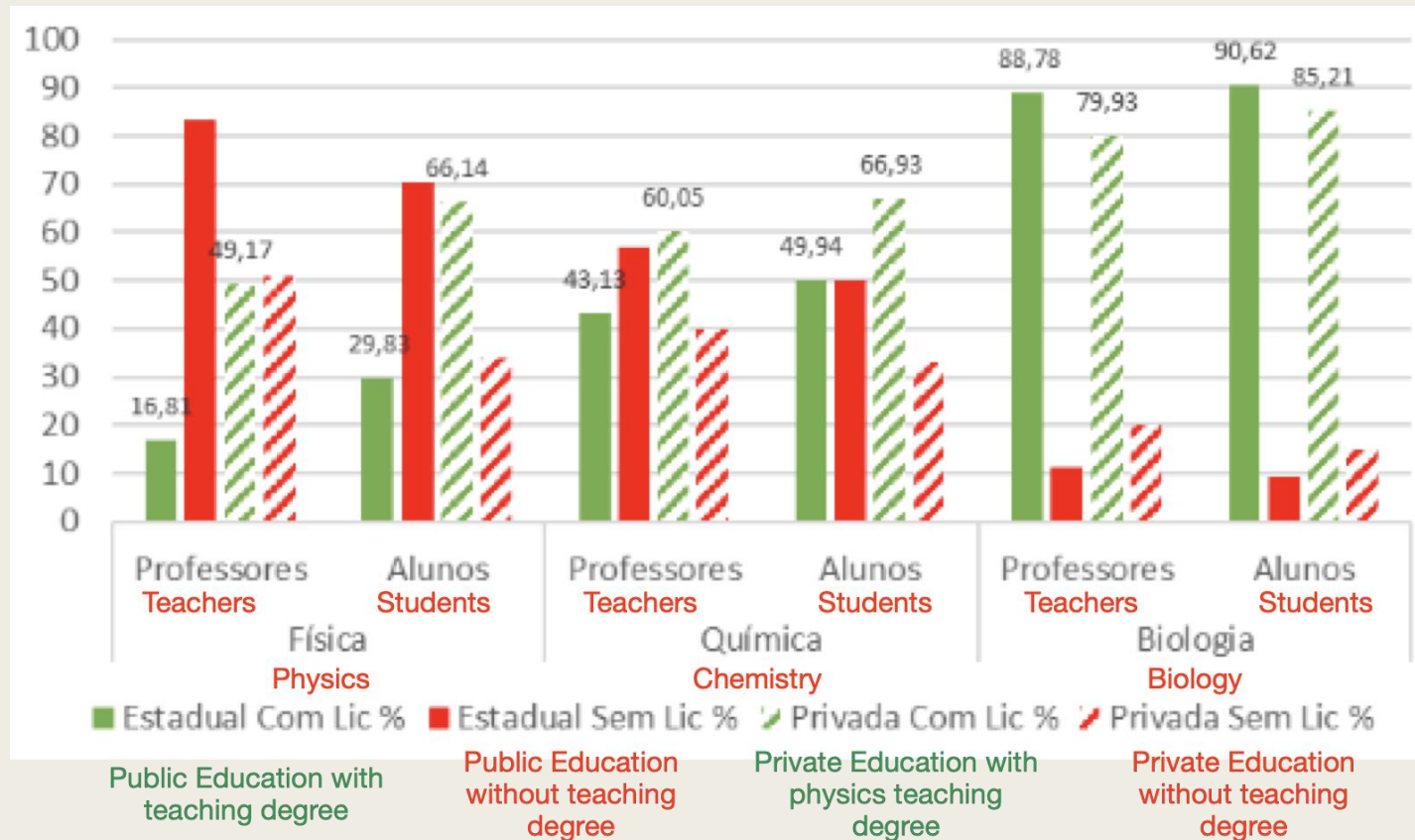
# Diversity, Inclusion and Accessibility



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# New Perspectives

- IPPOG-Brasil Web Portal created, opening new interesting perspectives for future outreaching actions
- New structure organized for the IPPOG-Brasil Working Group
  - *Several fronts clearly specified and responsibilities distributed among different interested researchers in order to reach more people with more activities*
- We hope all these fronts will nicely evolve in the next months for our next presentation 😊



THANK YOU!  
IPPOG-Brasil