

# LA-CoNGA physics

a case study for open science education collaboration  
between Latin America and Europe

**XIV Latin American Symposium on High Energy Physics**  
**Quito 11 – 14 – 2022**

**Dennis Cazar Ramírez**  
Departamento de Electrónica  
Universidad san Francisco de Quito USFQ  
*On behalf of LA-CoNGA physics consortium*



Latin American alliance for  
Capacity building in Advanced physics

**LA-CoNGA physics**



Cofinanciado por el  
programa Erasmus+  
de la Unión Europea





# Scientific collaboration and education at a global scale

Science and higher education  
**globally distributed ,  
collaborative and  
multidisciplinary**

University-research-society link  
**knowledge generation ,  
application and transfer**

**Virtual Research and  
Learning Networks**  
play a key role

A network where data, software tools,  
**research facilities , teaching and  
information resources  
are seamlessly shared**

Map of COVID 19 scientific collaboration indexed in the Scopus on the 7th of April 2020

Keywords : "COVID-19", "SARS-CoV-2", "2019-nCoV". 519 articles

Created with Netscity (<https://www.irit.fr/netscity/prod/>) by Marion Maisonobe (UMR Géographie-cités - CNRS). JS map by amCharts.



# The importance of virtual research and learning networks

## Internationalization

collaborative international environment

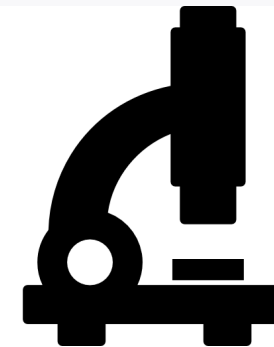
## Accessibility



Each institution/group might not have all the resources/staff



## Modernization



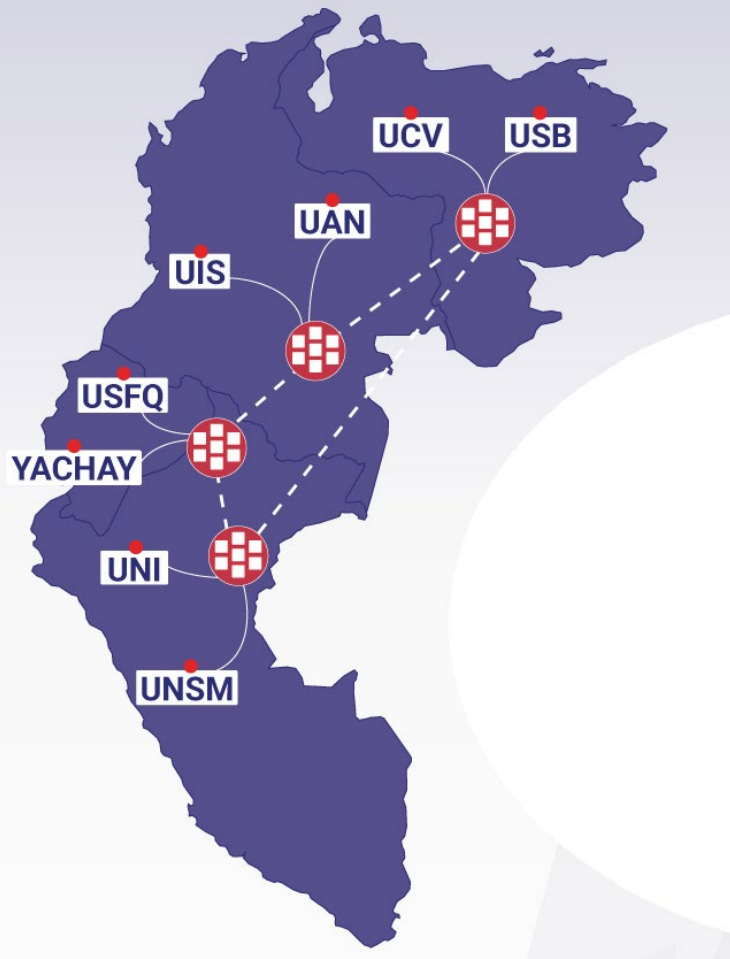
open educational resources, connectivity, acquisition of digital skills, and use/development of new learning methods

Sánchez, A., and Atlas Collaboration. "The CEVALE2VE case." PoS ICHEP2016 (2016) 322

Caicedo, M., et al. "Virtual research and learning communities in Latin America: The CEVALE2VE case." Interciencia 42.11 (2017): 733-738

Peña-Rodríguez, J., & Núñez, L. A.. "LA-CoNGA physics: an Open Science Collaboration in Advanced Physics between Latin-America and Europe". *arXiv:2201.02256*.

# LA-CoNGA physics



<https://laconga.redclara.net/>

- An **Erasmus+CBHE (Capacity Building in Higher Education)** project co-funded by the European Commission's Education, Audiovisual and Culture Executive Agency
- **A 3-years project. Officially started in January 2020**
- **Two semesters corresponding to M2 EU Master**
- **Courses in Physics, Scientific Instrumentation and Data Science**
- **Internships in research labs and Industrial partners**
- **A learning community**

**11 universities from Latin America and Europe** join efforts with other scientific (**CERN, CNRS, DESY, ICTP, IRFU**) and industrial partners to contribute to the modernisation, accessibility and **internationalisation of higher education** in **Colombia, Ecuador, Perú** and **Venezuela**





# Universities and Scientific /Industrial Partners

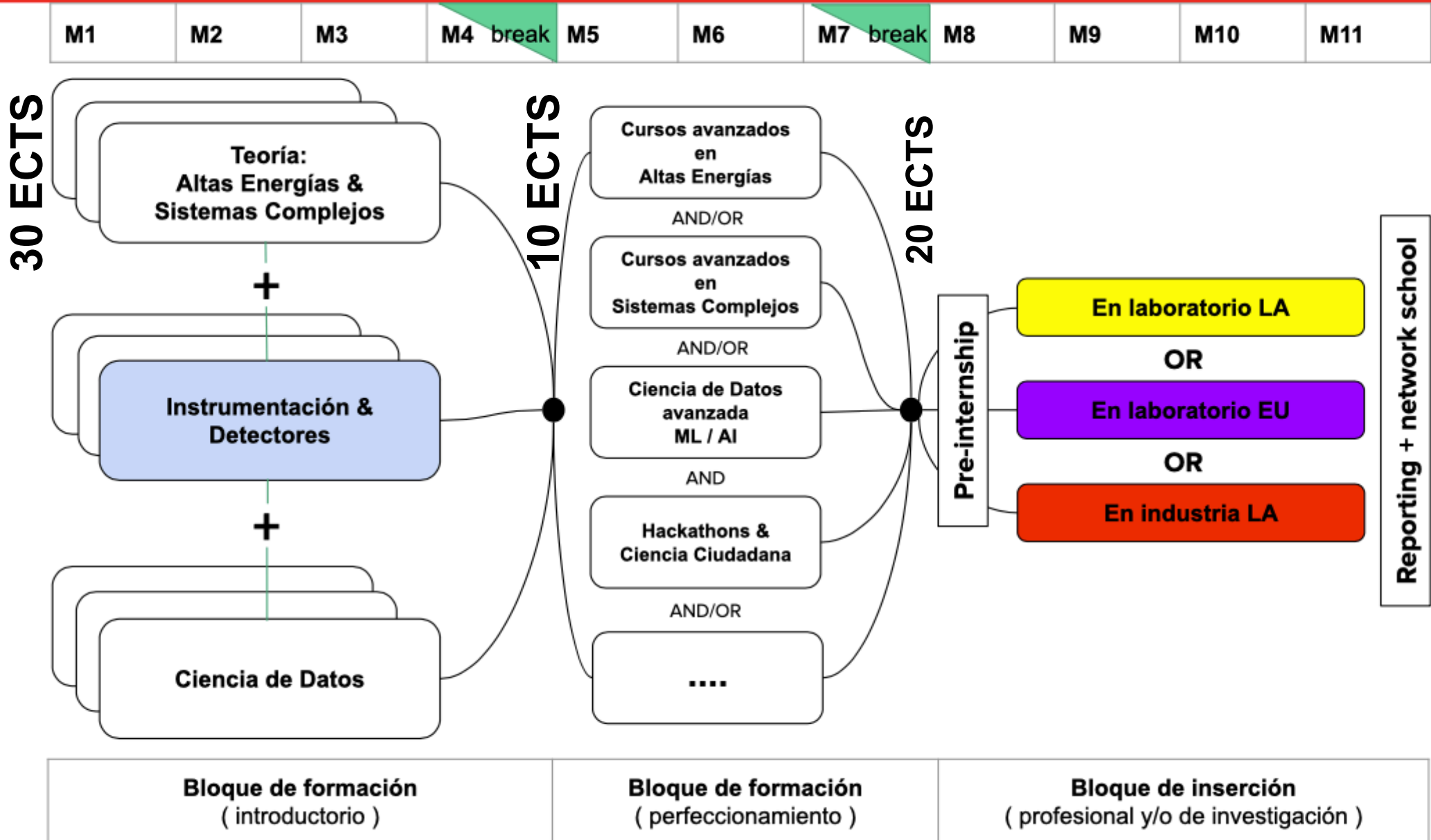
## Universities



## Scientific and Industrial partners

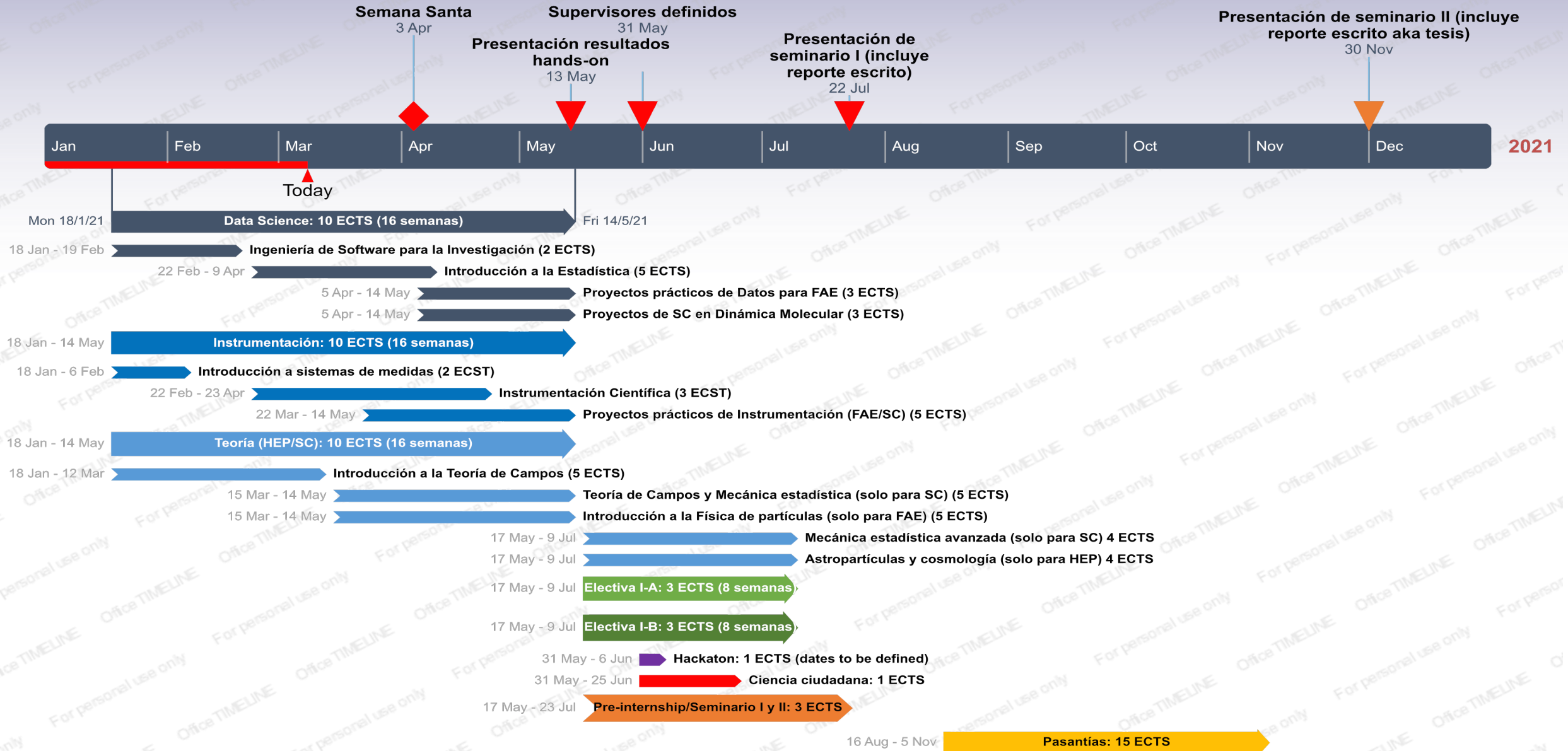


# LA-CoNGA physics





# LA-CoNGA2021 Schedule

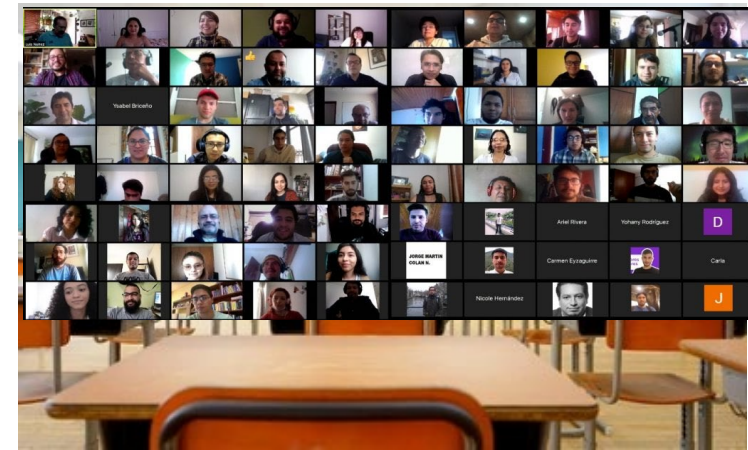
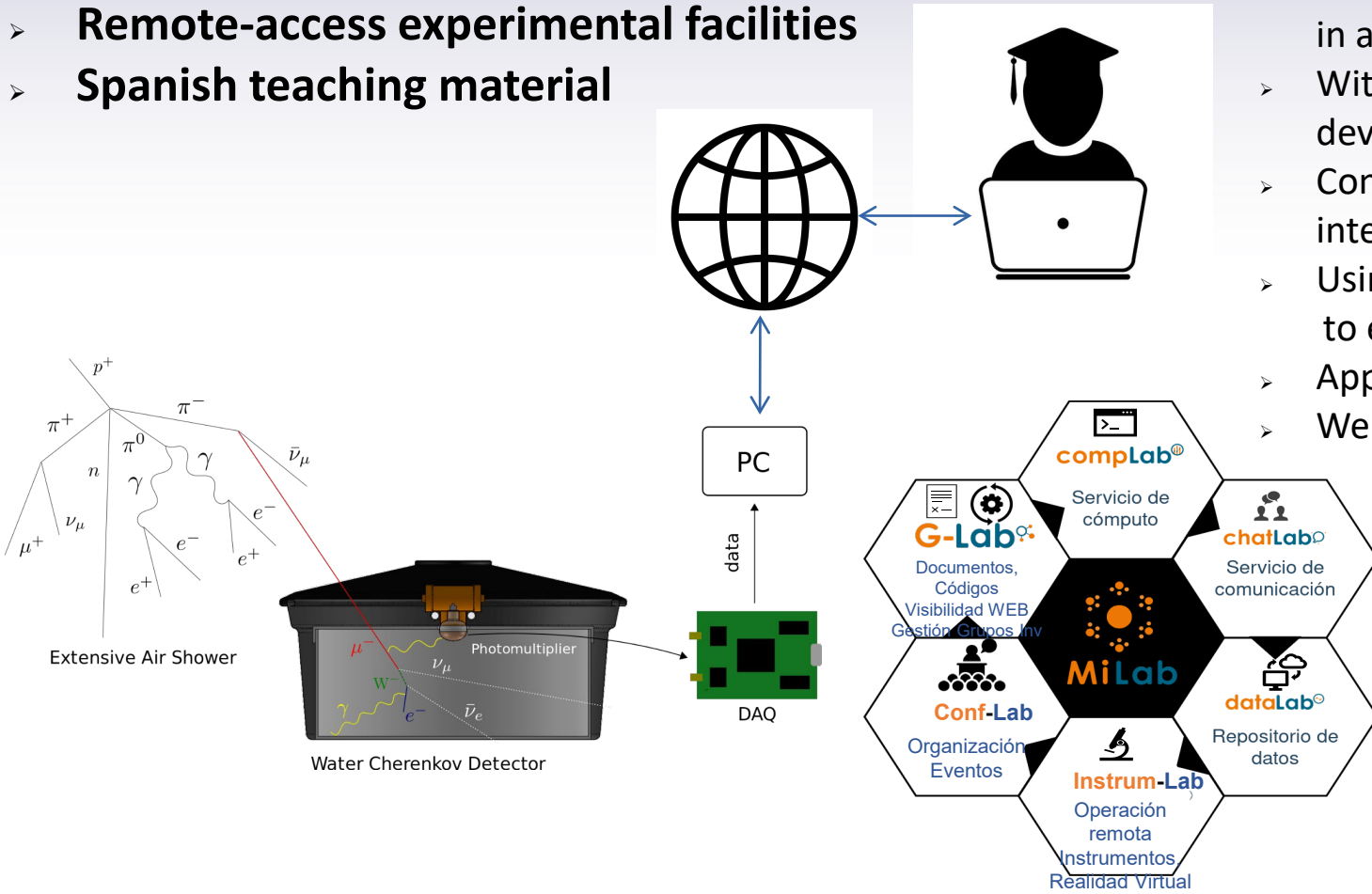




# Community, Methodology and platform

- An e-learning open-access platform
- Good practices of scientific reproducibility
- Remote-access experimental facilities
- Spanish teaching material

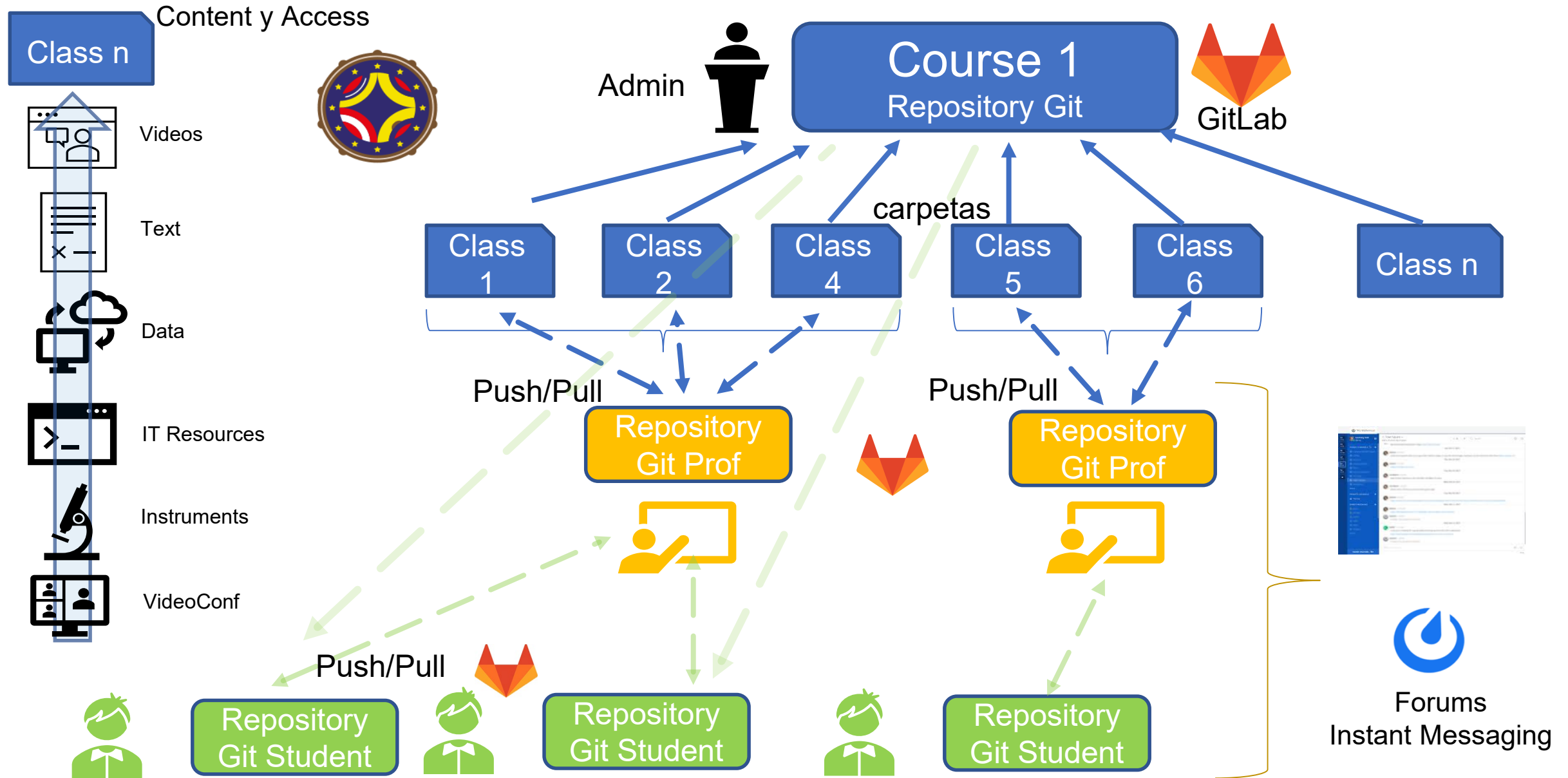
- We strengthen a **sustainable, dynamic, collaborative interconnected**, and **diverse** virtual research and learning network of Latin American and European researchers in advanced physics
- With close ties to the **productive sector**, which leads the development of science and technology in the región
- Contributing to the modernisation, accessibility and internationalisation of higher education systems in the región
- Using of technology in educational environments to enhance learning
- Applying **good scientific practices** and **gender equality**
- We envision similar experiences in other disciplines







# Teaching platform



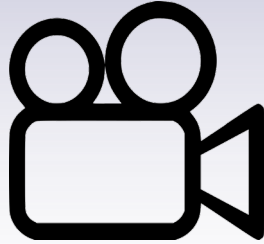


# Remote-access labs

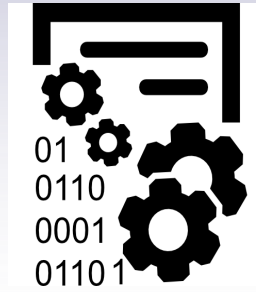
Biblio.



Demo



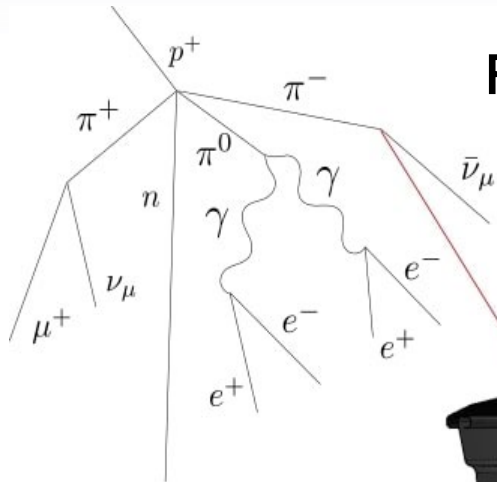
Control and data taking



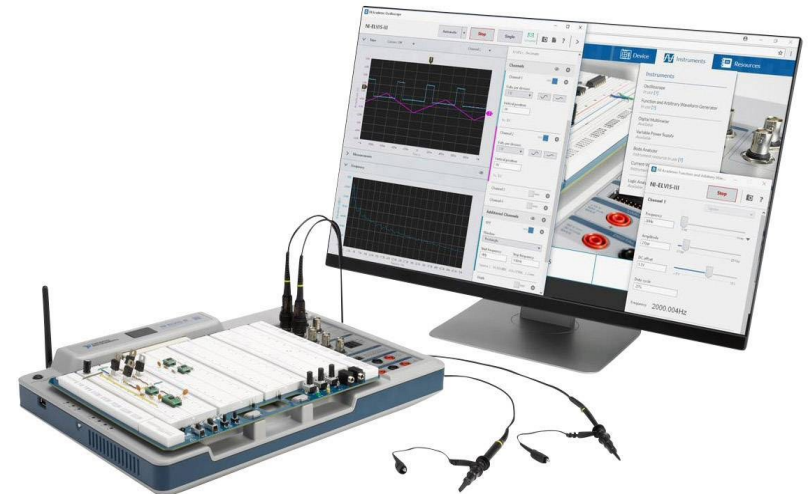
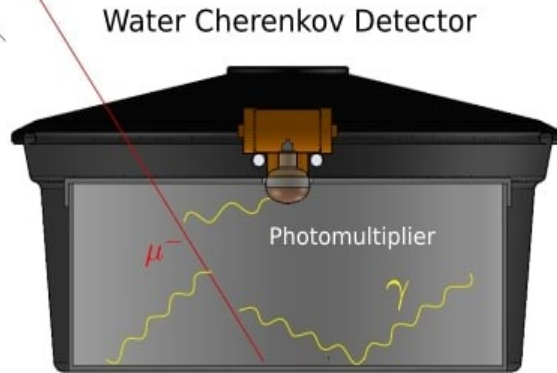
Communication



## Remote-access detectors and instruments



Extensive Air Shower





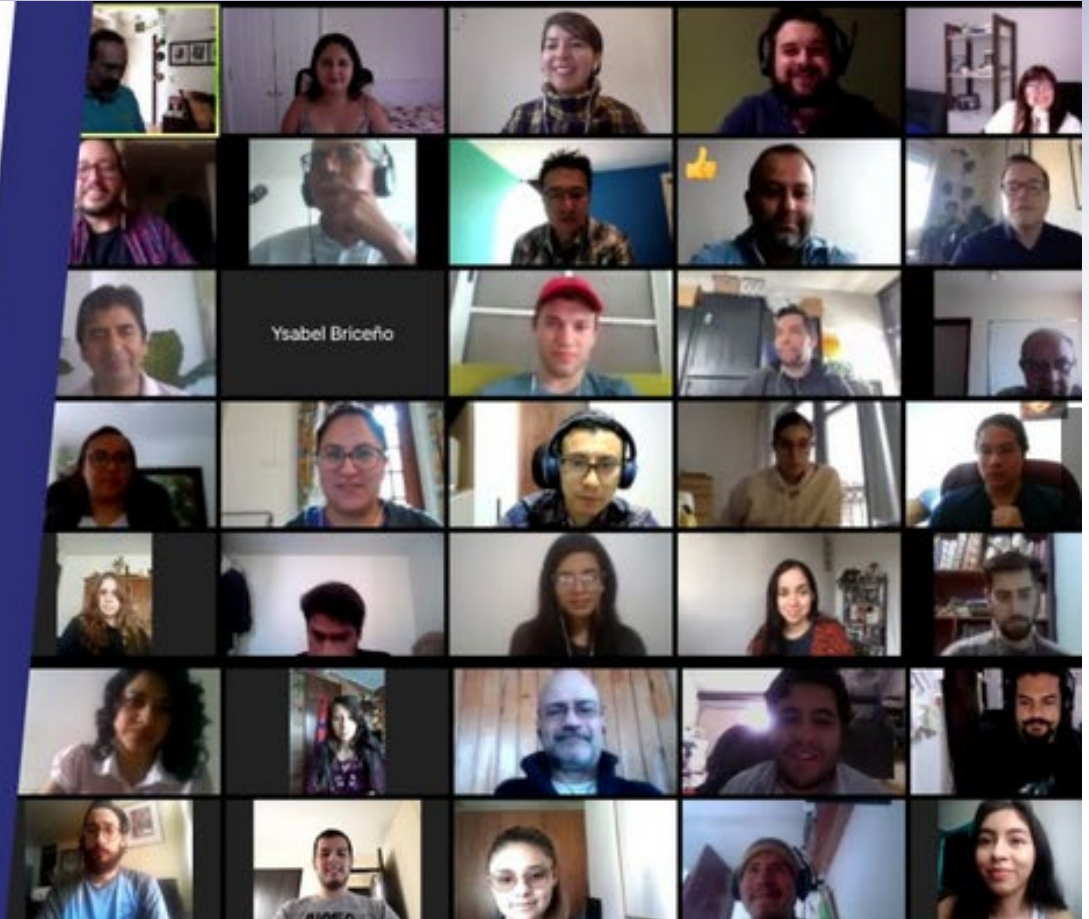
# Thank you!!



Latin American alliance for  
Capacity building in Advanced physics

LA-CoNGA physics

- ✓ Colaboración internacional
- ✓ Comunidad interconectada
- ✓ Presencialidad remota
- ✓ Impacto social
- ✓ Conocimiento abierto



**2021 = 30 instructors ; 50 students in 4 countries ; 100 classes in Spanish**

**2022 = 70 students**



<http://laconga.redclara.net>



[contacto@laconga.redclara.net](mailto:contacto@laconga.redclara.net)

# Questions?



lacongaphysics



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