

# 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

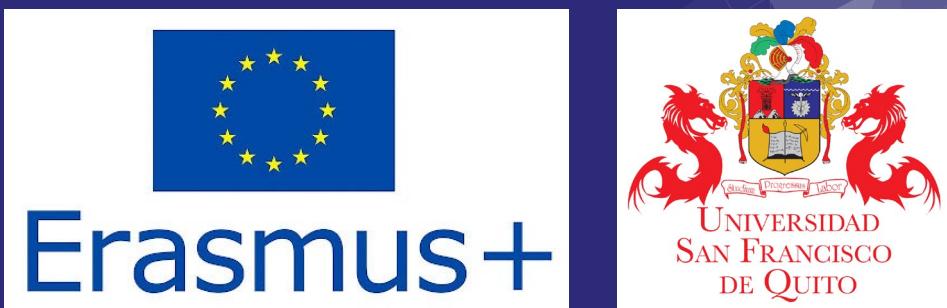
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*On behalf of LA-CoNGA physics consortium*



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

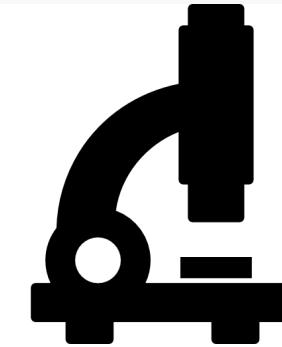
### Accessibility



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



### Modernization

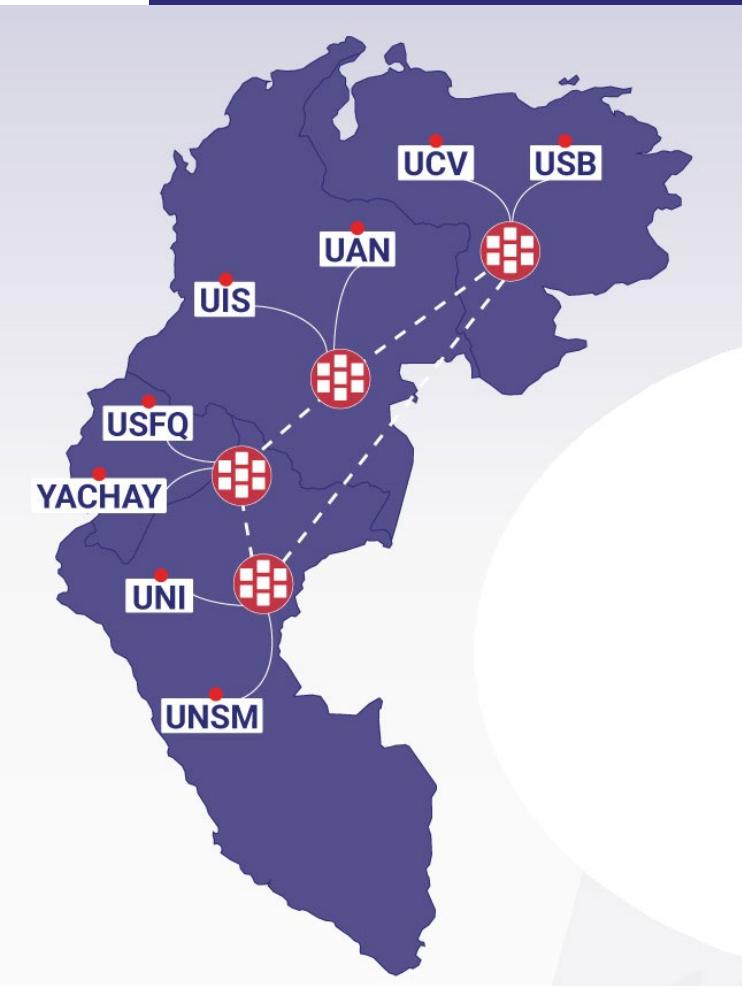


open educational resources,  
connectivity, acquisition  
of digital skills, and  
use/development of new  
learning methods

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.



<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

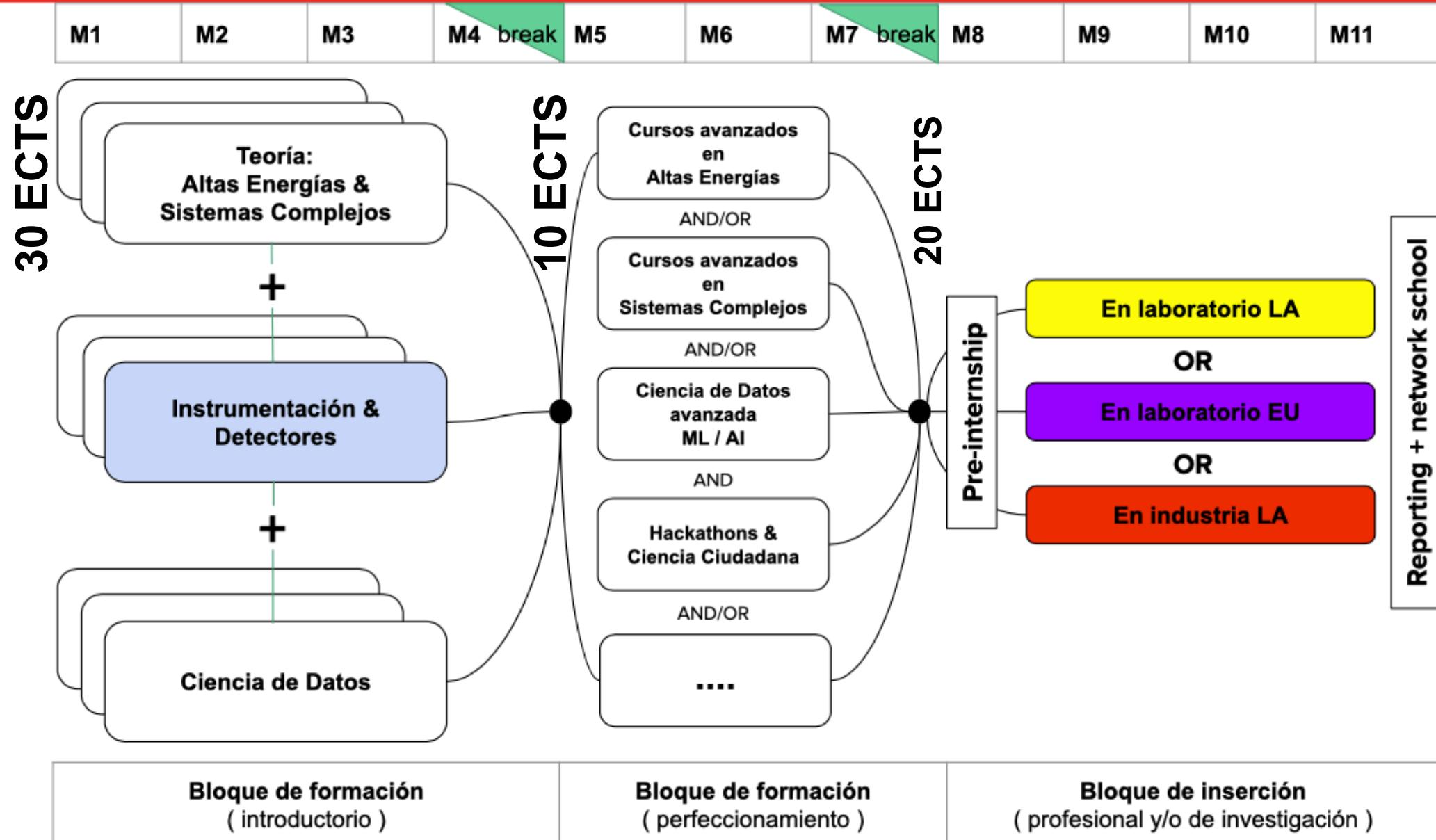
## Universities



## Scientific and Industrial partners

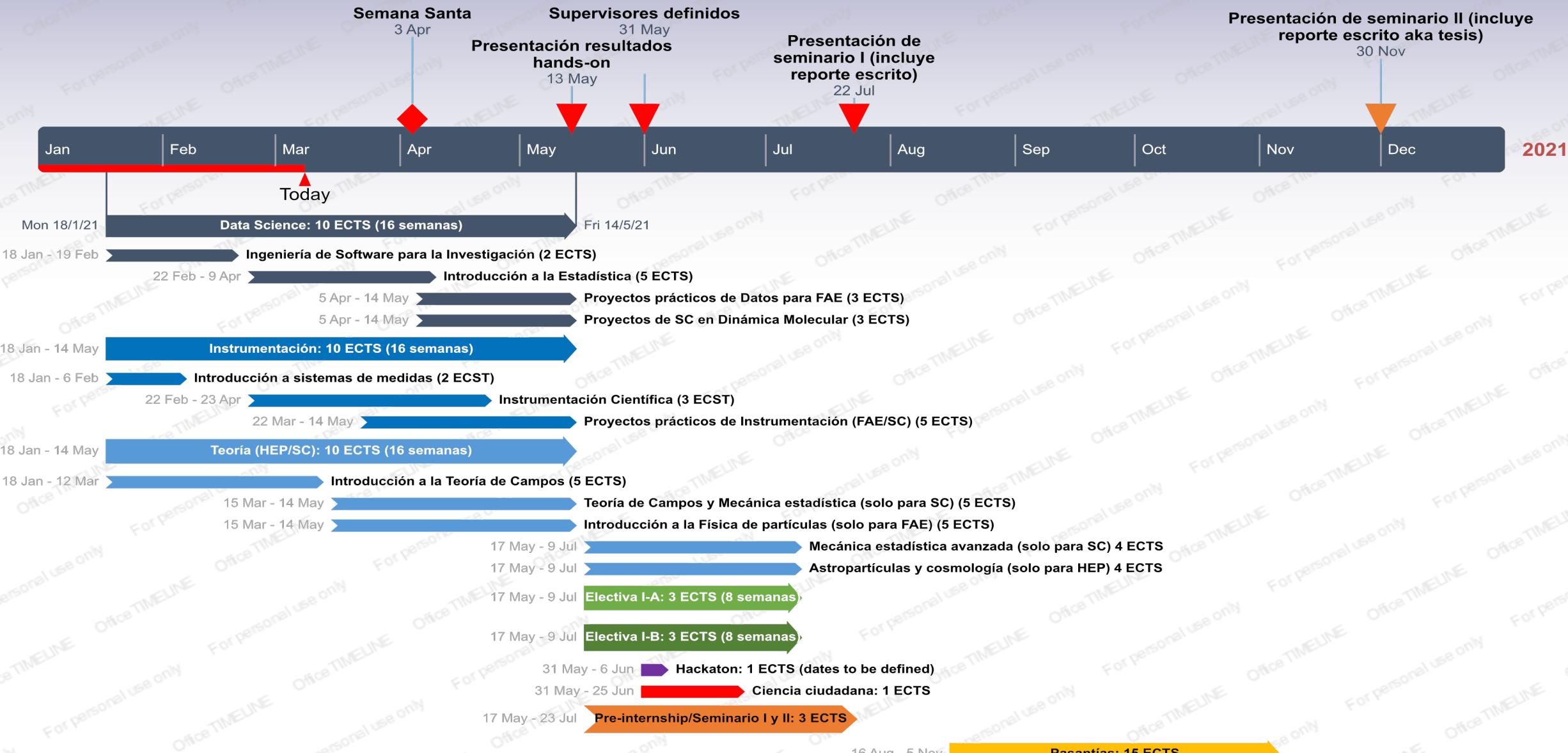


# LA-CoNGA physics





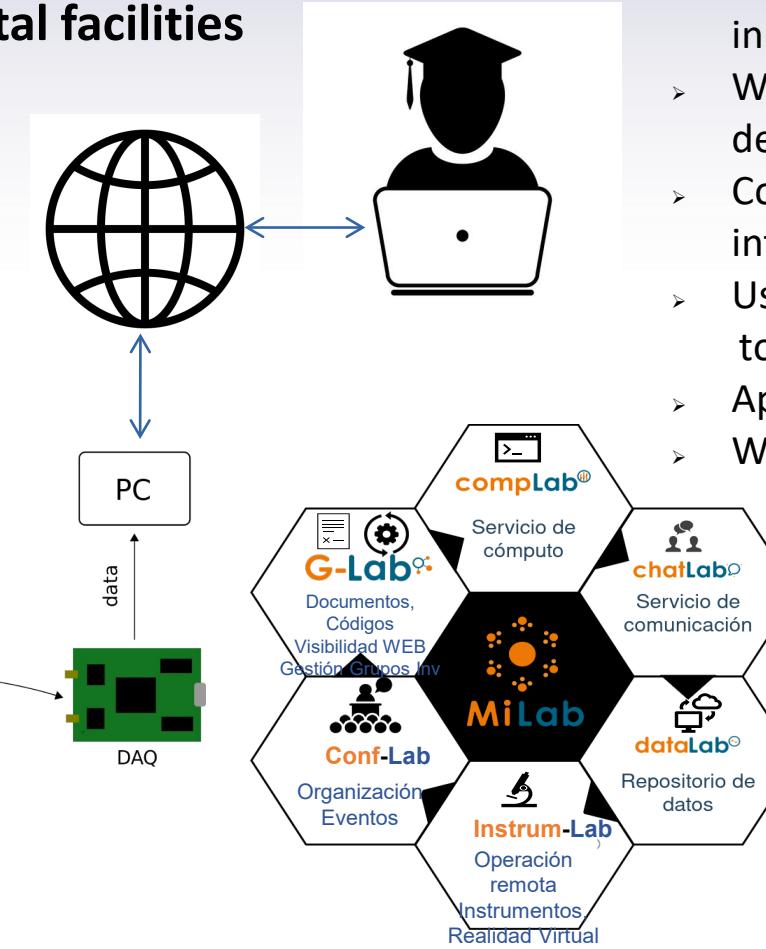
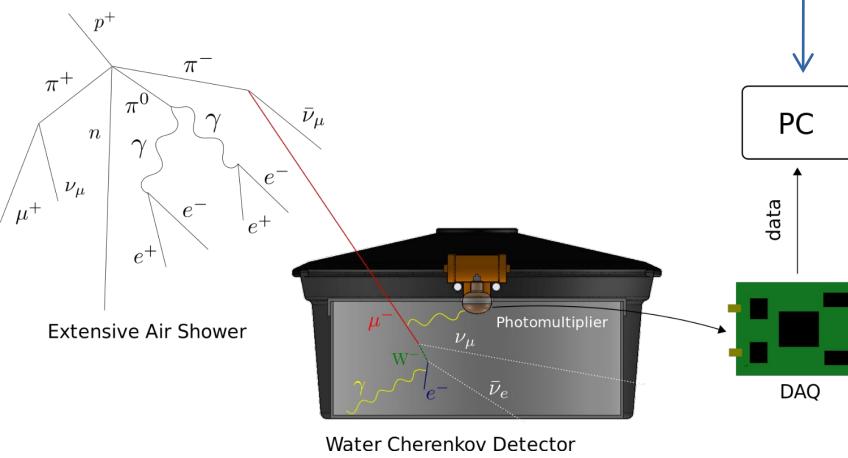
# LA-CoNGA2021 Schedule



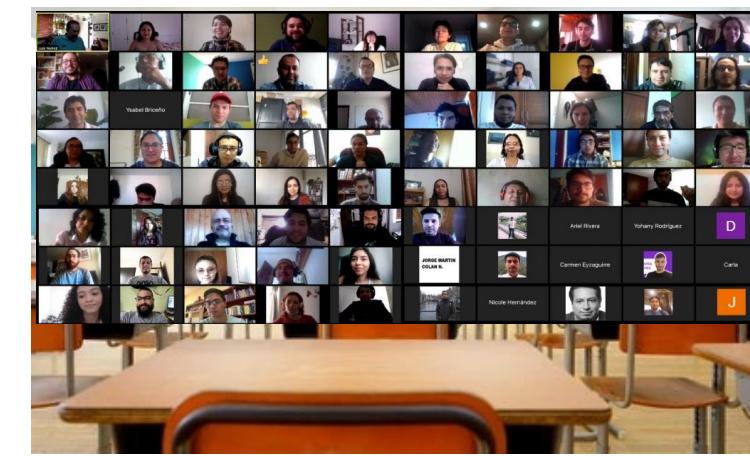


# Community , Methodology and platform

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

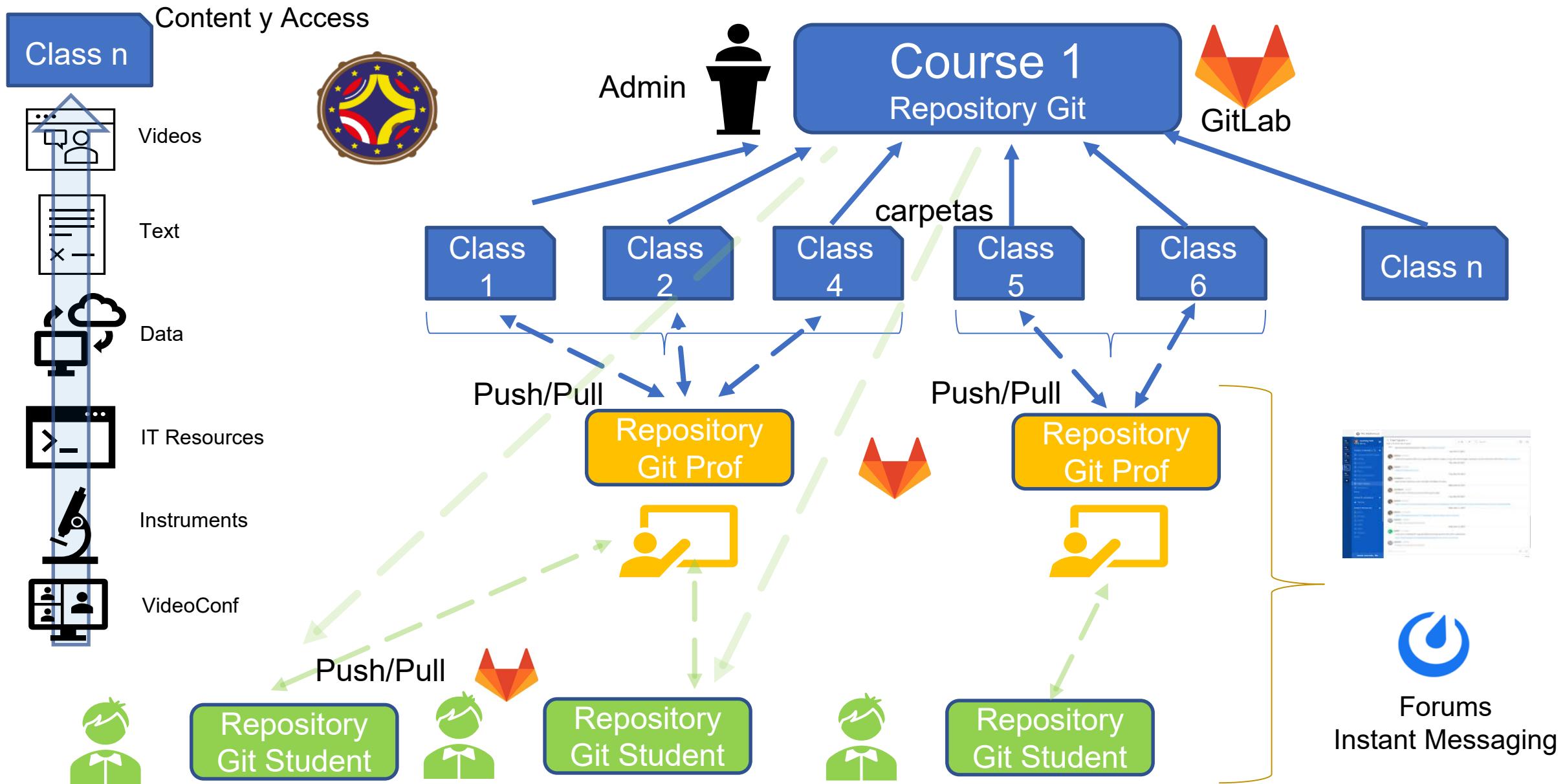


- We strengthen a **sustainable, dynamic, collaborative** interconnected, and **diverse** virtual research and learning network of Latin American and European researchers in advanced physics
- With close ties to the **productive sector**, which leads the development of science and technology in the **región**
- 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



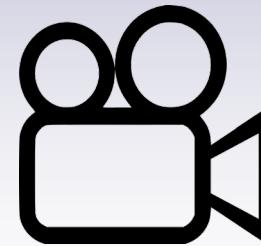


# Remote-access labs

Biblio.



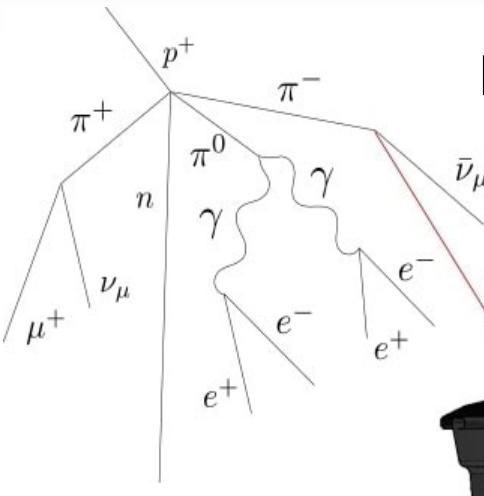
Demo



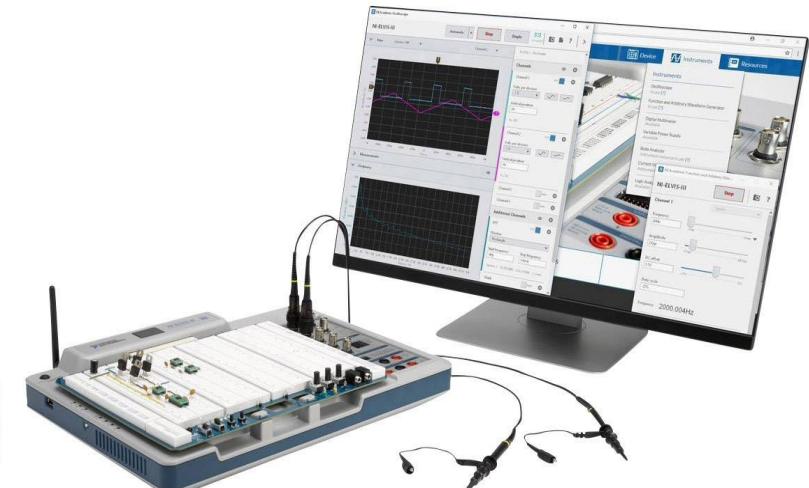
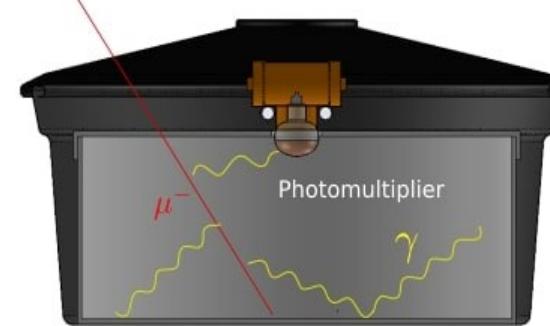
Control and data taking



Communication



Remote-access detectors and instruments



CAEN

National Instruments

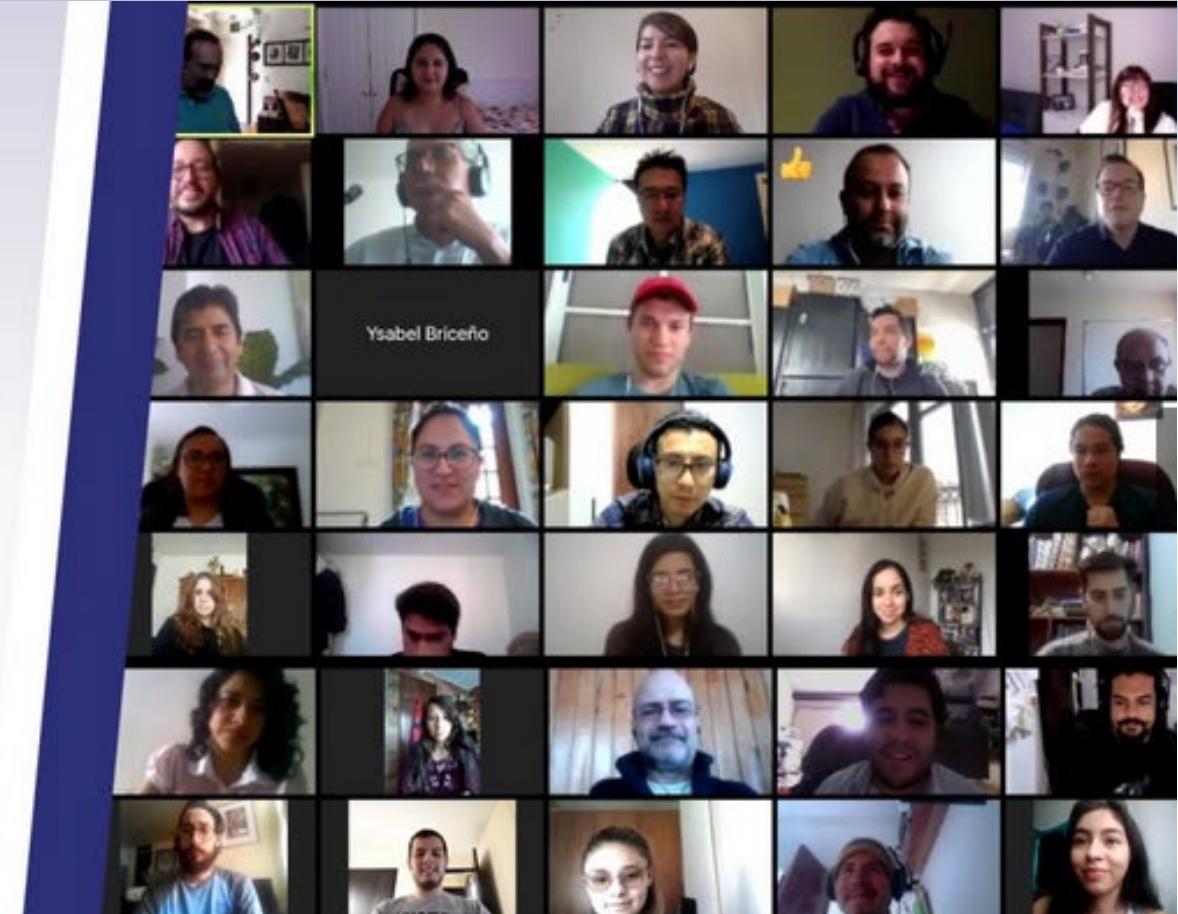


# Thank you!!



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>



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# Questions?



lacongaphysics



Latin American alliance for  
Capacity buildiNG in Advanced **physics**

**LA-CoNGA physics**



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