LA-CoNGA physics
an open science education collaboration between Latin America and Europe for High Energy Physics

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on behalf of LA-CoNGA physics community
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**
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

HECAP context in Latin America

High energy, cosmology and astroparticle physics community has grown in Latin America in the last decades

The HECAP development is nuanced and variable country-by-country, but it has the huge potential thanks to:

- Diversity of interests and skills
- A young generation with potential and eagerness to learn
- Collaborative work make us stronger
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

- Responding to the strategy of the participant institutions and to the capacity building in higher education strategy promoted by the EU
- A 3-years project. Officially started in January 2020

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

Scientific and Industrial partners
Thematic areas

High Energy Physics

- Theoretical fundamentals and experimentation
- International collaborations
- Knowledge transfer

Complex Systems

- Study of matter states
- Ubiquity of studied models
- Networks and collective behavior
- Highly interdisciplinary field

https://laconga.redclara.net/courses/
Methodology and platform

- An e-learning open-access platform
- Good practices of scientific reproducibility
- Remote-access experimental facilities
Remote labs

**Biblio.**

**Demo**

**Control and data taking**

**Communication**

Remote detectors and instruments

Extensive Air Shower

Water Cherenkov Detector

Photomultiplier

[Images of various remote lab equipment and controls]
Seminars

- **Open-access** virtual seminars taking place twice a month
- Knowledge and expertise sharing from people working on *industry* and *academy*

https://www.youtube.com/hashtag/seminarioslaconga
How is it going on?

First Semester

- **30 instructors** from Latin America and Europe
- More than **50 students** from 4 countries
- More than **100 classes**

https://laconga.redclara.net/terminamos-el-primer-semestre/

Second Semester

- **Particle Physics**
- **Instrumentation & Detectors**
- **Data Analysis & Statistics**
- **Statistical Mechanics**
- **Astroparticles & Cosmology**
- **Reproducibility in Science**
- **Medical Physics**
Our values and vision

• 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 region
• Contributing to the modernization, accessibility and internationalization of higher education systems in the region
• Using of technology in educational environments to enhance learning
• Applying **good scientific practices** and **gender equality**
• We envision similar experiences in other disciplines
Thanks!

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

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Competences
Methodology and platform

- An e-learning open-access platform
- Remote-access experimental facilities
- Good practices of scientific reproducibility
- Mobility program in Latin America and Europe for internships