

LA-CoNGA physics

Latin American alliance for Capacity
buildiNG in Advanced physics

Reina Camacho Toro, Luis Nuñez y José Ocariz obo LA-CoNGA physics community
II Latin American Strategy Forum for Research Infrastructure: an Open Symposium for
HECAP. July 6th-10th, 2020. ICTP-SAIFR



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Cofinanciado por el
programa Erasmus+
de la Unión Europea





Scientific collaboration and education at a global scale

- In the current information era, science and higher education are rapidly becoming globally distributed, collaborative and multidisciplinary
- The university-research-society link is strengthen: knowledge generation, deployment application and transfer are taking place in the same physical and social context
- Virtual Research and Learning Networks (VRLN) play a key role
- A network of teachers and researchers to effectively work together on an infrastructure rich in information and communications technologies (ICT) 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 Maisonneuve (UMR Géographie-clés - CNRS). JS map by amCharts.

<https://www.irit.fr/netscity/prod/intro/>



The importance of Virtual Research and Learning Networks

Three main objectives:

- Accessibility
 - Each institution/group in the VRLN might not have all the resources nor the staff critical mass needed but together they are stronger
- Modernization
 - Through the use of ICT and open educational resources, connectivity, acquisition of digital skills, use and development of new learning methods
 - All based in local capacity building for the sustainability of the projects
- Internationalization
 - Train new generations within a collaborative international environment
 - Increasing the diversity in STEM





HECAP context in the Latin American region

A very summarized/simplified overview:

- High energy, cosmology and astroparticle physics (HECAP) community/activities has undoubtedly grown in Latin America in the last decades
- A series of initiatives have contributed to it (non exhaustive list)
 - The Pierre Auger observatory in Argentina
 - HELEN and EPLANET programs
 - Several other national, bi-national or multinational projects
- In terms of human and research resources the HECAP development is nuanced and variable country-by-country (this impacts the training of the new generations)
 - Diversity of interests and skills developed (as we see in this forum!)
 - A young generation with much potential and eagerness to learn
 - Together we are stronger
- HEP is one of the thematic areas of LA-CoNGA physics (another one is complex systems)



- An Erasmus+ project co-funded by the European Comission'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 the higher education in Colombia, Ecuador, Peru and Venezuela
- A one year specialization in advanced physics, calibrated on the European curricular structure (i.e. 60 ECTS per year following the Bologna protocol), and integrated into the existing master programs of each of our 8 Latin American universities



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LA-CoNGA physics: the consortium



UNMSM



TECHNISCHE
UNIVERSITÄT
DRESDEN



UNIVERSITÉ
TOULOUSE III
PAUL SABATIER



iSUENA BIEN!



LA-CoNGA physics: the consortium

Scientific and industrial partners

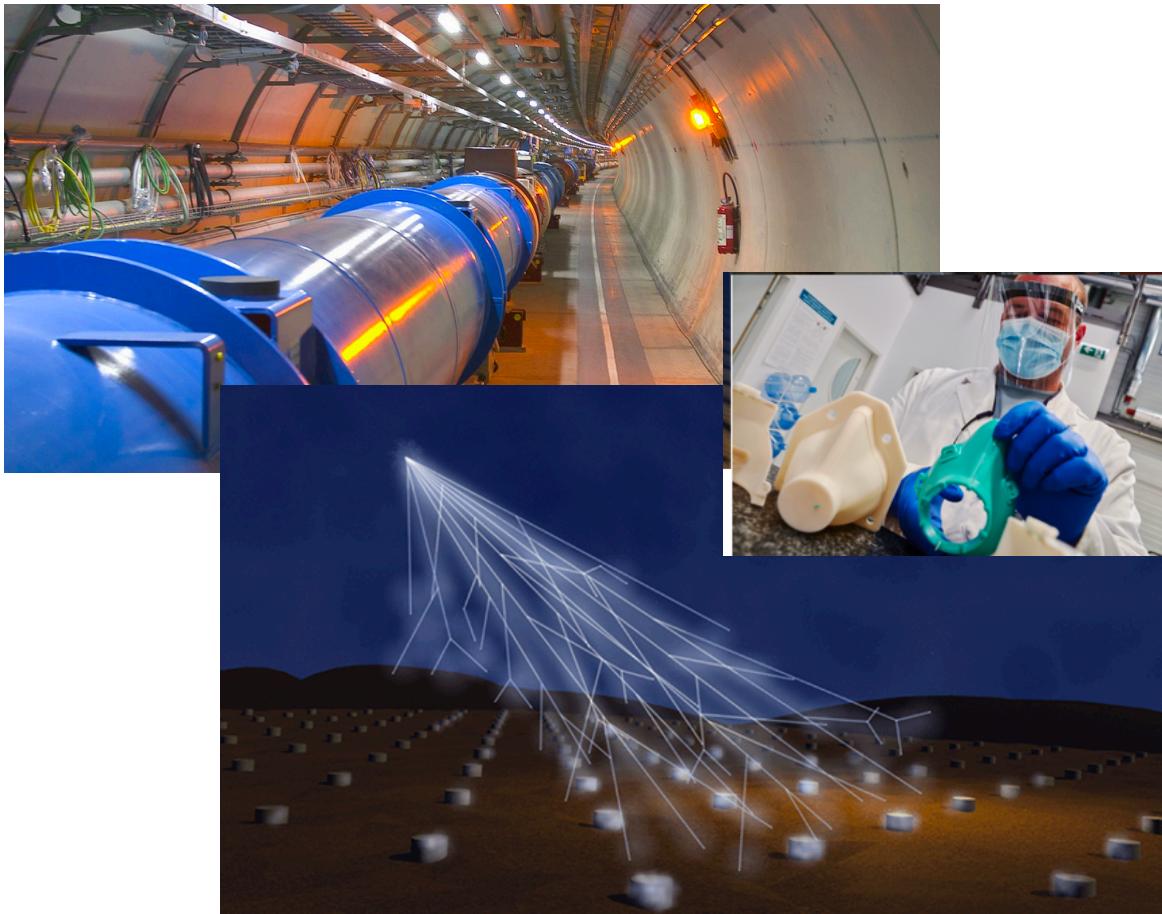




LA-CoNGA physics: two thematic areas

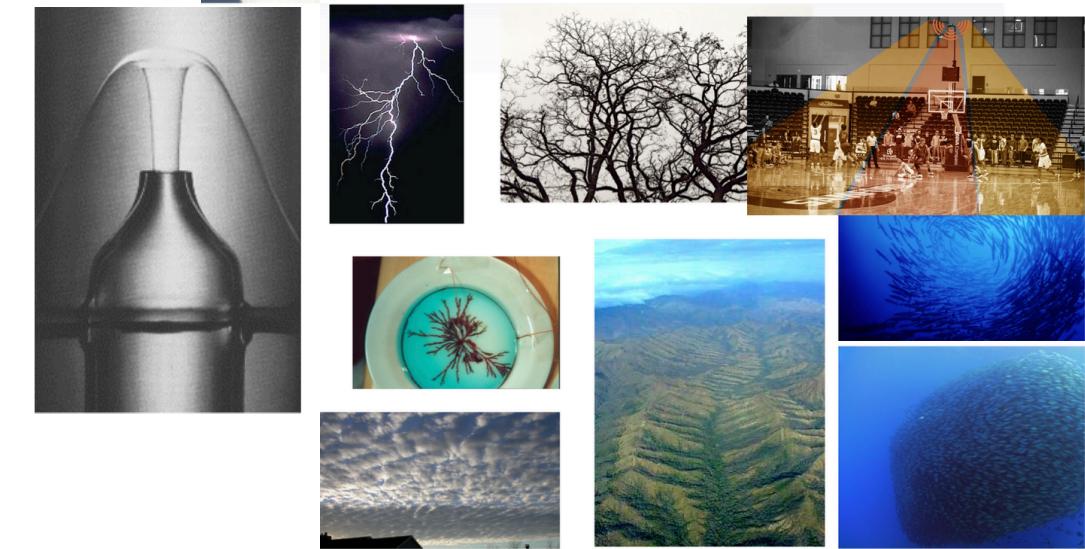
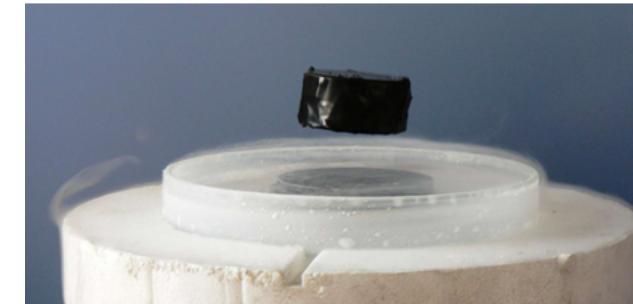
High Energy Physics

- Answering fundamental questions about the universe
- International collaborations
- Knowledge transfer



Complex systems

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





LA-CoNGA physics: three axis of competences



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CIENCIA

DATOS

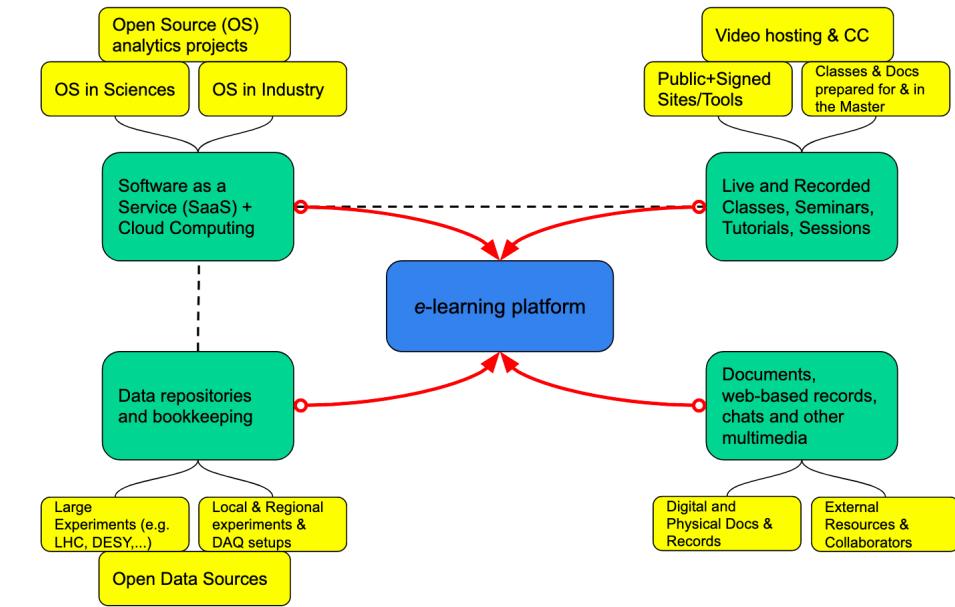
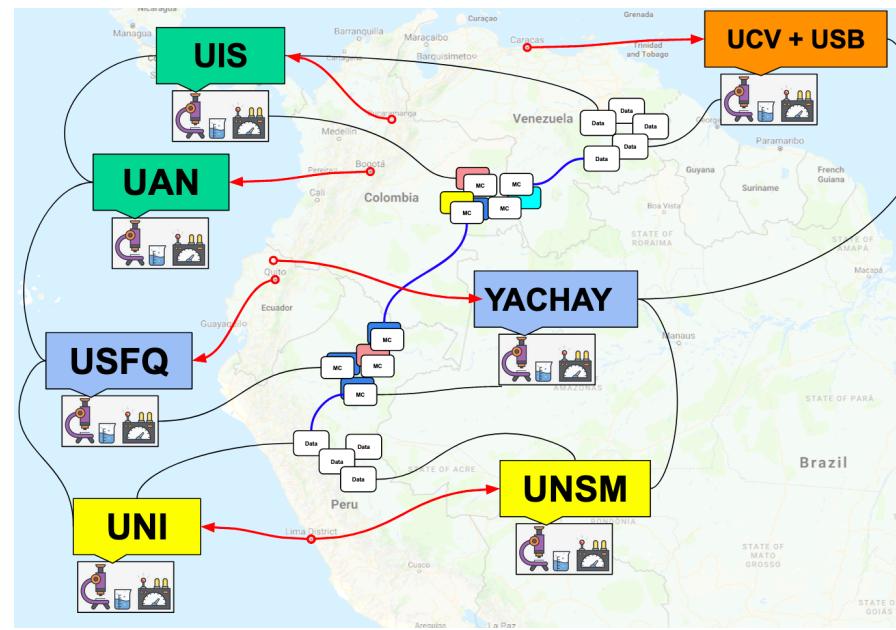
INSTRUMENTACIÓN



LA-CoNGA physics: methodology and platform

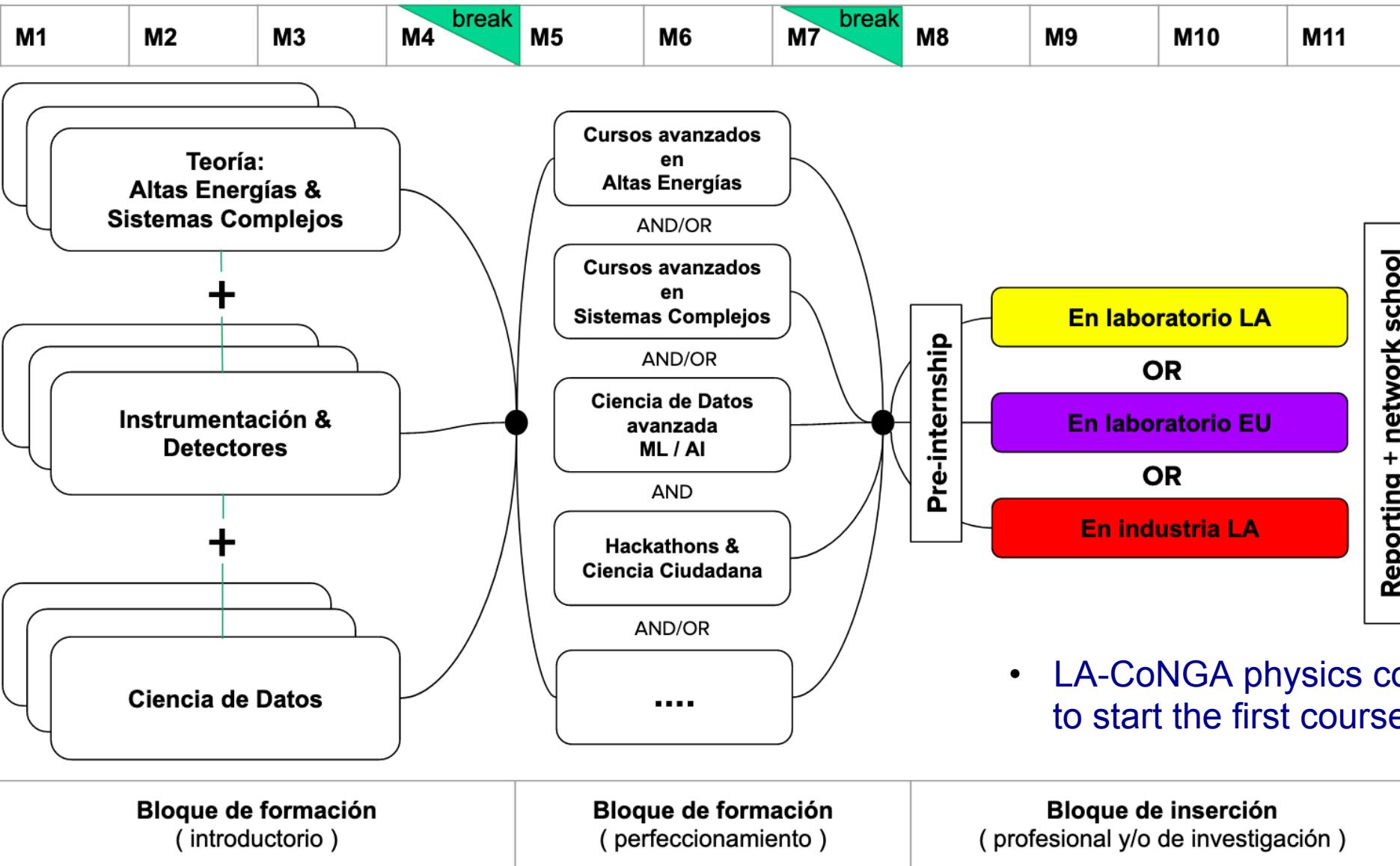
How do we want to do that:

- An e-learning platform open access
- Remote access to interconnected experimental facilities
- Problem solving oriented curriculum, distributed in small blocks
- Good practices of scientific reproducibility
- Mobility program in Latin America and Europe for academic and industrial internships





LA-CoNGA physics: implementation





LA-CoNGA physics: #HablemosLAConGA

- Officially launched two weeks ago with a serie of virtual sessions “Hablemos de Física Avanzada/ Let’s talk about advanced physics”
- Virtual sessions taking place every Friday for six weeks. Started on June 26th!
 - More than 200 attendees in the two first events
 - More info about the next sessions at: <http://laconga.redclara.net/blog/>

LA-CoNGA physics
presenta

Hablemos de Física Avanzada

Encuentros virtuales

26 junio al 31 julio 14GMT
9h Colombia, Ecuador, Perú / 10h Venezuela / 16h Centro Europa

- CONOCE la red internacional de estudios en Física Avanzada para estudiantes de América Latina.
- IDENTIFICA áreas potenciales de aplicación científica con impacto social.
- ÚNETE a nuestra iniciativa de aprendizaje colaborativo con laboratorios interconectados.
- PREPÁRATE para realizar pasantías industriales y de investigación.

CIENCIA
DATOS
INSTRUMENTACIÓN

Sesión 1 / 26 junio: ¿Qué es la Alianza Latinoamericana en Física Avanzada?
Sesión 2 / 3 julio: Sistemas Complejos
Sesión 3 / 10 julio: Física de Altas Energías
Sesión 4 / 17 julio: Ciencia de Datos
Sesión 5 / 24 julio: Instrumentación Científica
Sesión 6 / 31 julio: Oportunidades de desarrollo profesional

Inscripción e información: <http://laconga.redclara.net> / contacto@laconga.redclara.net

Nos vemos el
próximo viernes



Hablemos de Física Avanzada

Sesión virtual 3
10 de julio 2020

Física de Altas Energías

#HablemosLAConGA



LA-CoNGA physics: our values/our 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
- We envision similar experiences in other disciplines



Thanks!



Missing some of the community members in the picture!

Invite you to check [our launching video](#) and our website to get more info about the project and the team!



<http://laconga.redclara.net>



contacto@laconga.redclara.net



lacongaphysics



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