

LA-CoNGA physics

November 10, 2020



Latin American alliance for
Capacity building in Advanced physics

LA-CoNGA physics



Cofinanciado por el
programa Erasmus+
de la Unión Europea





LA-CoNGA physics : a little bit of history

- Experimental High-Energy Physics (HEP) was largely absent from the Latin-american landscape until the XXIth century
- A series of initiatives for EU-LA collaboration were key to change that situation
 - the Pierre Auger Observatory in Argentina
 - the HELEN and EPLANET programs allowed several LA institutes join the LHC experiments
 - several bi-national and multinational projects
 - France (in particular CNRS-IN2P3 and Université de Paris, among others) has been an active player (and beneficiary) in most of these
- HEP in “The big four” (Argentina, Brasil, Chile, México) is now reasonably well established
 - research groups at large universities, led by well-qualified staff
 - new generations of students are mostly trained locally
- A more diverse/fragile situation for the “medium-sized” countries :
 - a few institutes are participating in large experiments, or interested in
 - significant/increasing number of young students strongly motivated by fundamental science
 - valuable potential affected by fragmentation, sub-critical resources and other issues
- To address these needs, and build upon our networks and experience : comes **LA-CoNGA-Physics** !



LA-CoNGA physics : what is it about?

- It is an **ERASMUS+ project** : “Capacity Building in the field of Higher Education”
- Goal : modernize the educational infrastructure in 8 emerging universities from 4 countries
 - Colombia, Ecuador, Perú, Venezuela
- Proof-of-concept : implement a common, cross-institutional Master in Advanced Physics
 - **LA-CoNGA** courses inserted within the existing Master programmes in our partner Institutes
 - e-learning platform based on open-access tools and contents
 - interconnected instrumentation laboratories
 - problem-solving-oriented syllabus, structured in mini-modules
 - internships in research centers and industrial partners (both in LA and EU)
 - e-learning platform to be reused for other courses and diplomas
- Pedagogical content structured among three axes:
 - two conceptual themes:
 - High-Energy physics (HEP) and complex systems (CS) :
 - three skills:
 - theory, data science, instrumentation
 - three levels:
 - introductory training, advanced training, professional insertion



LA-CoNGA physics : the network

- Programme partners:
 - Université de Paris (UP) (Coordinator)
 - Université Paul Sabatier Toulouse (UPS)
 - Technische Universität Dresden (TUD)
- Target partners:
 - Colombia: Universidad Industrial de Santander (UIS), Universidad Antonio Nariño (UAN)
 - Ecuador: Universidad Yachay Tech, Universidad San Francisco de Quito (USFQ)
 - Perú: Universidad Nacional de Ingeniería (UNI), Universidad Nacional San Marcos (UNMSM)
 - Venezuela: Universidad Simón Bolívar (USB), Universidad Central de Venezuela (UCV)
- Affiliated partner:
 - Centre National de la Recherche Scientifique (CNRS)
- Associated members:
 - CERN, DESY, ICTP, IRFU
 - RedCLARA- Latin American Advanced Networks Cooperation
 - New York Academy of Sciences (NYAS), Colombian Association for the Advancement of Science (ACAC), CEVALE2VE
 - FrontierX Analytics Medellín, DBAccess Perú, CAEN

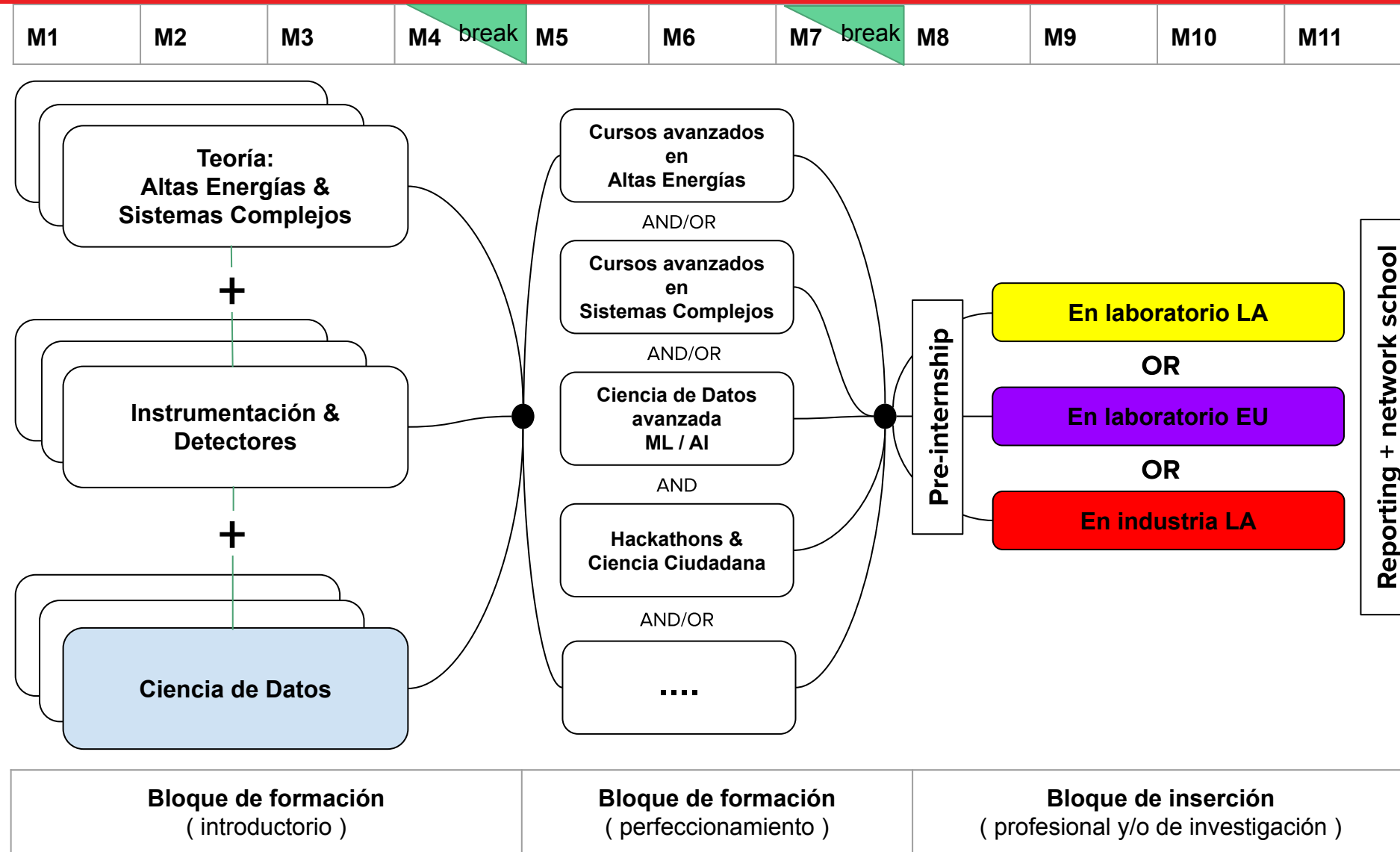


LA-CoNGA physics : budget

- Requested budget in the proposal, approved by **ERASMUS+ EACEA**: 900 k€
- Stay Costs (~35%): stipendia for student internships
 - LA-region : in another Target Institution from another country
 - LA-Europe : in EU University labs or EU Associated partner (CERN, DESY, ICTP, IRFU)
 - Professional : in one of the regional Associated partner (FrontierX, DBaccess, RedCLARA...)
- Staff Costs (~30%):
 - Project Manager, to be based in Paris, with frequent travels within Europe and LA
 - Programmers for the e-learning platform, technicians for the laboratories, communication team
 - based in the Target Institutions
 - work time of teachers, contributors, internship advisors
- Equipment Costs (~20%):
 - include acquisition and shipment,
 - “nationalisation”, commissioning and operation costs to be shared with Target partners
- Travel Costs (~15%):
 - consortium meetings, travels of teachers, etc... .
- EACEA tolerance for minor changes: within $\pm 5\%$ - 10% per category
 - larger changes require approval by our Project Officer
- Uncertainties in the evolution of the current pandemics:
 - will likely lead us to propose significant changes in the budget breakdown



LA-CoNGA physics : Structure of the Syllabus

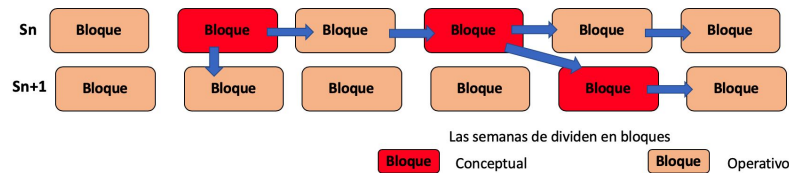


<http://laconga.redclara.net/wp-content/uploads/2020/07/preguntas-frecuentes-LACoNGA.pdf>

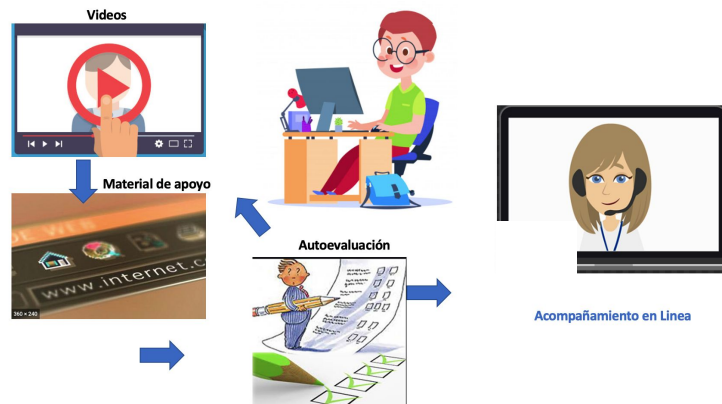


LA-CoNGA physics : platform and interconnected labs

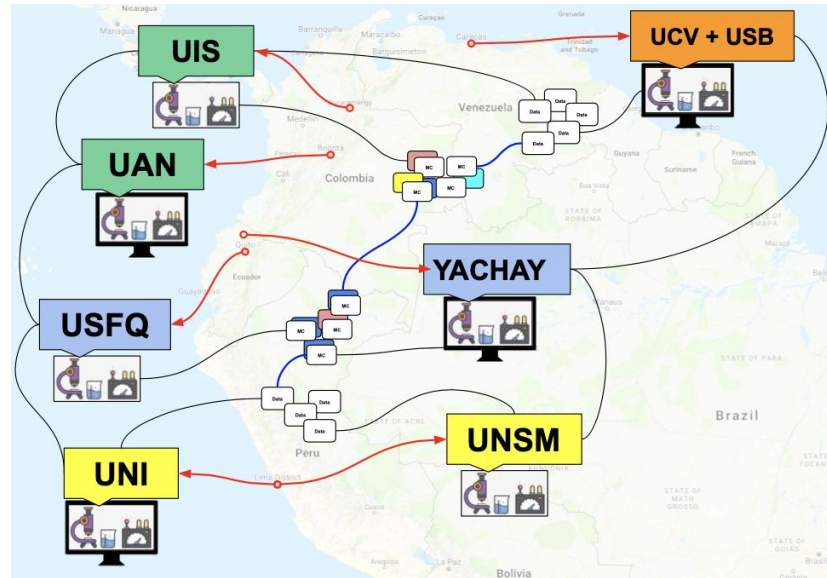
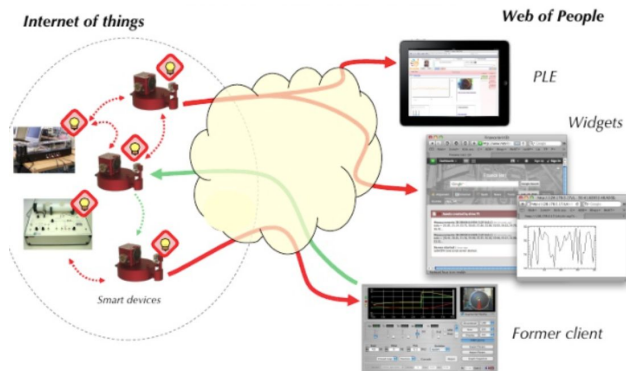
Los cursos en bloques



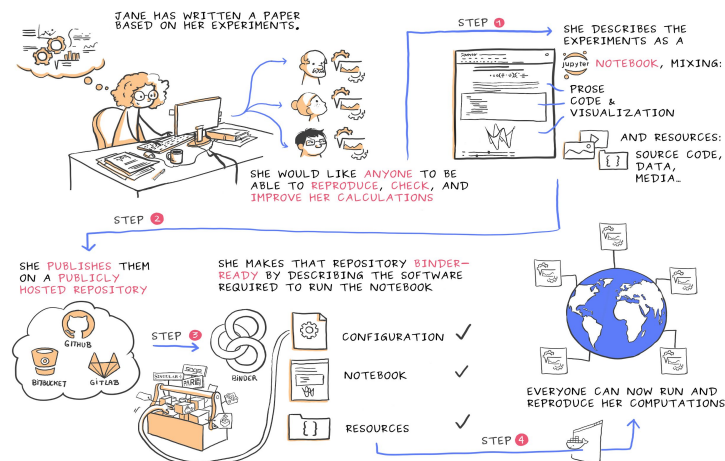
Presencialidad remota



Laboratorios interconectados



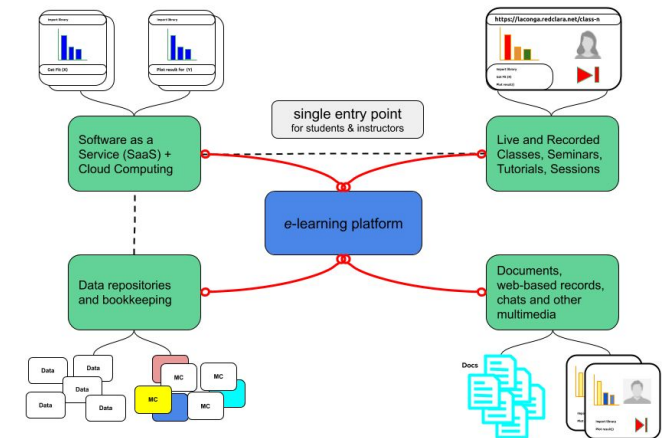
Buenas prácticas de reproducibilidad



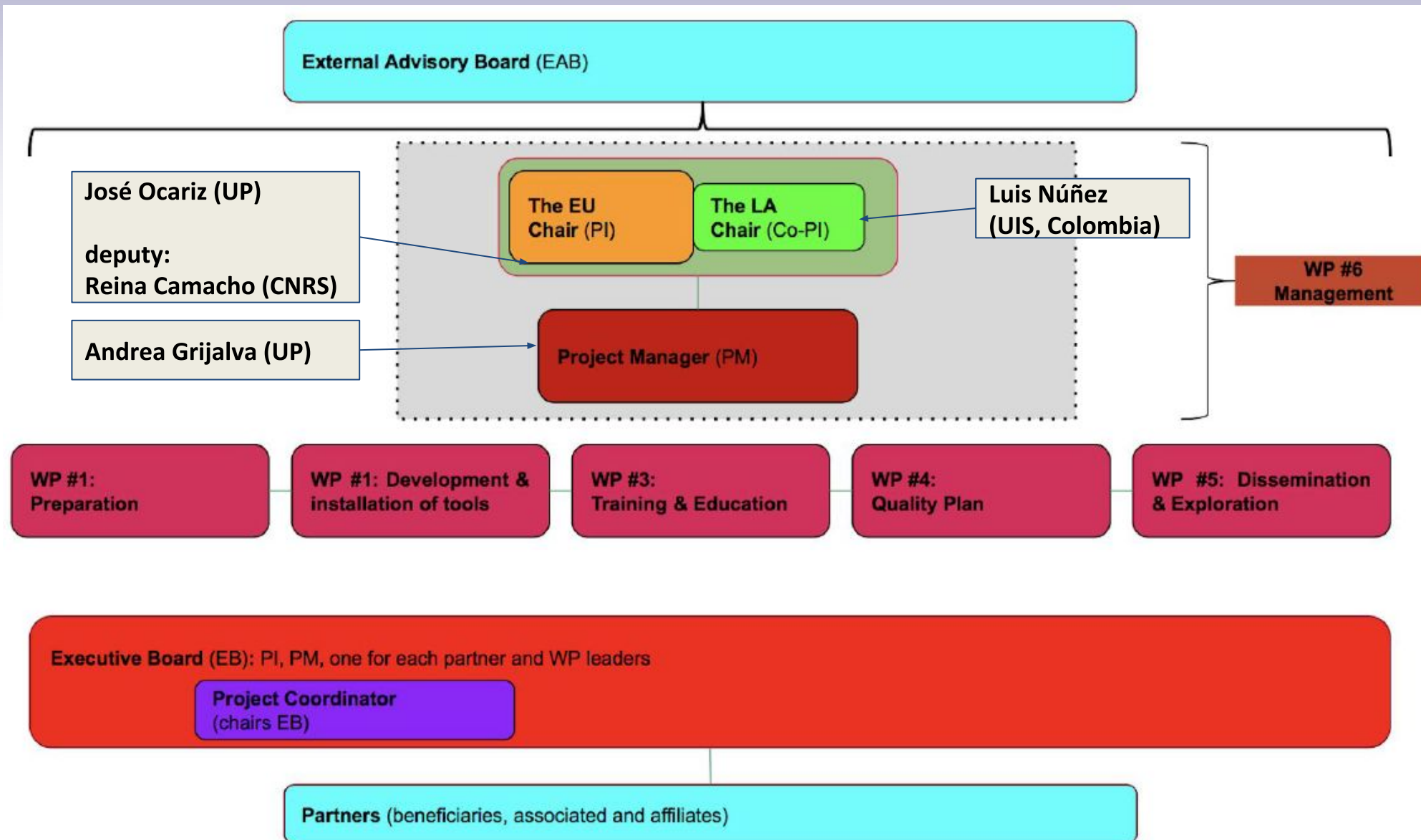
Integrando plataformas



En un único ambiente



+ pasantías científicas y/o industriales. Una red global!





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