

Opening Ceremony CERN – Latin-American School of High-Energy Physics

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On behalf of the International Organizing Committee

CERN

European Organisation for Particle Physics Research

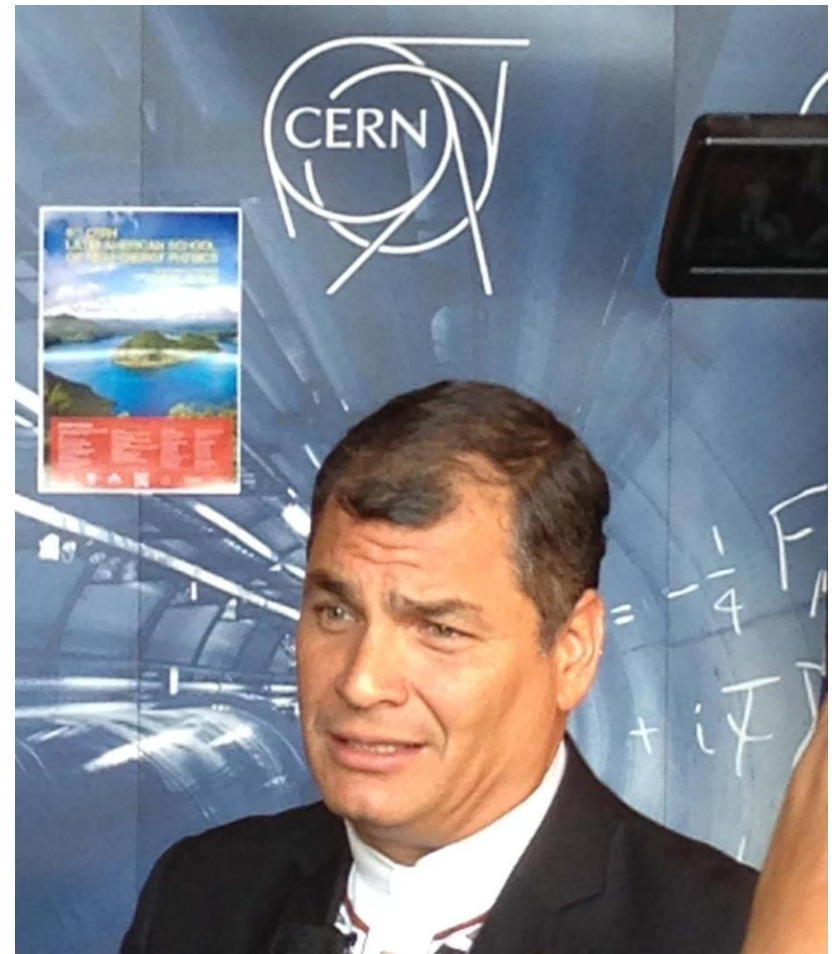


CERN

- Based in Geneva, Switzerland
 - Spanning the Swiss-French border
 - About 10000 users from all over the world, including Latin America
- Home of the Large Hadron Collider (LHC)
 - Colliding counter-rotating beams of protons to probe the fundamental constituents of matter and their interactions
 - Huge detector facilities (ALICE, ATLAS, CMS, LHCb) each built and used by many hundreds of physicists
 - Where the Higgs boson was discovered in 2012 by ATLAS and CMS
 - Nobel prize in 2013 for theorists who predicted it
- Many challenges in engineering and informatics, often with spin-off relevant for society, e.g.
 - World-Wide Web
 - Medical applications: PET scanners, hadron therapy, ..
- The “E” in CERN (“European”) has become “Everywhere”

Ecuador and CERN

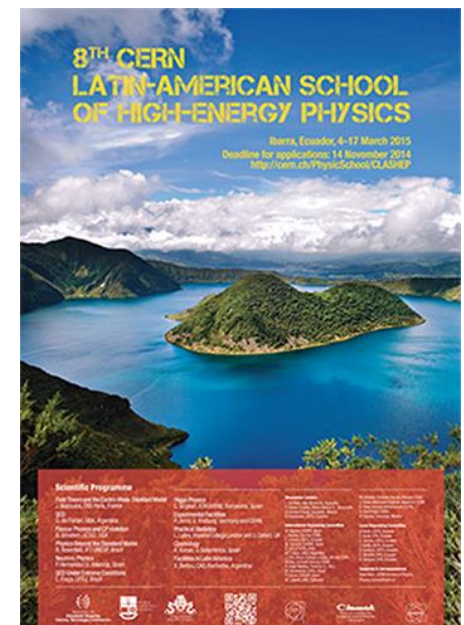
- There is a formal CERN - Ecuador Cooperation Agreement dating back to 1999, supplemented by a Protocol Agreement in 2011 related to participation in CERN activities
 - Including participation in training programmes and research in physics and related disciplines
- A number of Ecuadorian researchers and students from EPN and USFQ have been involved in work at CERN
- Members of the CMS collaboration at the LHC, involved in discovery of the Higgs boson in 2012, include Edgar Carrera, local director of this School
- Discussions are going on towards a formal national and institutional involvement in the CMS experiment
- President Rafael Correa visited CERN last October, accompanied by a delegation including Rina Pazos, and was very enthusiastic afterwards



History of this School

- CERN – Latin-American Schools go back to 2001
 - Modeled on European Schools started in 1960s
- Previous Latin-American Schools
 - 2001 Brazil
 - 2003 Mexico
 - 2005 Argentina
 - 2007 Chile
 - 2009 Colombia
 - 2011 Brazil
 - 2013 Peru

2015 Ecuador



About the students

- We have 69 students at this School (19 nationalities!)
 - Including 13 students from Ecuador
- About $\frac{3}{4}$ from Latin America
 - Other students mainly from Europe
- Mix of experimentalists and phenomenologists working on particle physics and related subjects
 - Mainly working towards PhDs or MScs
- The School was oversubscribed by a factor of two, i.e. we had about twice as many applications as available places
 - Many very valid candidates had to be rejected
- Please make the most of your time at the School!

Lecture courses

- The lecturers are world experts in their fields, for example today's lecturers
 - **John Iliopoulos** is one of the key figures in the development of the Standard Model of particle physics – he is the “I” in GIM – and has won numerous prizes including the Dirac medal of the ICTP in 2007
 - **Peter Jenni** is a founding father and former spokesperson of the ATLAS collaboration at the LHC; he has won numerous prizes including the Fundamental Physics prize in 2013
 - **Louis Lyons** has been a driving force in the development of statistical techniques for particle physics data analysis, he initiated a series of specialist conferences, is the author of the well-known book “Statistics for Nuclear and Particle Physicists” and works in the CMS collaboration at the LHC

Discussion sessions

- The students are assigned to five groups that meet in parallel in the afternoons to discuss the material from the lecture courses and more general issues
- Each group is led by an experienced physicist who leads (or stimulates) the discussion and helps to answer questions
- The lecturers also visit the discussion groups to answer more detailed questions on their courses
- The same groups of students perform collaborative group projects, with most of the work done in their “free time”

Active student participation

- On Monday 9 March there will be a student poster session after dinner
 - Unique opportunity for students to discuss their own work informally with each other and also with senior scientists
- On Sunday 15 March there will be an after-dinner session in which student representatives from each group will present the results of their collaborative projects
 - Briefing to the students on this tomorrow afternoon, so I won't go into details now

Cultural exchange and networking

- In addition to teaching the science, the School aims to promote cultural exchange and networking between young scientists from different countries
 - Mix students from different countries (Latin America / Europe, etc.) in the groups for the discussion sessions and collaborative projects, and also in shared sleeping accommodation
 - The projects and the student poster session promote discussion and perhaps even future scientific collaboration between participants

Social programme



- One full day, and two half-day excursions
- There are many possibilities for sports and leisure activities at the hacienda
 - Albeit with limited time to enjoy them!

Sponsors

- These Schools are only possible because of very generous support from funding bodies in Europe and in Latin America
 - All students from Latin-American institutes are receiving support
 - In some cases, all costs (travel and fee)
 - In other cases, partial or full waiver of the fee
 - Sponsorship also covers costs for teachers attending the School, etc.
- International sponsors for this year's school include CERN and the Spanish funding agency CIEMAT
- I would particularly like to thank the funding bodies and universities in Ecuador that have contributed very generously:
 - SENESCYT, EPN, USFQ
 - Their support has been absolutely critical, allowing us to significantly increase the number of Ecuadorian students benefitting from the School

Outreach

- Various activities are taking place in Ecuador, benefiting from the presence of eminent international researchers as teachers at this School
 - Several free public lectures organised by USFQ
 - John Iliopoulos
 - Peter Jenni
 - Kerstin Kunze
 - Louis Lyons
 - Rogerio Rosenfeld
 - Lecture at Yachay Tech University
 - Pilar Hernandez
- Interviews for the press by staff and students, communicating to the public about our work

Let me say thank you and welcome to:

- All the people present who are helping to make this School possible
 - Lecturers
 - Discussion Leaders
 - Local organising team, especially Edgar Carrera who has done a fantastic job over the last year to prepare this School!
- Representatives of the Ecuadorian institutions involved in the organisation and sponsorship of the School
 - Rina Pazos, General Sub-Secretary, SENESCYT
 - Jaime Calderon, Rector of Escuela Politecnica Nacional
 - Carlos Montufar, President of Universidad San Francisco de Quito
- Other VIP guests joining us this evening, in particular
 - Fernando Albericio, Rector of Yachay Tech University
 - Daniel Larson, Chancellor of Yachay Tech University

What next?

- Hand over to Edgar Carrera, Chair of LOC, who will invite representatives of the Ecuadorian Sponsors to say a few words
 - Carlos Montufar, President of USFQ
 - Jaime Calderon, Rector of EPN
 - Rina Pazos, General Sub-Secretary, SENESCYT
- Welcome drink
- Dinner
- “Tavern” bar will be open after dinner