Virtual research & learning communities in Latin America: The CEVAL2VE case

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Introduction and activities

Virtual Centre of Studies on High Energy Physics of Venezuela (CEVALE2-VE, after the Spanish initials):

- Venezuelan initiative for the scientific and educational promotion of HEP in the region.

- We are a group of Venezuelan researchers, currently involved in projects related to HEP for institutions in Europe and North America.

- The project exploits current information and communications technologies, where data, software tools, facilities and information resources are shared.

- Involves several academic institutions in Venezuela and Colombia.

Activities:

1. General seminars, e.g.
   - “Particle physics, what do we know and what do we want to know”? By B. Millan June 3rd, 2014
   - ATLAS virtual visits, by R. Camacho, H. Torres, J. Manjarrés and J. Montaño, June 7th 2014
   - “HEP, what have we found?” by A. Sanchez June 10th, 2014.

2. “Introduction to HEP” course:
   - Oriented to last year of bachelors and masters students.
   - The first course was done between September 2014 - February 2015.
   - First formal experimental HEP course taught in Venezuelan universities

[Link to website: http://www.cevale2ve.org/]

[Logos of universities and organizations]
**Organisation**

**Supervisors:**
One/Two professor from each institute:
- Include the course in the institute program
- Discussing/advising on the content of the course
- Organising practical issues: rooms, student registration, etc

**Students:**
- More than 25 students attended the classes.
- 12 accredited students.

**E-learning tools**
- Google hang-outs (live transmission youtube)
- Vidyo, skype, emails
- Moodle as a learning management system
- Tutorials created by us, e.g. root installation, usage.

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**“Introduction to HEP” course content:**
- Divided in different modules:
  - Introduction to SM and BSM
  - Accelerator and detector principles
  - Introduction to statistics and data analysis in HEP
- Courses of seminars of the latest results in HEP
- 4 hours of classes per week, for ~18 weeks
- Continuous evaluation and final assignment/project

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The teachers!

The students and supervisors!
Outcome and next steps

• Successful first trial with the course “Introduction to High Energy physics” in the Autumn/Winter 2014 term:

  • More than 25 classes recorded in youtube.

  • Students worked on ~1 month projects (based on public data or truth-level simulations):
    e.g.:
    • Zee reconstruction with CMS data.
    • Search for the Higgs boson in the WW channel.
    • Reconstruction of the top quark.

  • A student from the course is now working on her masters thesis with us.

  • Will restart in the Spring 2016.

• Hopefully we’ll reach more universities in the region, offer more opportunities for the students (internships on site, thesis projects, etc).