The CMS Data Analysis School experience

Highlights-572

The CMS Data Analysis School experience – highlights (1)

CMSDAS is the official data analysis school that CMS organize every year:

- in US at LPC-Fermilab
- in Europe
- in Asia

CMSDAS was born in 2010 at the LPC (I. Shipsey et al.)

- **Goals:** to teach students, Ph.D and young post-docs for the data analysis with the CMS software via hands-on tutorials
- to train them about timing and competition in doing their work
- to train them about how to write a paper and the steps towards a publication in a scientific journal
- to provide venues for discussions: educational, professional and social

Operations:

- Half of the first day devoted to plenary lectures on physics, detector and software tools
- two days of "Short" exercises about objects reconstruction/identification/trigger/MC generators/statistics
- two and a half days of "Long" exercises about physics analysis from official CMS physics groups (HIG, EXO, SUSY, SMP, TOP …)
- a bunch of "Facilitator" between the CMS experts to guide the students
- classes of 6-8 students are formed
- Mini-symposium: competition between the analysis teams for the "Best Analysis Team" Prize
- a committee of 5-6 judges check the final presentations of the teams

The CMS Data Analysis School experience - highlights

Results:

- Last edition: several analyses team reproduced the latest results made public (ICHEP 2016) and few of them extended the state of the art on CMS either by using a larger data set or by modifying selection to improve sensitivity.
- About 1000 users trained so far at 15 schools and more to follow worldwide
- participants: 75% graduate students, 15.6% undergraduate and 9.4% post-doc
- 43% students with less than one year experience about CMS software became familiar with CMS tools and physics analysis
- one week long school is the right length for 70% while 30% will prefer to extend it for at least one day
- 87% of the students would serve as facilitators in future editions o f the school
- after the CMSDAS training the students jumped immediately to start on their own physics analysis which otherwise would take about 6months of preparation). It also trains them to make succinct presentations, preparing them for future conferences.

Conclusions:

- The CMSDAS training program is a successful model. It is growing stronger and evolving.
- This effort optimized as CMSDAS has proven to be a key for the new and young physicists to jump start and contribute to the physics goals of CMS by looking for new physics with the collision data