IPPOG - Spring Meeting 2011

PT OUTREACH in HEP/Astrop.

Pushing the limits further out

Pedro Abreu
LIP & IST
for the LIP/Outreach Group

Kosice, Slovak Republic, 16/04/11

at the EVO's land (after VRVS)!

What has happened? (summary since October)

- Big project "Radiation Environment" with 55 schools
  - National meeting with presentations by students, to take place next April 30th.
- Strong Interplay with Portuguese Physics Society (SPF)
  - Formation activities with schools and Organization of Physics Olimpiads – reg.+nat'l.
- Strong Interplay with Agência Ciência Viva
  - Pedro Abreu President of Centro de Ciência Viva da Amadora and a scientist in the pilot project "The Ciência Viva School", a *basic school [6-9y]* in The Pavillion of Knowledge.
- Collapse of our Government [and CERN's Trav.Exhib. to Portugal]
- **LIP** celebrates **25 years** in 2011 – Session with M.Sc.,Tech.&High.Ed.
- Strong Interplay with Universities [as expected] => IDPASC [coming next]
- Cosmic Rays OR: Spark Ch., Shuttle launch+AMS, prep. 2012[coming next^2]
- Masterclasses! [coming next^3]

IDPASC: PhD Network

- **I**nternational **D**octorate in **P**article and astroparticle physics, **AS**trophysics and **C**osmology
- LIP as Coordinator [Mário Pimenta from LIP&IST], and 7 Universities from Portugal, 3 from Spain, 3 from Italy, 1 from France, and CERN!
- Doctorate Network that allows a Ph.D. student to do parts of its program in an affiliated University/Institute/Laboratory (also CERN)
- IDPASC Physics Schools – general and thematic – organized in common, thus gathering critical mass for a successful school
- IDPASC Scholarships program – few Ph.D. fellowships from financing agencies, tailored to the needs of this network [after negotiation]
- IDPASC certificate in addition to the University's Diploma
- IDPASC Public Session in the schools/workshops
- Academic Council and Scientific Advisory Committee meeting regularly

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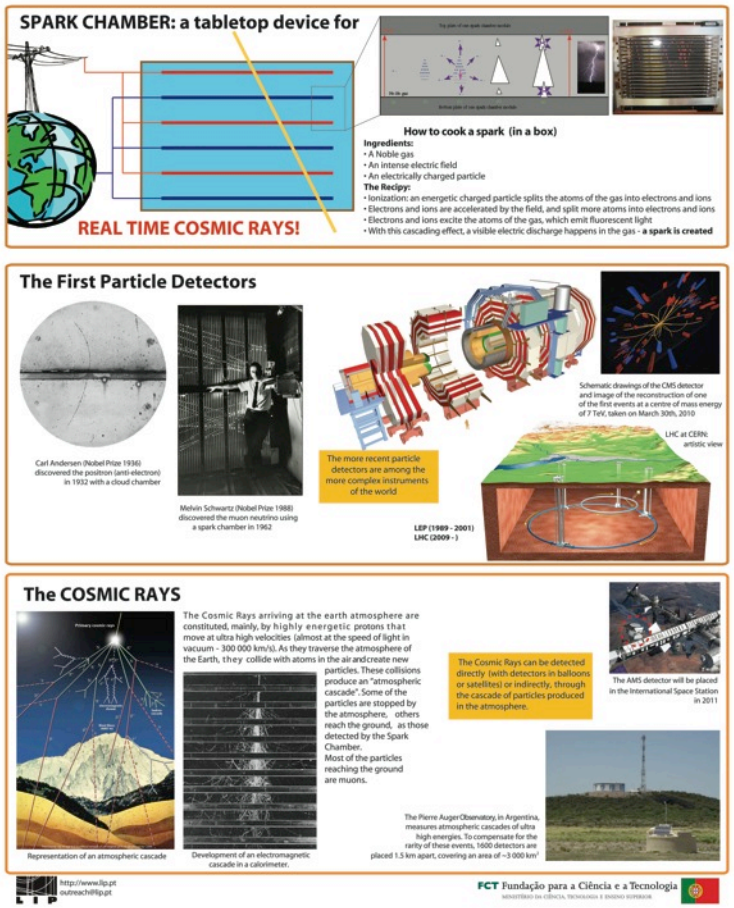
OR-ing Cosmic Rays/Astrop.

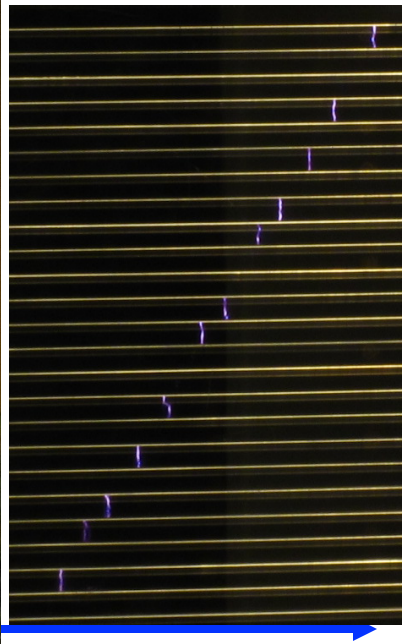
- LIP's Tabletop Spark Chambers exported to Spain and Argentina (CERN to follow?) [plus 3 we still have operating in Portugal, one at Amadora's Science Centre, the other 2 at LIP(L+C) and moving in the country]
- Accompanying posters [+certificate templates] prepared in Portuguese/English/Castellano(*) for exhibitions (stand-alone or not)
- LIP's Spark Chamber main features
  - Low Cost (10k€ +V.A.T.[in EU])
  - Portability!
  - Reliability! (LIP-Coimbra Work.)
  - Very low gas(§) cost (He, ~0 flux)



* Spanish in Latin America
§ Gas not supplied

LIP Spark Chamber

High-School in S. Pedro do Sul



Pierre Auger Observatory, Malargüe, Mendoza, Argentina

OR-ing in HEP/Astrop.(2)

- **AMS launch** in the shuttle scheduled for April 29th,2011:
  - LIP Group – led by F. Barão – on call for Journalists
  - Live follow-up session being prepared (with EVO interviews)
- **2012**: Celebration of **Victor Hess**'s balloon flight with another balloon flight carrying a group of students and some instruments (scintillating detectors, electroscope, etc.) [+teacher +pilot +physicist]
- Students selected from a "contest" running in school year 2011-2012, based in the analysis of Auger Public Data
- Auger Public Data analysis guide tested in the scope of the Summer in the Science programs, and in a school environment during this year
- Guide by C.Espírito Santo and S.Andringa, exploring concepts of Energy Spectrum, Shower Development, Measurement of cosmic rays properties with the Surface Detector, Propagation of cosmic rays in the galaxy

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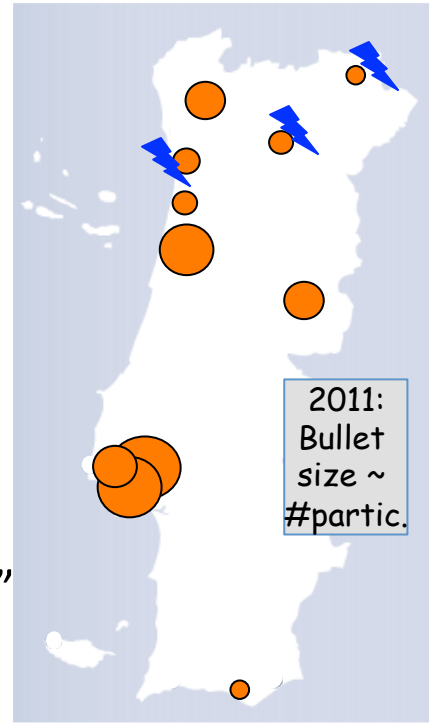
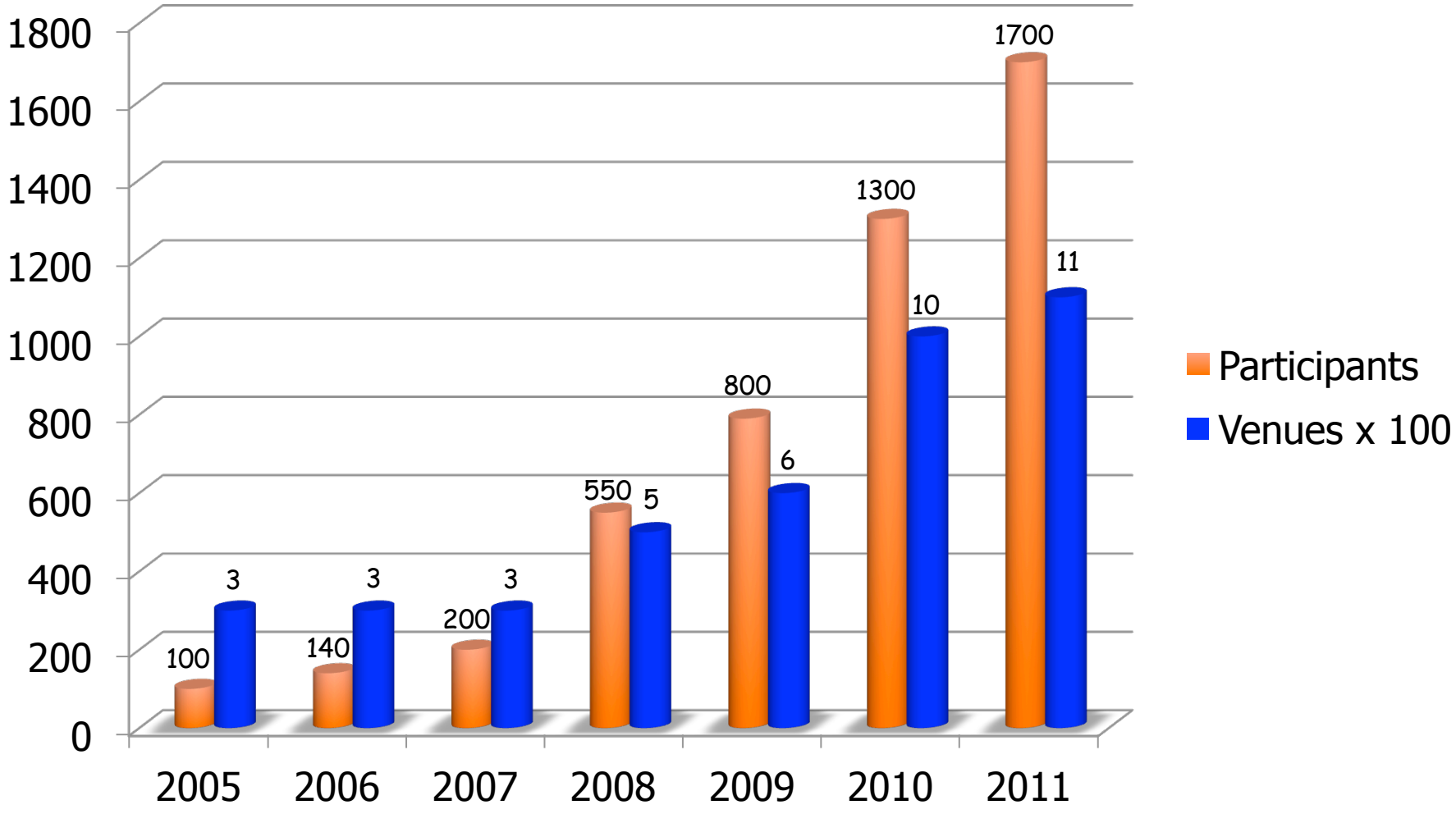
Masterclasses

Report of 2011

- For our 7th Edition of the Masterclasses, we knew to expect more than 1500 stds.
- We had already taken to CERN 177 high-school teachers from all over Portugal, that were engaging their students and their colleagues
- In many places, participation was severely limited (be it in #students/teacher, #students/school, or low number of vacancies filled quickly on a FIFO basis)
- At IST, a second big day was created again to cope with the very high demand (other places full)
- We succeeded to make it in 10 locations (+1 repeated), at "far" locations difficult to reach -> report on National TV, for a total of 1700 (!!) participants (at sites varying from 36 to 350x2)



Masterclasses



MC Photos from extreme N, S

Vila Real

Faro

MC Photos from extreme #s

IST, Lisbon

Journalist present in VC, passed the enthusiasm to his report about CERN, on magazine in major influential weekly newspaper (Expresso) (mag.theme: accelerate!)

Thanks 4 your attention

[reminder (General Outreach…

- Outreach and Public Education in Science
  happens in Portugal at a very large scale:

  - 1 BIG* +19 Interactive SCIENCE ALIVE Museums
    (*The Knowledge Pavillion, Lisbon, w/ 250K visitors/year)
  - 1000 Projects w/ ~3000 schools (~200 K students)
  - 1600 Summer events w/ ~30 K persons
  - 700 students in 54 Institutes (1-14 days in summer)
  - Special one-week events (S&T week, Space w.)

  …coordinated by the "Agência Ciência Viva" – National Agency for the Scientific and Technological Culture

...is not only in High Energy Physics)]

- Calouste Gulbenkian Foundation
  - Exhibitions about science
    (just finished "200 Years of Darwin")
  - Monthly seminars about science since 2003
    (with our "big stars" on science communication)
- 5 Science museums permanently open
- TV programs (in Open[1.pt weekly] & Cable Channels)
- U. projects (open days, Univ. seminars at schools, etc.)
- The Road Shows by "NFIST" (truck w/ expts.)