Public Engagement in HEP

The importance to engage...

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Cyberspace (Manchester, UK)
Public Engagement

• Activities for School Public
  (Engaging the scientists of tomorrow – the PT case)

• Activities for General Public
  (with IPPOG and other networks – for the benefit of us all)

• It’s all about You (yes, we need you!)
  (Public Engagement and YOU)

P_BLIC ENGAGEMENT needs U
Threshold marks range from 100 to 200, being set at 100 for courses with vacancies left
Note that different #places in different courses does hinder the threshold marks analysis
This is also a result of MANY OTHER activities/groups (unrelated to Particle Physics)
It does pay off to engage, to go to schools, to talk to the young
CERN Teachers Programmes

- High School Teachers Programmes at CERN started in 1998 (3 weeks long, 1/year)
- International, [now] 2 weeks long, 2 editions/year (July, August), holidays time
- Up to 48 teachers from many countries, in particular 1-2 from each CERN member state
2007 National Teachers Prog.

- National Teachers programmes launched in 2006 @ CERN for Member States
- One pilot programme in 2006 (Hungary) and since 2007 about 35 programmes / year
- One week only, in formation time, credits awarded to the teachers
- In the language of the Member State and many more opportunities per country
- PT started in 2007, project setup by Gaspar Barreira (middle), coordinated by P. Abreu
- Support from Ciência Viva Agency (+LIP, CERN)
2009 – +PT-Speaking Countries

- 2009 – Invited Teachers from Brazil and Mozambique to join the PT [Language] TP
- 2011 – the full house – 73 Teachers from all-pt-speaking countries

41 Pt, 20 Br, 4 Ao, 4 Mz, 1 CV, 1 STP, 1 GB, 1 TL

Very rich session about teaching conditions in all the countries

“The most important training programme that I have participated in my life” as spoken by many teachers.
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(*) PT Language Teachers Programmes only; no PT programmes in 2020 and 2021.
Coming back!

- Increase in talks@schools, participants in public sessions, open days, etc
- Great increase in number of PT school students in IPPOG’s International Masterclasses
- Enormous increase in Visits to CERN (PT Schools and BR – (also Virtual Visits))

Pedro Abreu, LP’2021, Cyberspace (Manchester, UK)
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P_BLIC ENGAGEMENT needs U
• International Scientific Collaboration

• Researchers with experience in Education & Outreach

• Experts in Communication and Education

• Organizes Global Activities
  - Int’l Masterclasses in Particle Physics
  - Global Cosmics

• Support Local Activities

• Sharing of expertise, best practices, resources database

• Collaborates with other networks (EPPCN, ApPEC, NuPPEC, iGRAV)
IPPOG Membership
32 Countries, 6 Collaborations, 1 International Lab, 2 Associate Members
IPPOG’s Int’l MasterClasses

Masterclass in Particle Physics
- Following the UK model launched in 1997
- Talks (Introduction to Particle Physics...)
- Tour, Lunch
- Analyze real data from HEP Expts.
- Discussion of Results

International Masterclasses
- 60 countries / 220 research labs
- > 14,000 Students
- Int’l Videoconferences with Institutes and CERN, Fermilab, KEK, GSI, TRIUMF
- Organized by IPPOG, http://ippog.org/

Pandemic times => 25% IMC normal sessions (some in presence in 2020, all online in 2021)
How to get involved:

**At your institute**
Does your institute participate? Search [http://cern.ch/go/8V7h](http://cern.ch/go/8V7h)
Organize an event / help as a tutor at your research lab
- How to get started: [http://cern.ch/go/9B77](http://cern.ch/go/9B77)

**At CERN/Fermilab**
Moderate videoconferences with high school students
- Training provided
- Moderate in pairs, 2–3 „shifts“, newcomers are paired with „veterans“

**Next International Masterclasses: 24th Feb–9th April 2022**
Interested? Contact: uta.bilow@tu-dresden.de or kcecire@nd.edu
More info on [www.physicsmasterclasses.org](http://www.physicsmasterclasses.org)

**In discussion:** +Countries, Open IMC (online), IMC for Media Professionals
IPPOG’s Global Cosmics

- Forum of outreach projects on Cosmic Rays
  http://www.globalcosmics.org

- International Cosmic Day – organized by DESY
  https://icd.desy.de
  (10th Anniv. YouTube: http://cern.ch/go/9HfT)

- International Muon Week organized by Quarknet(@USA)
  https://quarknet.org/content/international-muon-week

- Several projects with data online, e.g. http://cosmicatweb.desy.de
// Public Engagement Activities

- Public Sessions (regular or occasional)
  - @conferences, @special dates, @open days, @Pubs, in Festivals, etc.

- Science Festivals
  - 50 years of IN2P3 in 2021 (14 public evts.)
  - 1st Science Festival in Portugal
  - “Urknall Unterwegs” – a portable exhibition in Germany

- European Researchers Nights!
  [please check also HEPScape Poster by F.Cavallari]
To spark innovation in issues related to STEM that are relevant to society and necessary for CERN

Three annual events leading to Science Gateway

First event about “Future Intelligence” (AI), on September 17th (Forum) and 18th (Public event), 2021, following 10 months of preparation with a launch event on November 2020 and series of podcasts in 2021

Reached +70k people (so far), expected to become one of the flagship public engagement events at CERN’s Science Gateway

Coordinated by Claudia Marcelloni @ CERN (you can check her slides presented at the 22nd IPPOG Meeting https://indico.cern.ch/event/1084892/timetable/ and the full [3h42] recording of the Public Event on youtube.com/watch?v=EKozG-B9mkI)
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How can YOU engage the public?

- Public Sessions (regular or occasional)
  - Organization, participation (moderator/panellist/audience)
  - Support, Communication (about it)

- Social Media
  - Personal profiles (Instagram, YouTube, Facebook, Twitter, Blogs, Podcasts)
  - Institutional channels (including any/all of the above)

- Exhibitions, Science Festivals and Science@Festivals
  - Organization, Scientific Advisory
  - Support, Communication (about it)
  - Monitor/Support Scientist (or backup Scientist)

- Where to find more contents/activities?
  - Presentations at IPPOG Meetings: [indico.cern.ch/category/9657/](indico.cern.ch/category/9657/)
    (with authors, credits, contacts, etc)
HEP challenges ahead!

- Scale of [new] projects (timespan, cost, size, ...)
- Wide[r] recognition of the value of [Fundamental] Science in Society
- Increase the reach of our activities – geography, diversity, inclusion, age
- Train the trainers – Teachers, Educators, Tutors, Motivators, Ambassadors
- Introduce High Energy and Particle Physics in school curricula, either adiabatically or with a swift phase transition (a.k.a. revolution)

Public Engagement, Education and Outreach, are more important than ever. As stated in the ESPPU 2020, we need to maintain our presence in society and work on how the public perceive scientific knowledge and process.
Conclusions!

- Education, Communication and Outreach are essential pillars for the development of High Energy and Particle Physics.

- Many scientists, at different levels of commitment, along with experts in outreach and communication, are already engaging the public in different venues and carry outwards the excitement of the field.

- Public Engagement in our field needs YOUR support and contribution,
  - as actively being an ambassador of the field,
  - as speaker/moderator/motivator/organiser/educator/tutor,
  - as evaluator of projects/career assessment/applications/positions,
  - consider experience in outreach when evaluating people,
  - and/or helping creating the conditions for a better Edu-Comm-OR in HEP.

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Thanks! (this is a big thanks!)

to all the people collaborating in all these activities!
...and for your attention!

Any questions?
You can find me at abreu@lip.pt