



International Masterclasses

IPPOG

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What's IPPOG? (H.P. Beck)

- ◆ an established successful outreach and education group with many activities and the International Masterclasses as its flagship
- ◆ provides tools & activities ready to be implemented at your institute
- ◆ expanding internationally
 - ◆ 21 countries, 5 experiments, 1 lab
 - ◆ discussions with more new countries ongoing
- ◆ More at: <http://ippog.org>
- ◆ See slides from the last general meeting in October
- ◆ <https://indico.cern.ch/event/742487>
- ◆ Next GM 23-25 May 2019 Darmstadt

IPPOG WGs / pannels

- ◆ Bringing Masterclasses to New Countries
- ◆ Extending the Physics Scope of Masterclasses
- ◆ Explaining Particle Physics Hot Topics to a Lay Audience
- ◆ Exhibits
- ◆ European Strategy Update
- ◆ Is beauty leading physics astray?
- ◆ Outreach applications of particle physics for society

Intermational Masterclasses

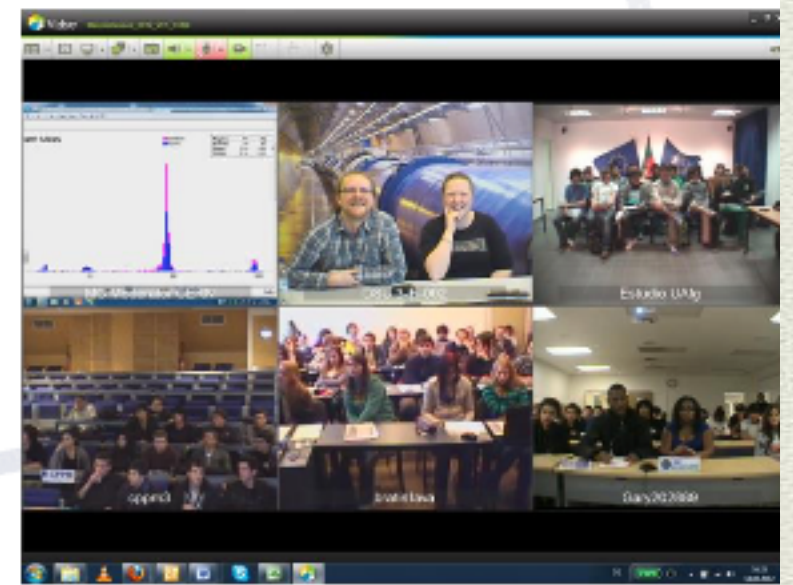
MC: isolated
exercise with
students

IMC:
International
campaign
coordinated
by IPPOG

Concept of IMC

- High school students (15 – 19) are „scientists for one day“
 - Get invited to a research institute or university
 - Introductory talks (standard model, detectors, accelerators)
 - measurement with LHC data
 - International video conference (3-5 inst. + CERN/Fermilab)
- also for teachers
(extra MC or inclusive)

14.07.2016



How to get new IMC topic through

- ◆ Documentation
- ◆ Pilot run
- ◆ Steering group approves
- ◆ Can run as MC before
- ◆ Spring campaign stays for LHC
- ◆ New autumn campaign to be launched for non-LHC experiments
- ◆ Data, not Monte Carlo!



**International Masterclasses
Steering Group**

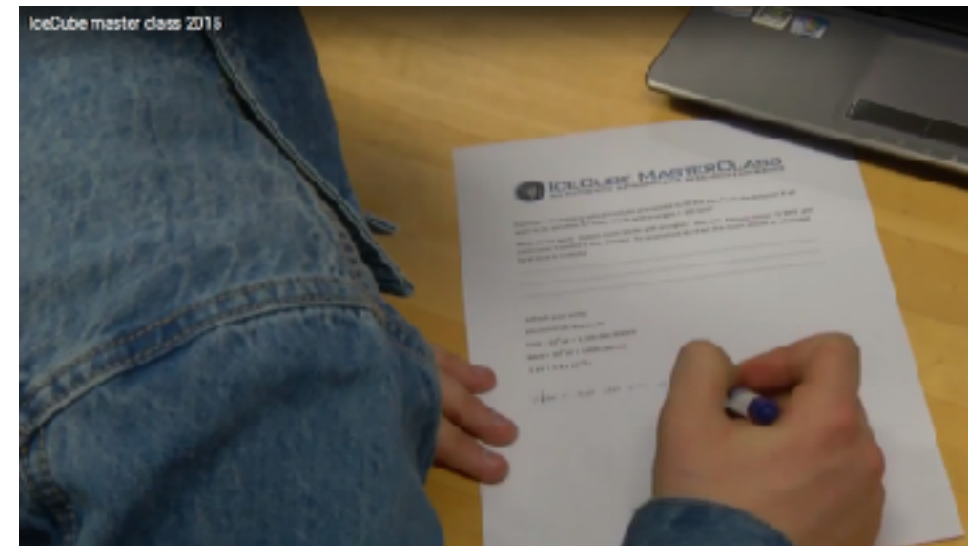
Approval of measurements

New MC initiatives

- ◆ Neutrino - MINERvA (test in summer?), MicroBooNE, DUNE, etc.
- ◆ Belle II
- ◆ Heavy ion - LHC (ATLAS / CMS), GSI (CBM, HADES)
- ◆ IceCube
- ◆ LIGO / Virgo
- ◆ SESAME
- ◆ New ideas
 - ◆ Detector tech masterclass (test beam?) (spark chamber?)
 - ◆ CR detectors
 - ◆ Proton therapy

Neutrino physics Masterclass

IceCube has been organizing masterclasses for several years (outside IMC)



MINERvA will join IMC in 2018.

A simplified version of the Arachne Minerva's event display will be used (<http://neutrino-classroom.org/>).



MicroBooNE, and DUNE started the organisation of Masterclasses

MicroBooNE <https://indico.fnal.gov/event/16526/session/27/contribution/134/material/slides/0.pdf>

DUNE <https://indico.cern.ch/event/612796/contributions/2470308/attachments/1460043/2254836/DUNE-FNAL-20170515.pdf>

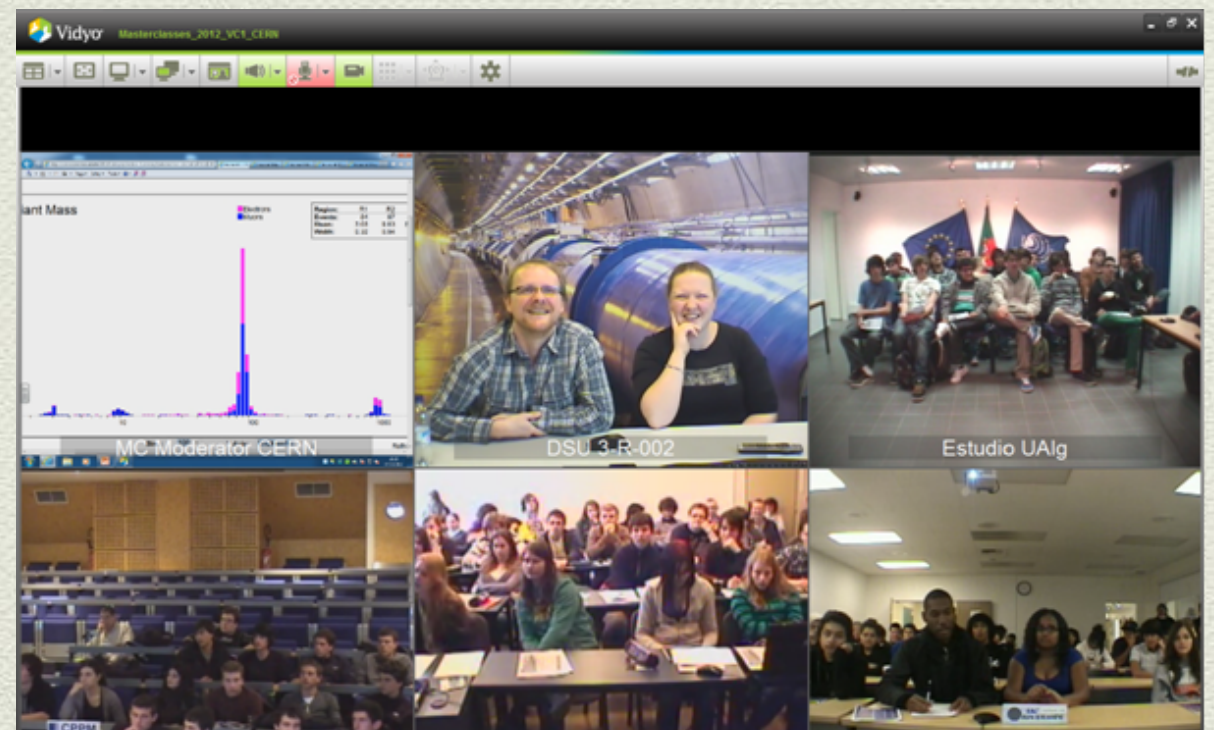
Thanks!

Backup

International Masterclasses

IPPOG's Flagship

- ◆ High school students (15 – 19) are „scientists for one day“
- ◆ Get invited to a research institute or university
- ◆ Introductory talks (standard model, detectors, accelerators)
- ◆ 2 h measurement with LHC data
- ◆ New also with Icecube data
- ◆ International video conference (2 – 5 inst. + CERN/Fermilab)



High-school students analyze LHC data

ATLAS

- ◆ W path (Higgs WW)
- ◆ Z path (discover Extra Z' Bosons)

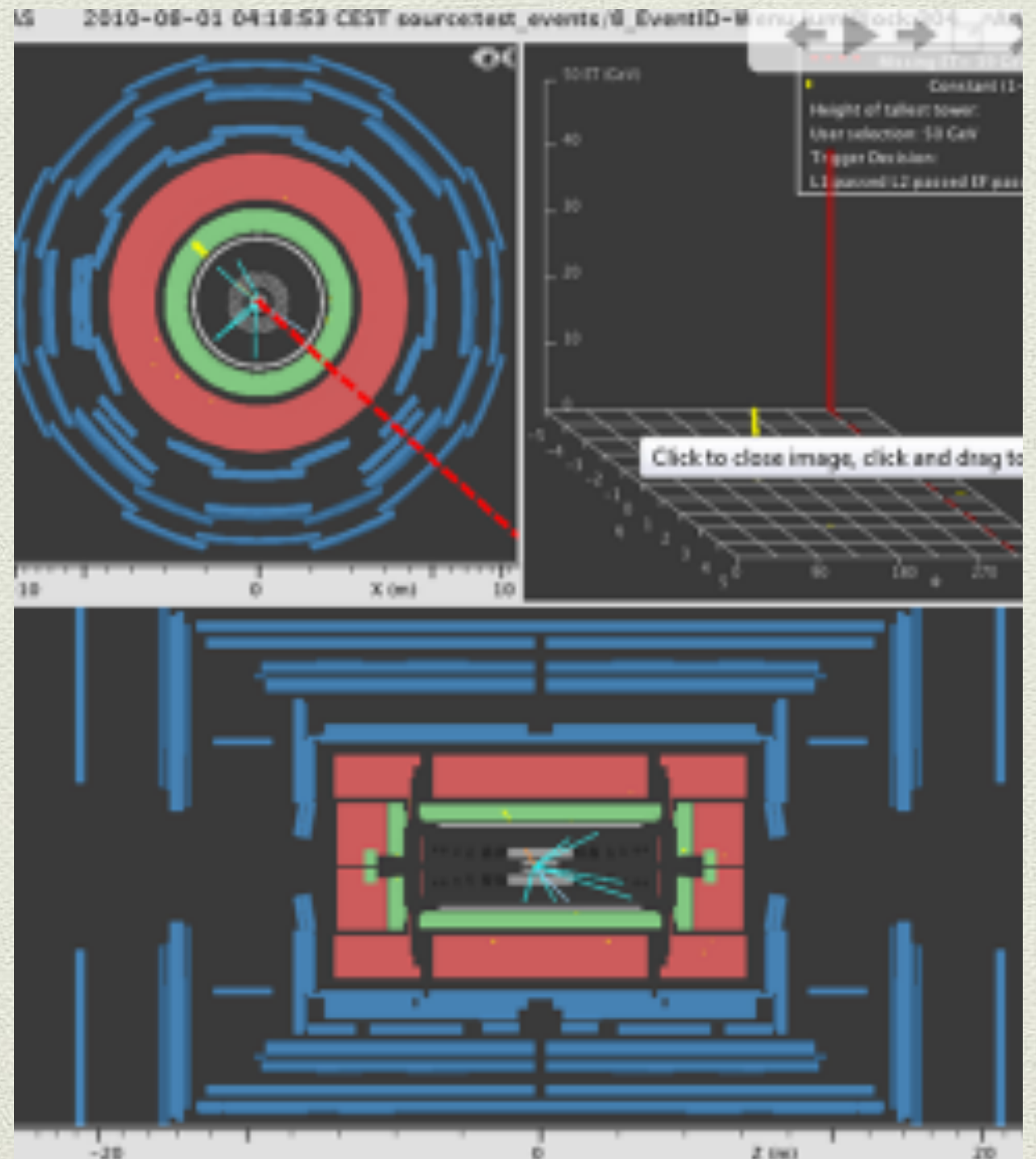
CMS: WZH measurements

ALICE

- ◆ Looking for Strange Particles, R_{AA}

LHCb

- ◆ $D^0 \rightarrow K\pi$ measurement



Other activities

- ◆ 2 meetings per year
- ◆ Newsletter twice a year in-between IPPOG meeting.
- ◆ Database of outreach material shared
- ◆ Well defined IPPOG structure and tasks.
- ◆ IPPOG Working groups, with action items.

IPPOG NEWSLETTER

SEPTEMBER 2015

Number 1



International Particle Physics Outreach Group

A word from the coordination team

Dear IPPOGers!

We are very happy to share with you this first issue of the IPPOG newsletter, which will appear twice a year between IPPOG meetings. The aim of this new tradition is to keep IPPOG spirit alive also in between the meetings and maintain you informed about the most important happenings in our community, and thus to facilitate even closer collaboration of our team. This little periodical would also allow us to show to the interested external eyes what IPPOG is and does.

After a very interactive and productive spring meeting in Paris <https://indico.cern.ch/event/354555/> IPPOG is now ready to take several new actions and continue its mission with full power and new sources! The future of IPPOG is very promising and a lot of upcoming initiatives are in the pipeline!

We hope you enjoy this first number of IPPOG newsletter and looking forward to see you at the next meeting in autumn at CERN.

Hans Peter, Marge and Barbora



LABORATOIRE DE L'ACCÉLÉRATEUR LINÉAIRE

IPPOG meeting, 16-18 April 2015, Paris

IN THIS ISSUE

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 - New support in IPPOG coordination team
 - 10th IPPOG meeting at CERN
- IPPOG activities**
 - Masterclasses 2015 and 2016
 - Cosmic rays becoming global

'Universe of Particles : Explore, Discover, Understand, be Inspired!'

International network of scientists, science educators and explainers engaged in informal science and education and outreach for particle physics across the globe.

Vision for the future:

Understanding and enthusiastic support of particle physics and related sciences from all audiences.

IPPOG's current members come from CERN's 21 member states, plus Ireland, Romania, South Africa and USA, prominent laboratories and institutions in Europe and USA and 5 major experiments of LHC. Since 2013 the co-chairs of IPPOG are Marge Bardeen and Hans Peter Beck.

"The discovery of Higgs boson is not the end of the story... it is just the beginning of a new era... The scalar era."

- IPPOG on LHC as a discovery machine

"Higgs-what now?"

IPPOG feels the need for LHC Run 2 communication strategy especially in the context of the future of fundamental research in particle physics and non-scientific audience acceptance.

"How to prepare/approach the discoveries beyond the Standard Model?"

"The nature of dark matter cannot be explained without the LHC upgrade..."

- IPPOG on LHC as a discovery machine