

INTERNATIONAL MASTERCLASSES HANDS ON PARTICLE PHYSICS

Moderators' orientation

Uta Bilow, TU Dresden
CERN, 20.02.2020



Concept of Masterclass

High school students (16-19y)

- are invited to a university or research lab as „scientists for one day“
- are informed about central findings in HEP research and open questions
- get insight into methods and organisation of HEP research (international collaborations)
- learn to identify different particles, categorize events, do a measurement of a physics variable, combine results to improve results, understand pre-conditions for claiming a discovery



Sample Agenda

8:30 - 9:00

registration & welcome

9:00 - 10:00

introduction to Particle Physics
(standard model, detectors,
accelerators)

10:30 - 11:30

second talk or tour

12:00 - 13:00

lunch

13:00 - 15:00

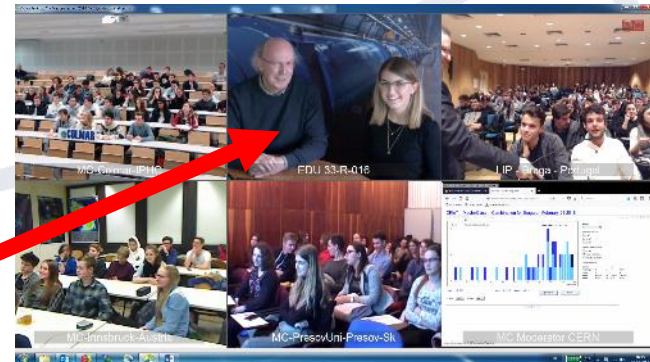
data analysis: measurement
with LHC data (ALICE, ATLAS,
CMS, LHCb)

15:00 - 16:00

local combination + discussion

16:00 - 17:00

videoconference with CERN
or Fermilab



You will be sitting here!

Typical situation:

- 2 moderators
- 5 groups of students (16-19 y)



Students' condition:

- exhausted & excited

They expect:

- physics results are discussed
- questions can be asked
- meet groups from other countries

Challenges

- English is often not their mother tongue
- sometimes shy to speak
- groups should predefine speakers, but...
- sometimes poor sound quality
- not used to listen to Vidyo sound

To meet the challenge:

- this training
- strict agenda
- rich documentation
- rooms prepared
- support by Vidyo team
- moderators work in pairs

International Masterclasses

- Worldwide effort, key activity of IPPOG (International Particle Physics Outreach Group)
- coordinated by TU Dresden and Ken Cecire, QuarkNet/U. Notre Dame
- 2020: 26.2. – 8.4.2020
- ~ 60 VCs at CERN, ~ 25 at Fermilab



Schedule

09.03. - 14.03.2020

	Mon, Mar 09	Tue, Mar 10	Wed, Mar 11	Thu, Mar 12	Fri, Mar 13	Sat, Mar 14
topic	VC 1: ATLAS Z	VC 1: ATLAS Z	VC 1: ATLAS Z	VC 1: ATLAS Z	VC 1: ATLAS W	VC 1: ALICE
moderators						
moderators						
	Marseille 	Saclay 	Košice 	Zaragoza 	Trento 	São Paulo
	Graz 	São Paulo USP 	Genova 	Ankara METU 	São Paulo USP USP 	Cape Town
	Siegen 	Hradec Králové / Prague 	Ljubljana 	Pisa 	Geneva 	Warsaw WUT
	Banská Bystrica 	Genova 	Wuppertal 	Nijmegen 	Würzburg 	
	Freiburg 	Brookhaven 	Saclay 	Granada 	Madrid IFT 	
topic	VC 2: CMS	VC 2: LHCb	VC 2: CMS	VC 2: Alice R_AA	VC 2: CMS	
moderators						
moderators						
	Lyon 	Cagliari 	Madrid CIEMAT 	Darmstadt 	Palaiseau 	
	Dubrovnik 	Orsay LAL 	Nicosia 	Frankfurt 	São Paulo SPRACE 	
	Varna 	Milano Bicocca 	Sofia University 	Benha 	Osijek / Split 	
	Tehran 	Cincinnati McAuley 	Tehran 	Münster 	Santander 	
	Rijeka 	Ferrara 	M'Sila 		Aachen 	

<https://www.physicsmasterclasses.org/index.php?cat=schedule>

Moderators 2020:

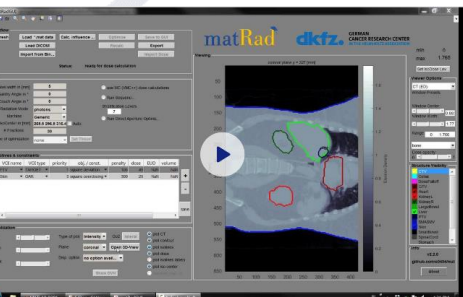
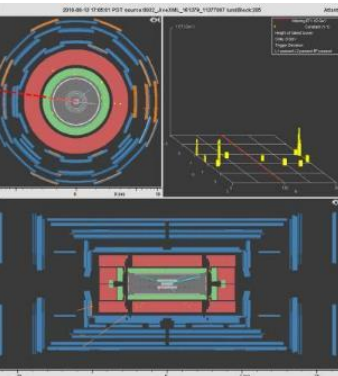
	Muhammad Alhroob (ATLAS)		Agni Bethani (CMS)		Alessandra Betti (ATLAS)		Dana Bobulska (LHCb)
	Valeria Botta (CMS)		Ben Brüers (ATLAS)		Ina Carli (LHCb)		Ludivine Ceard (CMS)
	Silvia Costantini (CMS)		André David (CMS)		Joe Davies (ATLAS)		Ben Davis-Purcell (ATLAS)
	Adelina D'Onofrio (ATLAS)		Katharina Dort (Linear Collider Department)		Filippo Errico (CMS)		Meirin Oan Evans (ATLAS)
	Simone Francescato (ATLAS)		Alejandro Gomez Espinosa (CMS)		Despina Hatzifotiadou (ALICE)		Michael Hauschild (ATLAS)
	Martha Hilton (LHCb)		Florian Jonas (ALICE)		Anders Knospe (ALICE)		Vasiliki Kouskoura (ATLAS)

and more! Not enough space to show ...

www.physicsmasterclasses.org/index.php?cat=schedule#/moderators

e-group: ippog-masterclass-moderators@cern.ch

Brief History of IMC

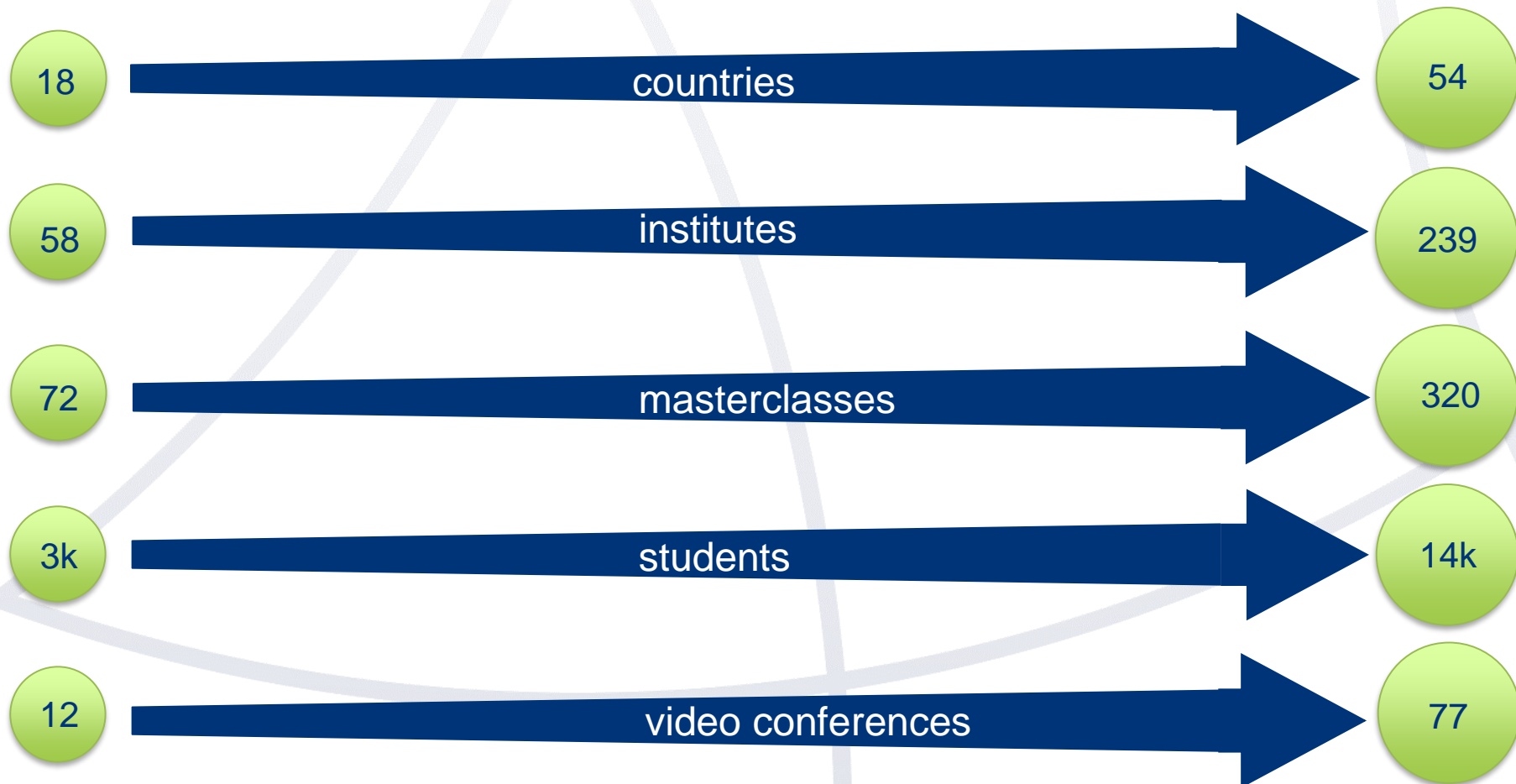
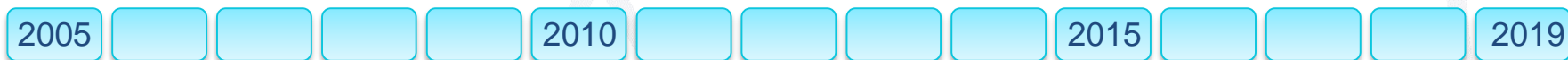


- Idea from UK, 1996 (R. Barlow et al.)
- 1997: 1. Masterclass with 7 institutes (LEP data)
- 1998 nationwide uptake
- 2005: Adopted by (E)IPPOG for all Europe
- 2006: U.S. joined program (QuarkNet)
- 2011: LHC-based Masterclasses
- 2014: all 4 LHC experiments involved
- 2019: MINERvA Neutrino Masterclass
- 2020: Belle II Masterclass (KEK videocon) and Particle Therapy Masterclass (GSI videocon)

<http://cerncourier.com/cws/article/cern/55890> (How it all begun)

<http://cerncourier.com/cws/article/cern/57305> (MC in the LHC era)

Statistics International Masterclasses



Thank you for being part of IMC20!



Enjoy your sessions!