

INTERNATIONAL MASTERCLASSES HANDS ON PARTICLE PHYSICS

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<http://physicsmasterclasses.org/>

on behalf of the

IPPOG Masterclass Steering Group

www.physicsmasterclasses.org

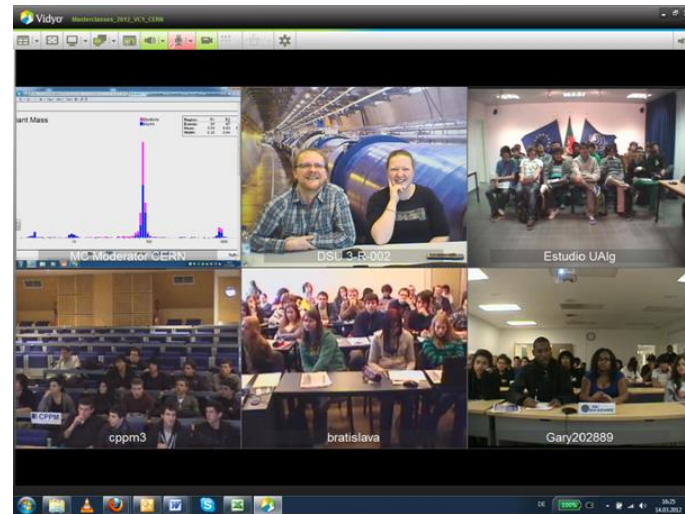


Concept of International MC

Every year, during the months of February-March school-children (15-19 year old) are invited to an institute of their area.

They are exposed to the world of high-energy physics

- **Hands-on measurements with real LHC data**
- **International video conference (3-5 institutes) moderated by CERN or Fermilab**



Example programme of a IMC day

LOCAL TIME: ACTIVITY

8:30 - 9:00 Registration and Welcome

9:00 - 10:00 Introductory lectures

10:30 - 11:30 Visit of a lab or experiment

12:00 - 13:00 Lunch

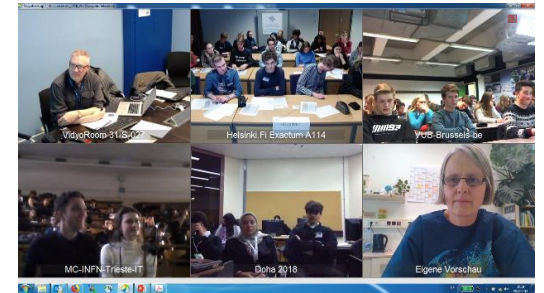
13:00 - 15:00 Hands-on session

- Instructions and interactive demo
- Measurements on real LHC data

15:00 - 16:00 Merge and discuss results locally

16:00 - 17:00 **Video conference CERN, Fermilab**

- Discussion, combination of results
- Q&A
- Quiz



The aim is to get insight into topics and methods of research!
Not to teach particle physics rigorously.



International Particle
Physics Outreach Group

INTERNATIONAL MASTERCLASSE

hands on particle physics

Well structured project

- procedures
- instructions
- material
- translations

Home

Information for
High School Students

Information for
Teachers and Educators

Information for
Institutes and Physicists

Schedule

Intl. Day of Women
and Girls in Science

<http://physicsmasterclasses.org/>



International Masterclasses

14th International Masterclasses 2018

Each year more than 13.000 high school students in 52 countries come to one research centres for one day in order to unravel the mysteries of particle physics. insight in topics and methods of basic research at the fundamentals of matter and for measurements on real data from particle physics experiments themselves. At the research collaboration, the participants join in a video conference for discussion a here for media coverage.

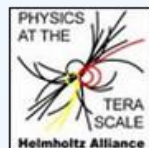
Not difficult for newcomers

- teachers
- institutes

Details during MC Demos at QM

This program is organized at TU-Dresden in the framework of the International Particle Physics Outreach Group IPPOG. The video linkup between the institutes is realized with valuable technical support from the Vidyo support at CERN IT. We gratefully acknowledge financial support from the Helmholtz Alliance "Physics at the Terascale", the BMBF German Federal Ministry of Education and Research, EPS HEPP High-Energy and Particle Physics Division of the European Physical Society, and from TU Dresden. An offline version of this website is available as DVD from the organizers and distributed to all participating students.

The material can be used for many other purposes



Federal Ministry
of Education
and Research



International MasterClasses 2018



15 Feb – 28 Mar 2018

52 countries



Coordination : Fermilab, QuarkNet / TU Dresden



- 48 institutes
- 50 Masterclasses
 - 31 CMS
 - 19 ATLAS

- 177 institutes
- 257 Masterclasses
 - 35 ATLAS W
 - 104 ATLAS Z
 - 58 CMS
 - 39 LHCb
 - **18 ALICE Strangeness**
 - **3 ALICE RAA**

INTERNATIONAL MASTERCLASSES

hands on particle physics

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Name:
International
Particle Physics
Masterclasses



Detailed instructions and documentation

Hands on Particle Physics Masterclasses

ORGANISATION

Welcome in the organisation section of the IPPOG Masterclasses!

Here, we hope to provide you with all that you'll need in order to organise an event that students, teachers and staff will never forget.

Therefore, you can find:

- an **introduction** to the overall organising scheme
- some example **lectures**

- information on the **measurements**

- a **manual** for the video conference, including information on the new quiz

- **corporate material** to prepare e.g. invitation letters or participation certificates

- **english press release**
- **german press release**

We also provide information how we would like to

- **present participating institutes** on our website or how you can
- **contribute in translating the exercises.**

MasterClasses in Ireland

- **University College Dublin**, from 2012
- **Maynooth University**, from 2012
- **Trinity College Dublin**, from 2013

- Approx 40 students / year each place
- Demand for more places
- Hoping to expand to Waterford, Galway

- Can be run in an institution with only theorists!