

INTERNATIONAL MASTERCLASSES

Introduction to International Masterclasses for Physicists

U. Bilow, Technische Universität Dresden
K. Cecire, University of Notre Dame

APS April Meeting 2021



Overview

What is a Masterclass?

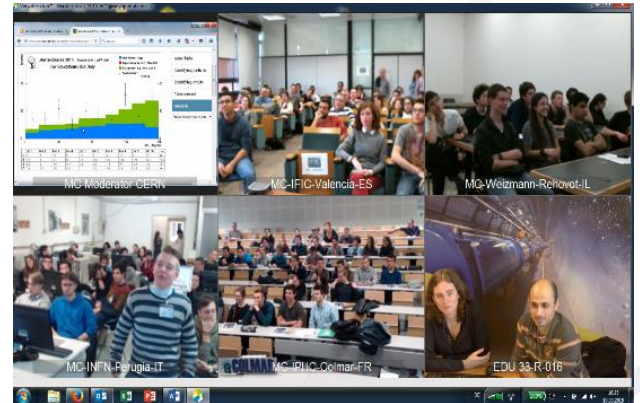
- Students invited to be “particle physicists for a day” at university or laboratory
- Now can be done remotely online
- Combine and share results

International Masterclasses

- In and around March each year, worldwide
- Videoconferences at CERN, Fermilab, KEK, GSI, TRIUMF
- Organized by IPPOG, <http://ippog.org/>

Satellite masterclass events

- International Day of Women and Girls in Science special masterclasses (Feb)
- Big Analysis of Muons (May)
- World Wide Data Day (Nov)



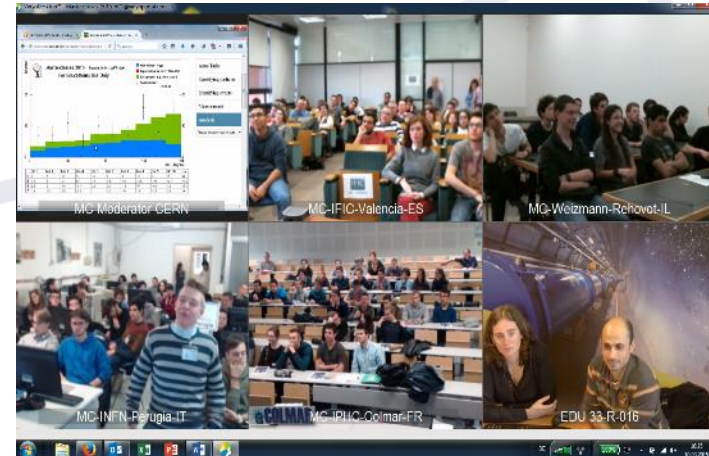
The Masterclass Day

- Introduction to particle physics
- Tour if available
- Analyze authentic data from
 - LHC (ATLAS, [CMS](#), [ALICE](#), [LHCb](#))
 - Neutrino experiment ([MINERvA](#))
 - [Belle II](#)
 - [Particle Therapy](#) (treatment plan)
 - [Darkside](#)
- International video conference (3-5 groups + CERN / Fermilab / KEK / GSI)
 - Presentation of results
 - Combination and discussion
 - Q&A
 - Quiz (CERN-VC)
- Can be organized online but in-person is best!



09.03. - 14.03.

	Mon, March 09	Tue, March 10	Wed, March 11	Thu, March 12	Fri, March 13	Sat, March 14
topic	VC 1: ATLAS Z	VC 1: ATLAS W	VC 1: ATLAS W	VC 1: ATLAS Z	VC 1: ATLAS Z	VC 1: ATLAS Z
moderators	Daniel, Muhammad	Katharine, Muhammad	Kate, David	Kate, Suyog	Noemi, Roland	Suyog, Ricardo
	Barcelona	Colmar	London QMU	Pisa	Pisa	Porto
	Dublin UC	Valencia	Colmar	Orsay LAL	Braga	Lodz
	Genova	Perugia	Lund	Milano	Rome Tor Vergata	Crete
	Poznan	Rehovot Weizmann	Bein	Udine	Yale	Lisboa IST
			Copenhagen		Granada	Nowy Sacz IFJ PAN



Central elements: Data analysis + video conference



Worldwide program

- Organized by [IPPOG](#) (*International Particle Physics Outreach Group*)
- [60 countries](#) and > 220 institutes scheduled in 2020 before the pandemic – most canceled
- The comeback started in 2021



Participate in IMC!

At your institute

- Does your institute participate? Search www.physicsmasterclasses.org/index.php?cat=country
- Organize an event / help as a tutor at your research lab
 - How to get started: www.physicsmasterclasses.org/index.php?cat=local_organisation&page=orga_intro

At Fermilab, CERN, ...

- Moderate video conferences with high school students
 - Training provided
 - Moderate in pairs, newcomers are paired with „veterans“
 - 1-4 „shifts“ per moderator

Next International Masterclasses: Feb/March/Apr 2022

Interested? Contact: uta.bilow@tu-dresden.de or kcecire@nd.edu

More info on www.physicsmasterclasses.org

But wait, there's more!

International Day of Women and Girls in Science (IDWGS)

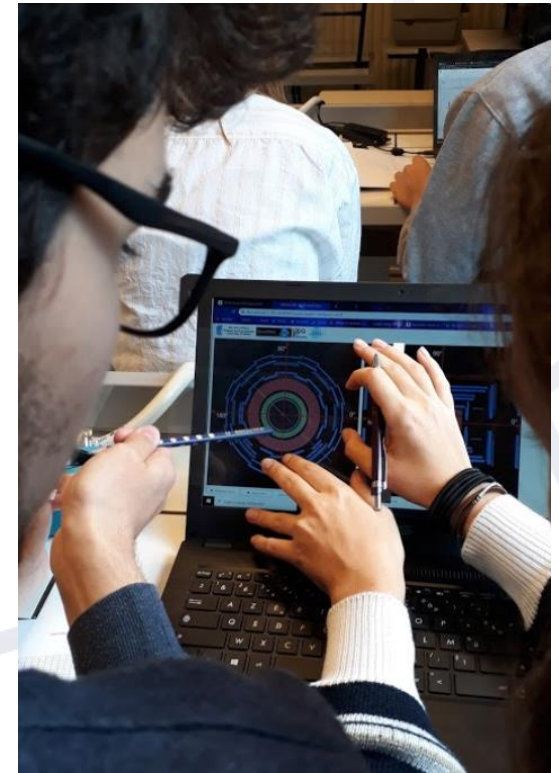
- Special particle physics masterclasses with theme of women in science
- Woman physicist role models and discussion of women's careers
- Contact Uta

Big Analysis of Muons (BAM)

- Developed in response to pandemic, all online
- Teachers play a role with guidance from staff
- Contact Ken

World Wide Data Day (W2D2)

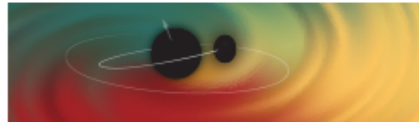
- One day event, simple analysis
- Teachers play a role with guidance from staff
- Contact Ken



Later in the April meeting...

APS April Meeting 2021

Saturday–Tuesday, April 17–20, 2021; Virtual; Time Zone: Central Daylight Time, USA



APS April Meeting

JOIN

Session G17: Reaching Out to Broader Audiences

8:30 AM–9:42 AM, Sunday, April 18, 2021

Sponsoring Unit: FOEP

Chair: Becky Thompson, Fermilab; Heide Doss, Point Loma Nazarene University

Abstract: G17.00005 : The International Particle Physics Outreach Group -- Reaching Across the Globe with Science

9:18 AM–9:30 AM Live

[Preview Abstract](#)

← Abstract →

Author:

Steven Goldfarb
(Univ of Melbourne)

IPPOG co-Chair

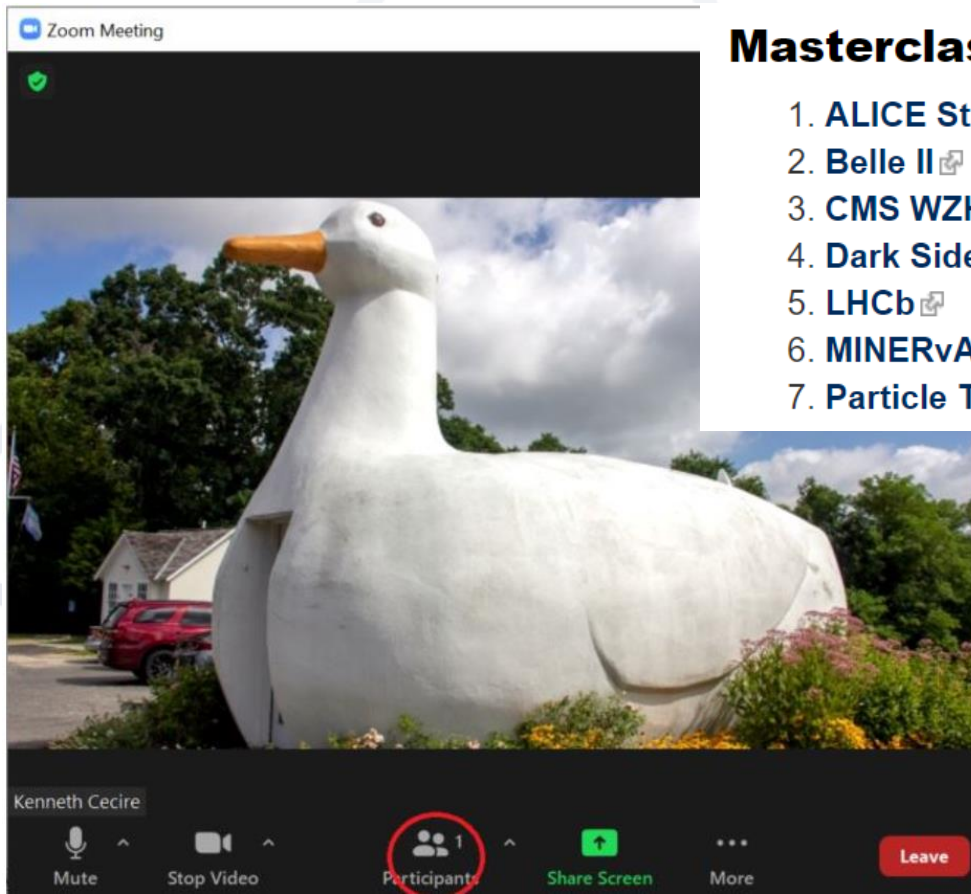
Collaboration:

IPPOG

The International Particle Physics Outreach Group (IPPOG) is a network of scientists, science educators and communication specialists working across the globe in informal science education and outreach for particle physics. The primary methodology adopted by IPPOG requires the direct involvement of scientists active in current research with education and communication specialists, in order to effectively develop and share best practices in outreach. IPPOG member activities include the International Particle Physics Masterclass programme, International Day of Women and Girls in Science, Worldwide Data Day, International Muon Week and International Cosmic Day organisation, and participation in activities ranging from public talks, festivals, exhibitions, teacher training, student competitions, and open days at local institutions. These independent activities, often carried out in a variety of languages to public with a variety of backgrounds, all serve to gain the public trust and to improve worldwide understanding and support of science. We present our vision of IPPOG as a strategic pillar of particle physics, fundamental research and evidence-based decision-making around the world.

Zoom skill – name change

We need to put our measurement numbers with our names so we can be assigned the proper breakout rooms.



Masterclass measurements to be offered

1. ALICE Strange Particles 
2. Belle II 
3. CMS WZH
4. Dark Side 
5. LHCb 
6. MINERvA Neutrino 
7. Particle Therapy 

https://en.wikipedia.org/wiki/Big_Duck#/media/File:Big_Duck_2018_05.jpg

Zoom skill – name change

Find your name with **Mute** and **More >** buttons...

The screenshot shows a Zoom Meeting window. The main video area displays a large white duck sculpture with an orange beak, set against a background of trees and a cloudy sky. The name 'Kenneth Cecire' is visible in the bottom left corner of the video area. On the right side, the 'Participants (1)' panel is open, showing a single participant: 'KC Kenneth Cecire (Me)'. The 'Mute' button is highlighted in blue, and the 'More >' button is circled in red. A red arrow points to the 'More >' button with the word 'hover' written below it. At the bottom of the Zoom window, there is a control bar with icons for 'Raise Hand', 'yes', 'no', 'go slower', 'go faster', and 'more'. Below these icons are buttons for 'Invite', 'Mute Me', and 'Claim Host'.


Zoom skill – name change

The image shows a Zoom meeting window. On the left, a video feed of a large white duck sculpture is visible. A 'Rename' dialog box is open over the video, with a red arrow pointing to the text input field containing 'duck-5' and another red arrow pointing to the checked 'Remember my name for future meetings' checkbox. Red text annotations 'new name' and 'uncheck!' are next to these elements. On the right, the 'Participants (1)' list shows 'Kenneth Cecire (Me)' with a 'More >' button. A red arrow points from the 'More >' button to the text 'click here, becomes "rename" - click again'. At the bottom of the Zoom window, there are controls for 'Raise Hand', 'yes', 'no', 'go slower', 'go faster', 'more', 'Invite', 'Mute Me', and 'Claim Host'.


Masterclass measurements to be offered

1. ALICE Strange Particles
2. Belle II
3. CMS WZH
4. Dark Side
5. LHCb
6. MINERvA Neutrino
7. Particle Therapy

Next, to our Agenda page...

ABOUT ▾ DATAACTIVITIES MASTERCLASSES ▾ E-LABS ▾ LOG IN

Introduction to Masterclasses for Physicists, APS April Meeting 2021

 Submitted by kcecire on Fri, 03/19/2021 - 10:40

LHC Masterclass Library 2021

Friday 16 April 2021, 11:00 am to 1:00 pm U.S. Eastern Time

Small URL for this page: <http://tiny.cc/imc-aps-apr21>.

Interested? Register to reserve your place!

Agenda

Time (ET)	Activity	Comments
11:00	Greetings and Introduction to International Masterclasses (Bilow, Cecire)(slides)	
11:20	Session 1: Introduction to and try-out of a masterclass measurement	Breakout rooms (slides, if any, below)
12:05	Transition and brief comments	
12:15	Session 2: Introduction to and try-out of a masterclass measurement	Breakout rooms
13:00	End of formal program	may remain for discussion

Masterclass measurements to be offered

1. ALICE Strange Particles
2. Belle II
3. CMS WZH
4. Dark Side
5. LHCb
6. MINERvA Neutrino
7. Particle Therapy

<http://tiny.cc/imc-aps-apr21>