

# INTERNATIONAL MASTERCLASSES

## Introduction to International Masterclasses for Physicists

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vCONF2021



# Overview

## What is a Masterclass?

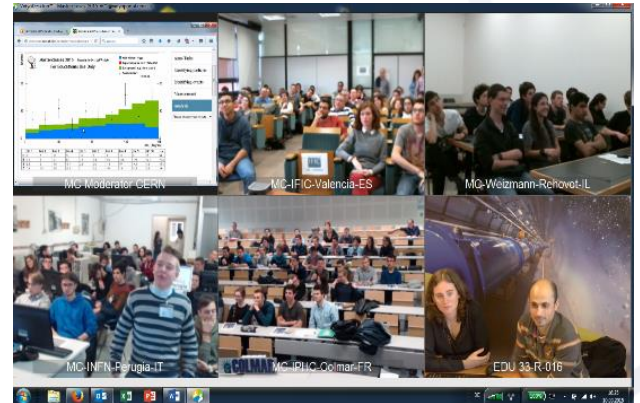
- Students invited to be “particle physicists for a day” at university or laboratory
- Now can be done remotely online
- Combine and share results

## 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
 

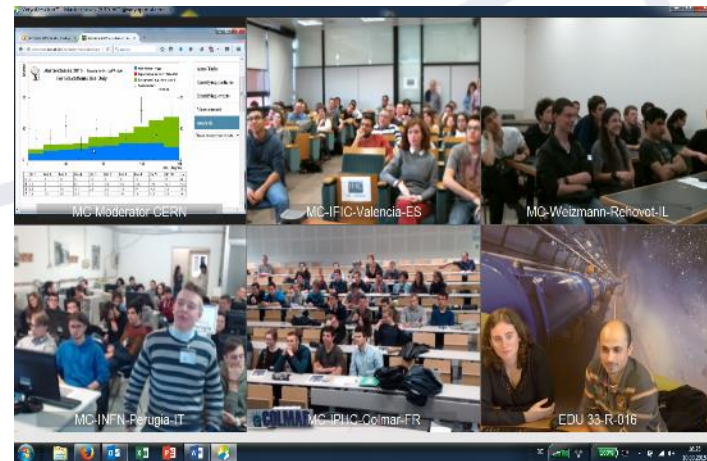
(3-5 groups + CERN / Fermilab / KEK / GSI)

  - 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	Bern	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](http://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](http://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](mailto:uta.bilow@tu-dresden.de) or [kcecire@nd.edu](mailto:kcecire@nd.edu)

More info on [www.physicsmasterclasses.org](http://www.physicsmasterclasses.org)



# But wait, there's more!

## International Day of Women and Girls in Science (IDWGS)

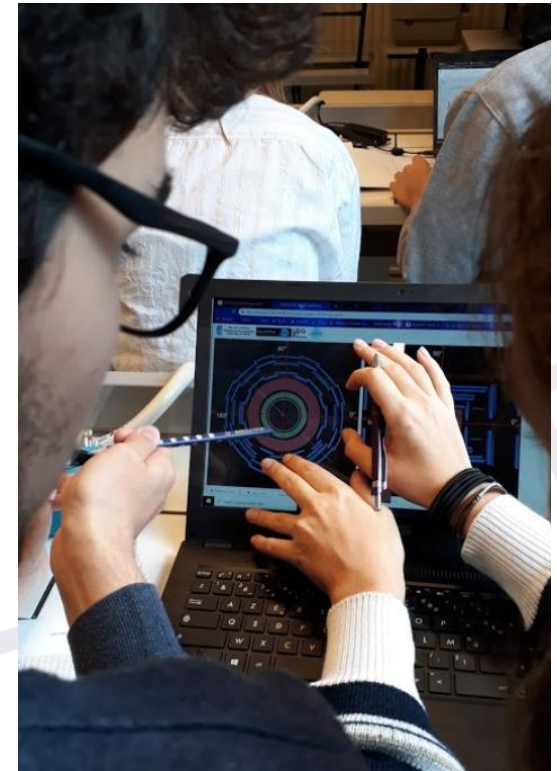
- Special particle physics masterclasses with theme of women in science
- Woman physicist role models and discussion of women's careers
- Contact Uta

## Big Analysis of Muons (BAM)

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

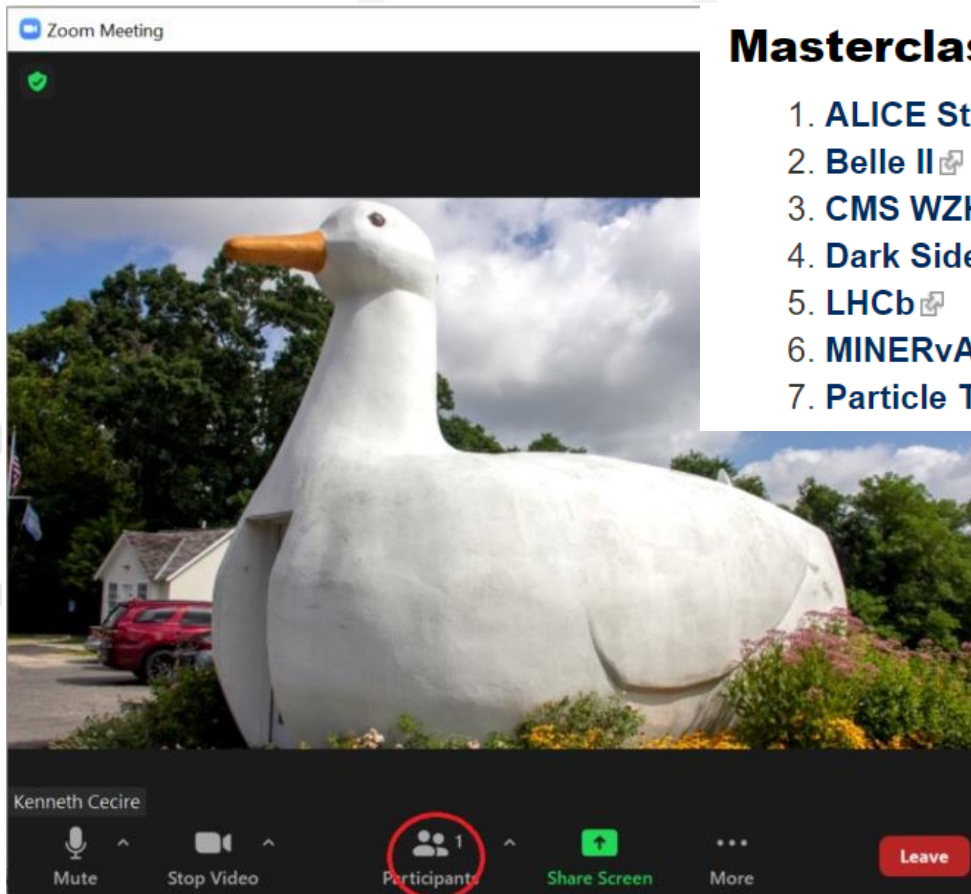
## World Wide Data Day (W2D2)

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



# 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

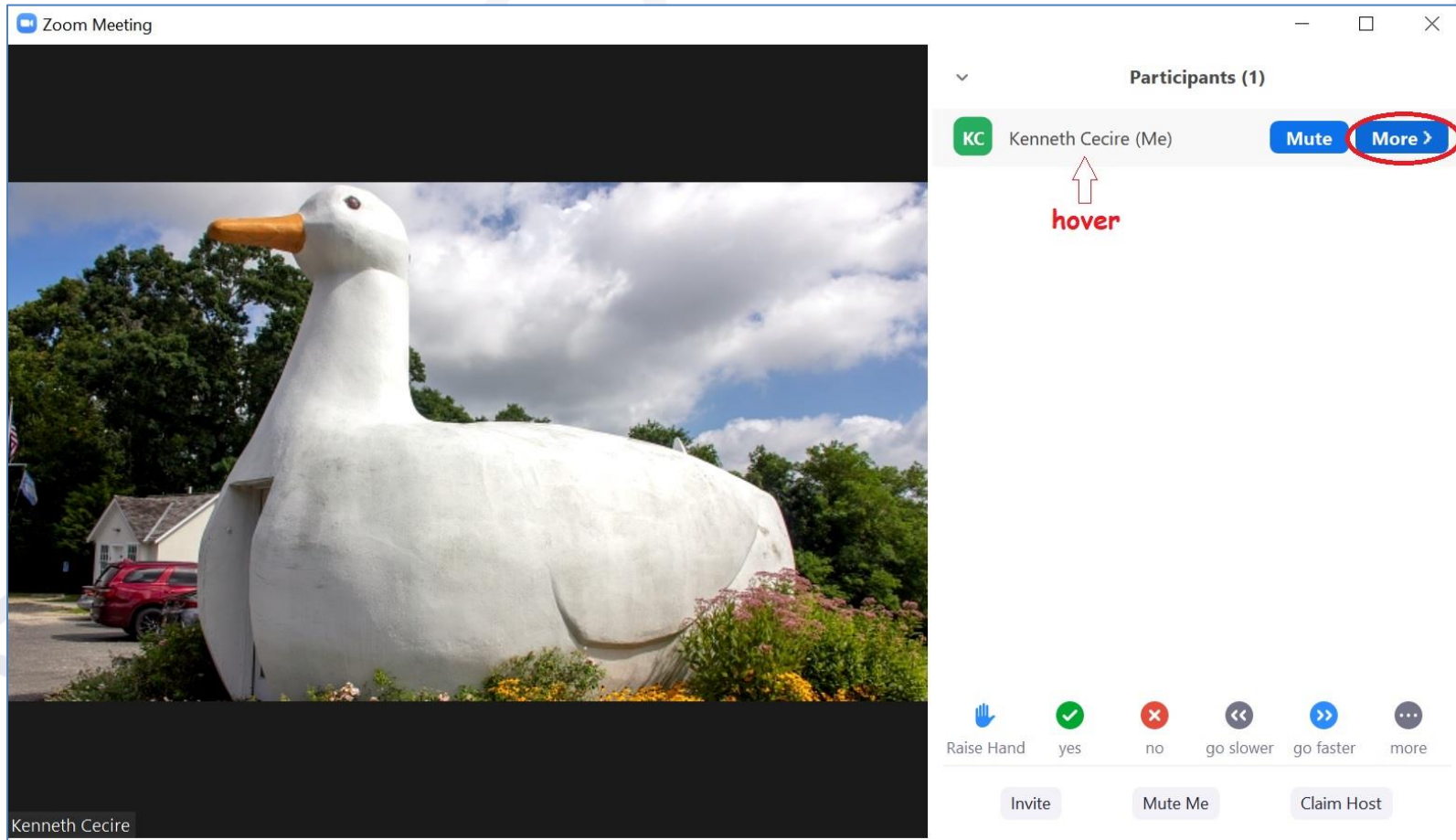
1. ALICE Strange Particles
2. Belle II
3. CMS WZH
4. Dark Side
5. LHCb
6. MINERvA Neutrino
7. Particle Therapy

[https://en.wikipedia.org/wiki/Big\\_Duck#/media/File:Big\\_Duck\\_2018\\_05.jpg](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...



# Zoom skill – name change

The screenshot shows a Zoom Meeting window. The main video feed displays a large white duck sculpture. Overlaid on the video is a 'Rename' dialog box with the following text:

Rename

Enter a new screen name:

duck-5

☒ Remember my name for future meetings

OK Cancel

Red annotations on the dialog box:

- new name (pointing to the text input field)
- uncheck! (pointing to the 'Remember my name' checkbox)

On the right side of the Zoom window, the 'Participants (1)' list shows:

KC Kenneth Cecire (Me) Mute More >

Red annotations on the participants list:


- click here, becomes "rename" - click again (pointing to the 'More >' button)

At the bottom of the Zoom window, there is a toolbar with icons for 'Raise Hand', 'yes', 'no', 'go slower', 'go faster', and 'more'. Below the toolbar are buttons for '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...



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## 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 <a href="#">International Masterclasses</a> (Bilow, Cecire)( <a href="#">slides</a> )	
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>