

INTERNATIONAL MASTERCLASSES

Introduction to International Masterclasses at Fermilab

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Overview

What is a Masterclass?

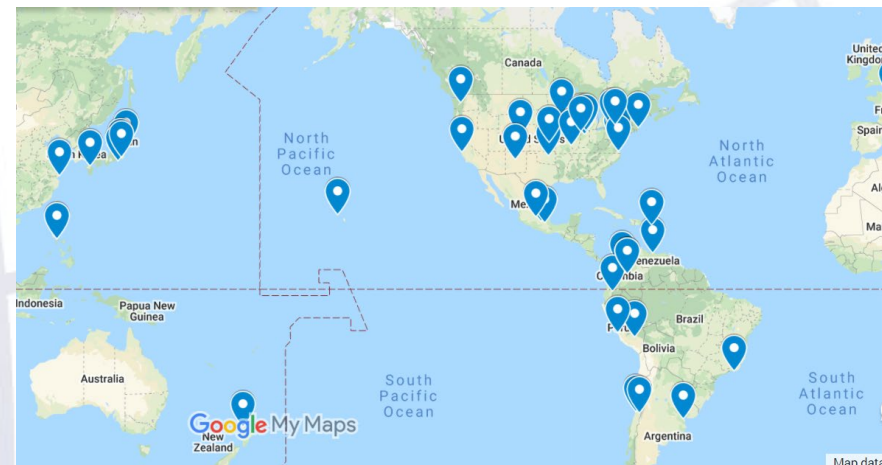
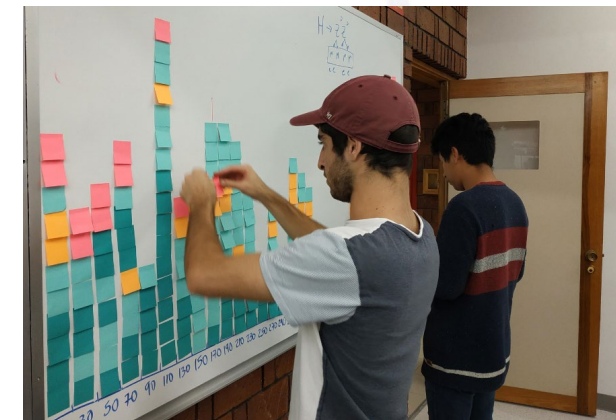
- Students invited to be “particle physicists for a day” at university or laboratory
- Now can be done remotely online
- Combine and share results

International Masterclasses

- In and around March each year, worldwide
- Up to 5 institutes/measurement/day
- Daily capstone videoconferences organized by CERN / **Fermilab** / KEK / GSI / TRIUMF
- Organized by IPPOG, <http://ippog.org/>

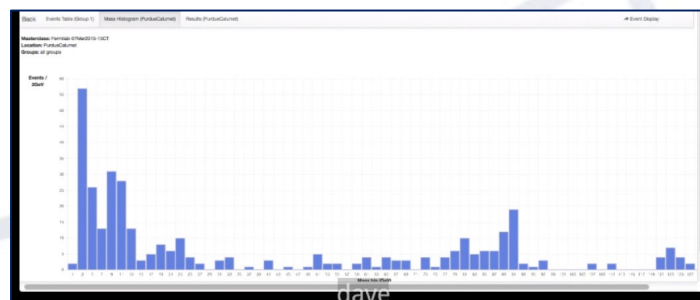
Satellite masterclass events

- 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
 - [Particle Therapy](#)
 - LHC ([ATLAS](#), [CMS](#), [ALICE](#), [LHCb](#))
 - Neutrino experiment ([MINERvA](#))
 - [Belle II](#)
 - [Darkside](#)
- International video conference
 - Presentation of results
 - Combination and discussion
 - Q&A
 - Quiz (CERN-VC)
- Can be organized online but in-person is best!



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 IMC institutes

- Which institutes participate? [Search!](#)
- Organizing an event / help as a tutor at your research lab
 - [How to get started.](#)

At Fermilab, CERN, ...

- Moderate video conferences with high school students
 - Orientation provided
 - Moderate in pairs, newcomers are paired with veterans when possible
 - 1-4 shifts per moderator

Next International Masterclasses: Feb/March/Apr 2022

- Contact: uta.bilow@tu-dresden.de or kcecire@nd.edu
- More info: [IMC website.](#)

Fermilab Masterclasses

2021 Schedule for ATLAS masterclass videoconferences moderated by Fermilab

This will be updated as registrations are received.

Times are in U.S. Central Time. (Convert to your time zone.) This schedule is subject to change.

Date/time (U.S. Central Time)	Institutes	Moderator(s)	Staff	Zoom link
Sat 06 Mar/14:00	SantaCruz	Cecire	Wegner	videocon
Thu 11 Mar/09:00	NewYorkMarconi	Darmora	Cecire	videocon
Fri 12 Mar/20:00	Singapore, Winamac	Glover	Wood	webinar
Sat 13 Mar/09:00	Faro	Darmora	Wegner	videocon

2021 Schedule for CMS masterclass videoconferences moderated by Fermilab

This will be updated as registrations are received.

Times are in U.S. Central Time. (Convert to your time zone.) This schedule is subject to change.

Date/time (U.S. Central Time)	Institutes	Moderator(s)	Staff	Zoom link
Wed 17 Feb/14:00	ViennaVA	Glover	Cecire	videocon
Sat 20 Feb/16:00	Colima, Sonora, PueblaBUAP-I	Malik, Hogan	Cecire	webinar
Tue 23 Feb/09:00	Plainview-Old Bethpage	Abreu, Bonilla	Cecire	webinar
Fri 26 Feb/14:00	Queretaro, Tlaxcala	Hall, Mantilla	Cecire	webinar
Sat 27 Feb/14:00	Buffalo, Williamsburg	Yu	Wegner	webinar
Tue 02 Mar/14:00	PueblaCardenas, PueblaZapata, Puebla2Octubre	Carillo, Vazquez, Uribe	Wood	webinar
Thu 04 Mar/16:00	Quito, South Bend	Hall, Natale	Wegner	webinar
Fri 05 Mar/20:00	Shanghai, SingaporeGESS	Malik, Mantilla	Cecire	webinar
Sat 13 Mar/15:00	Caucasia, Medellin	Yu, Mantilla	Glover	webinar
Fri 23 Apr/14:00	ManhattanKS, PueblaBUAP-II, RioJaneiro, CdMexicoEdison, CdMexicoIbero	Malik, Natale	Wood	webinar

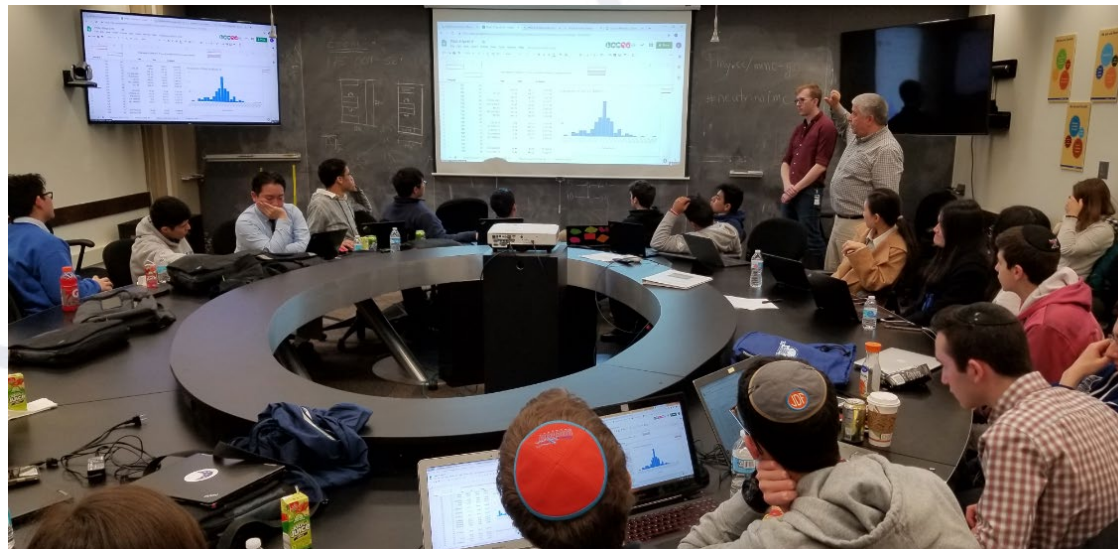
Fermilab Masterclasses

2021 Schedule for MINERvA masterclass videoconferences moderated by Fermilab

This will be updated as registrations are received.

Times are in U.S. Central Time. (Convert to your time zone.) This schedule is subject to change.

Date/time (U.S. Central Time)	Institutes	Moderator(s)	Staff	Zoom link
Fri 26 Feb/13:00	Pittsburgh	Norrick	Cecire	webinar
Wed 03 Mar/12:00	Rochester	Olivier	Wood	webinar
Thu 04 Mar/08:00	Manchester, Amman, New Delhi	Olivier	Wood	webinar
Sat 06 Mar/14:00	Piscataway, Minneapolis	Junk	Pasero	webinar
Thu 11 Mar/14:00	Medford, Mishawaka	Martinez	Wood	webinar
Sat 13 Mar/13:30	Mayaguez	Fine	Pasero	webinar
Wed 19 May/08:30	Wayzata	Olivier	Wood	videocon



Fermilab Moderators



Pedro Abreu
LIP and IST, Portugal



Ketevi Assamagan
Brookhaven National
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Salvador Carrillo
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Purdue University, USA



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High School, USA



Shane Wood
UMN/QuarkNet, USA



David Yu
Brown University, USA

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

