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# EPPOG Physics Masterclasses 2012

## Moderating the Video Conference

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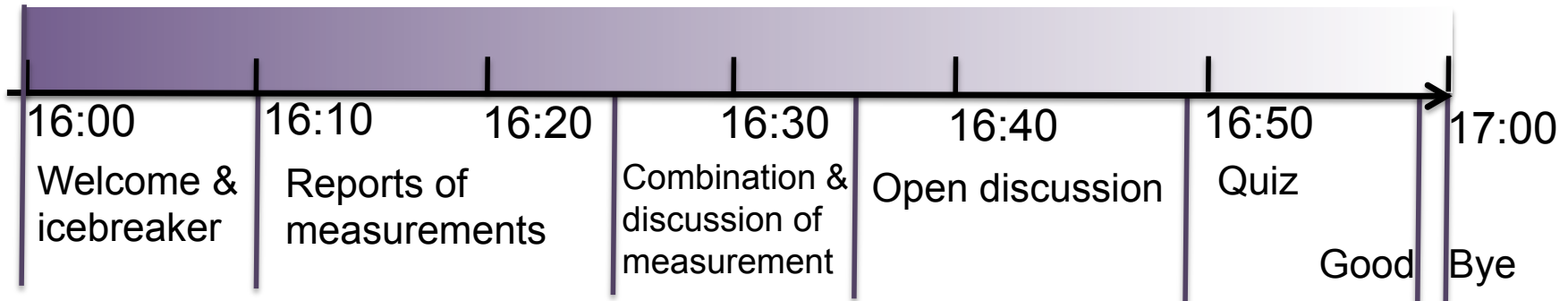
# Moderators

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You are going to be the face of CERN to hundreds of students around the world!



# The Video Conference

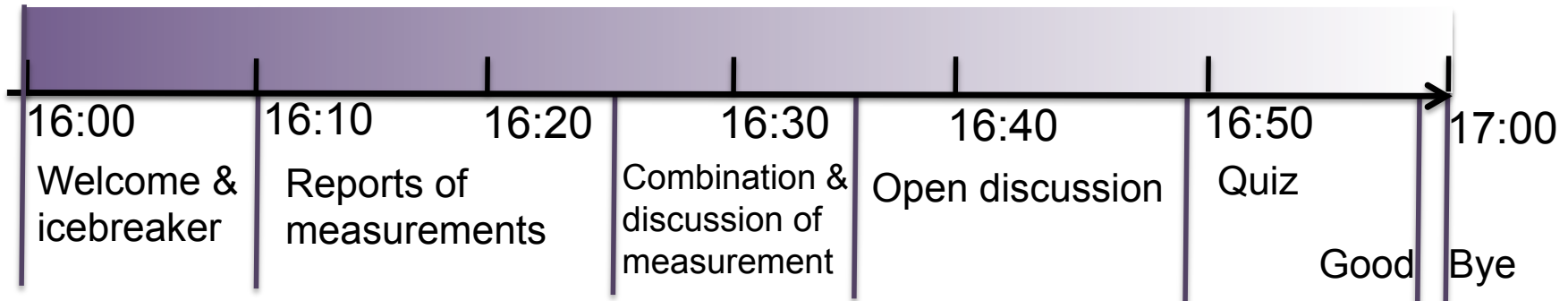


One hour video conference with 3-5 institutes

## The VC should:

- convey the internationality of the event
- demonstrate how physicists work together internationally
- encourage students to exchange experiences between masterclasses
- demonstrate improvement in accuracy by combination of different data sets
- most importantly: **BE FUN FOR THE STUDENTS!**

# The Video Conference



One hour video conference with 3-6 institutes

## The VC should NOT:

- deepen the understanding of the physics
- teach English vocabulary of particle physicists
- contain a basic discussion of the measurement
- create a competition regarding the measurements

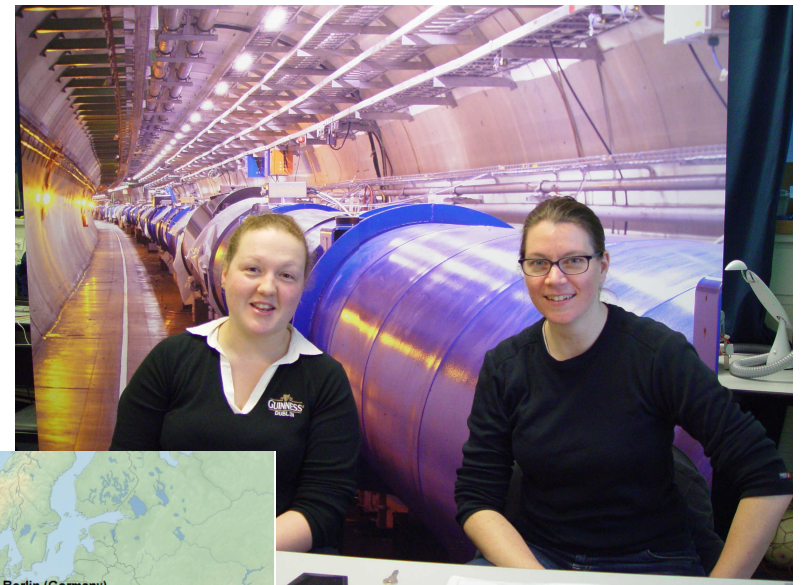
# Welcome & icebreaker

16:00	16:10	16:20	16:30	16:40	16:50	17:00
<b>Welcome &amp; icebreaker</b>	Reports of measurements	Combination & discussion of measurement	Open discussion	Quiz	Good Bye	

**The welcome has to be on schedule, common and interactive!!**

❖ Students should immediately feel they should actively take part in the VC

- ✓ Introduce yourself and explain where you are
- ✓ Put on the live stream from Control rooms onto shared desktop
- ✓ Explain what will be happening in the next hour
- ✓ Display a map showing all the connected sites
- ✓ Ask one short question to each masterclass





# Reports of measurements

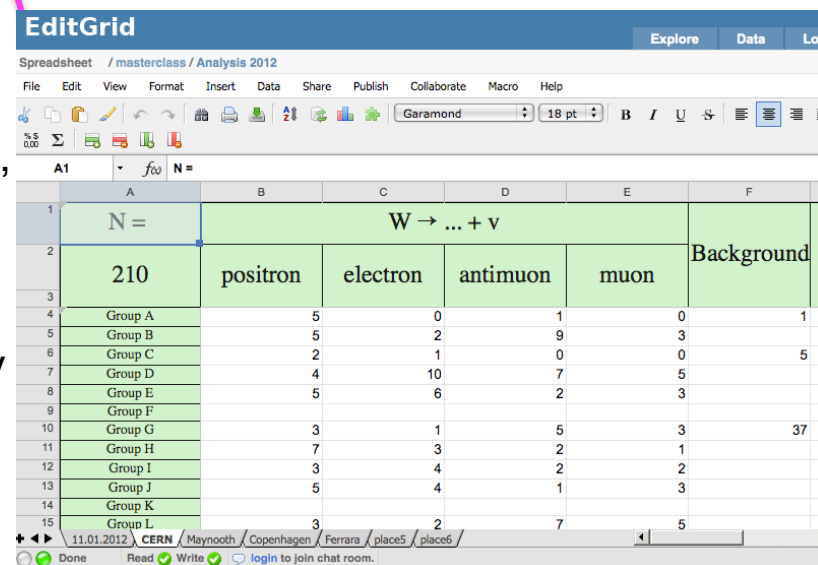
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✓ Put up the results page onto the shared desktop and address each masterclass one by one

✓ Students should report for up to two minutes on results, uncertainties, difficulties and express any questions they had

✓ All reports must be given in a row – NOT interrupted by questions or comments

✓ Then at the end students have the chance to comment and ask questions



Spreadsheet / masterclass / Analysis 2012

A1	A	B	C	D	E	F
	N =	W → ... + v				
	210	positron	electron	antimuon	muon	Background
	Group A	5	0	1	0	1
	Group B	5	2	9	3	
	Group C	2	1	0	0	5
	Group D	4	10	7	5	
	Group E	5	6	2	3	
	Group F					
	Group G	3	1	5	3	37
	Group H	7	3	2	1	
	Group I	3	4	2	2	
	Group J	5	4	1	3	
	Group K					
	Group L	3	2	7	5	

# Combination & discussion of measurement

16:00	16:10	16:20	16:30	16:40	16:50	17:00
Welcome & icebreaker	Reports of measurements	<b>Combination &amp; discussion of measurement</b>	Open discussion	Quiz	Good Bye	

- ✓ All masterclasses will do the same measurement but different data
- ✓ Combine the results in the table
- ✓ Summarize and comment.
- ✓ Compare to the theory/experimental results
- ✓ Stress why using different data from different sources is beneficial (stats and reduces bias)
- ✓ Students here can ask questions. Encourage discussion between the masterclasses

Spreadsheet / masterclass / Analysis 2012

A1	f <sub>0</sub>	N <sub>e</sub>					
place 3	0	0	0	0	0	0	0
place 4	0	0	0	0	0	0	0
place 5	12	21	33	4	53	24	
place 6	0	0	0	0	0	0	0
<b>Sum</b>	58.0	58.0	71.0	30.0	113.0	27.0	
W+ & W-	number of W+	129.0	number of W-	88.0			
W+ / W-	1.47		±	0.20			

\*) Authors: The ATLAS Collaboration (Submitted on 5 Dec 2011): <http://arxiv.org/abs/1109.5141.pdf>  
 \*\*) Authors: The ATLAS Collaboration (24 Aug 2011): ATLAS-CONF-2011-134

	W → ... + ν				Background	WW+0J cand.
	positron	electron	antimuon	muon		
Total	77885	52856	84514	55234.0	21930.0	469
Total W+/W-	number of W+	162399	number of W-	108090		
W+ / W-	1.50		±	0.01		

# Open discussion

16:00	16:10	16:20	16:30	16:40	16:50	17:00
Welcome & icebreaker	Reports of measurements	Combination & discussion of measurement	<b>Open discussion</b>	Quiz	Good Bye	

- ✓ Discussion can expand to more open and general questions
- ✓ They can be on anything from...
  - ✓ Life at CERN
  - ✓ LHC, size, magnets, cost, power consumption
  - ✓ Detectors & experiments
  - ✓ The Universe, the Big Bang, dark matter, black holes, time travel...
  - ✓ How to get into physics/working at cern

**Give short answers**





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Welcome & icebreaker	Reports of measurements	Combination & discussion of measurement	Open discussion	<b>Quiz</b>	Good Bye	

## 7TeV Quiz – *who wants to be a millionaire?*

- ✓ Moderators show English version on shared desktop.
- ✓ Seven questions – each multiple choice
- ✓ Each student plays alone
- ✓ Correct answer revealed after each question
- ✓ Scoring is done by each student
- ✓ No comparisons, no prizes

***Don't phone in it's just for fun!***

## Quiz Answer Sheet



**Your Answers**  
Tick off your answer A, B, C or D

1	<input type="radio"/> A	<input type="radio"/> C
	<input type="radio"/> B	<input type="radio"/> D
2	<input type="radio"/> A	<input type="radio"/> C
	<input type="radio"/> B	<input type="radio"/> D
3	<input type="radio"/> A	<input type="radio"/> C
	<input type="radio"/> B	<input type="radio"/> D
4	<input type="radio"/> A	<input type="radio"/> C
	<input type="radio"/> B	<input type="radio"/> D
5	<input type="radio"/> A	<input type="radio"/> C
	<input type="radio"/> B	<input type="radio"/> D
6	<input type="radio"/> A	<input type="radio"/> C
	<input type="radio"/> B	<input type="radio"/> D
7	<input type="radio"/> A	<input type="radio"/> C
	<input type="radio"/> B	<input type="radio"/> D

**Your Score**  
Tick off one energy step for each correctly answered question, starting at the bottom.

<input type="checkbox"/>	<b>700000000000 eV</b> full beam energy of the LHC
<input type="checkbox"/>	172900000000 eV mass of the top quark
<input type="checkbox"/>	91187600000 eV mass of the Z-Boson
<input type="checkbox"/>	938272013 eV mass of the proton
<input type="checkbox"/>	105658367 eV mass of the myon
<input type="checkbox"/>	2500000 eV mass of the up quark
<input type="checkbox"/>	510999 eV mass of the electron
<input type="checkbox"/>	0 eV

## Welcome to the MASTERCLASSES QUIZ!


### Rules of the Game

- 7 questions, 4 answers to choose (A,B,C,D)
- **mark your answer on your answer sheet before the timer ends!**
- moderators will then reveal the correct answer
- if you have answered correctly, you may **tick off the** next energy level

*Let's check which energy level you can reach*

*Please note:*

- *this quiz is for fun, not for competition!*
- *we won't compare results*



The screenshot shows a digital quiz interface titled "Quiz Question Sheet". The main question is "What is your name?". Below the question is a text input field. There are four answer buttons labeled A, B, C, and D with the following text: A: "I", B: "no", C: "have", and D: "idea". Below the answer buttons are two question cards. Card 6 asks for the "mass of the up quark" with options A, B, C, and D. Card 7 asks for the "mass of the electron" with options A, B, C, and D. A red circle highlights the "510999 eV" option for the electron mass question. At the bottom right, there is a "0 eV" option with a red arrow pointing to it.

# Quiz



Welcome to the  
**MASTERCLASSES QUIZ!**

**Ready?**

# Quiz Question Sheet



# Quiz Question Sheet



Which particle is the mediator of the Strong Force?



1

A

Neutralino

C

Gluon

B

Snail

D

Pigsino





**How much of our universe  
is made of matter or energy,  
about which we know  
almost nothing about?**



2

**A**

13%

**C**

100%

**B**

96%

**D**

32.8%

16:00	16:10	16:20	16:30	16:40	16:50	17:00
Welcome & icebreaker	Reports of measurements	Combination & discussion of measurement	Open discussion	Quiz	<b>Good</b>	<b>Bye</b>

There has to be a clear common end of the VC after 60 minutes!

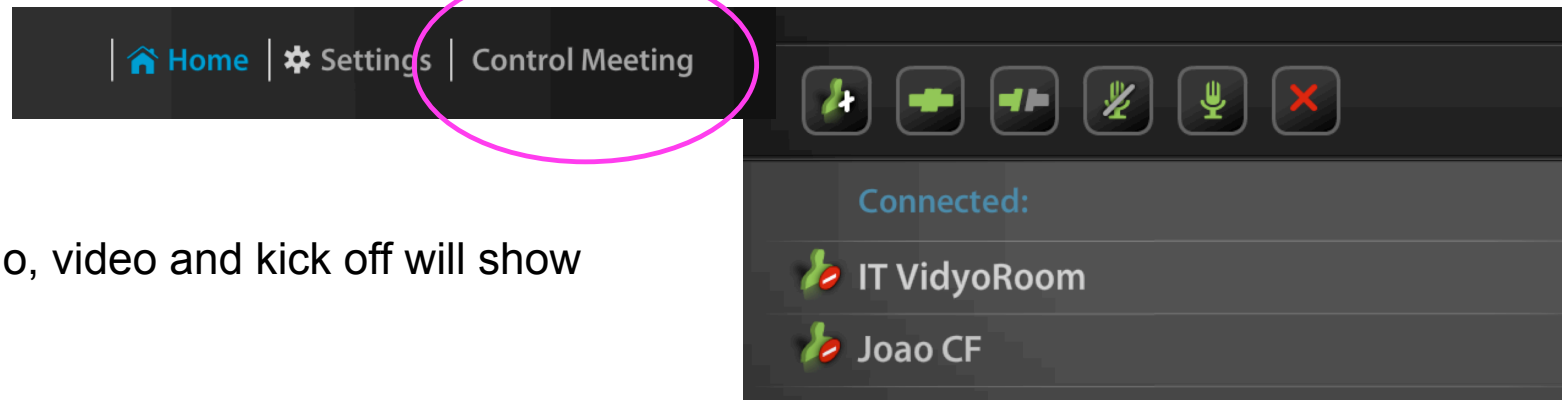
✓ Say goodbye to everyone and thank them for taking part!

✓ Do not keep discussion going even if the students are asking questions

✓ If they and you want some discussion can continue after the goodbye on a voluntary basis



✓ Mute noisy institutes!



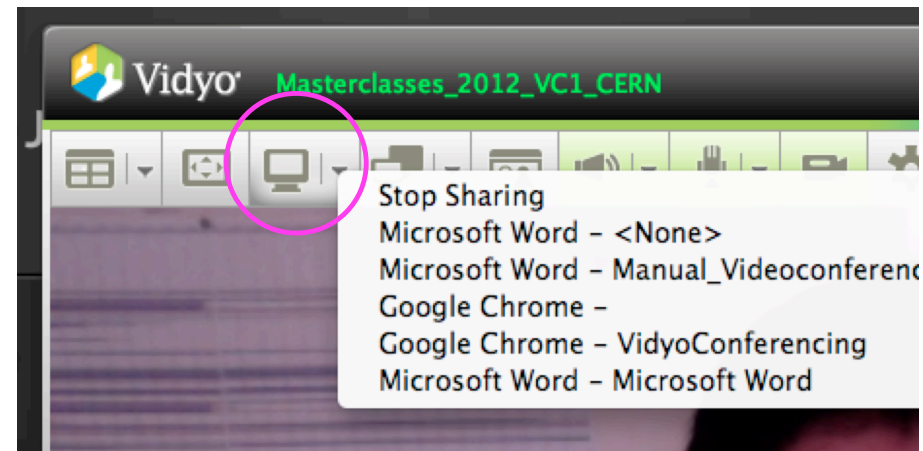
- Select a participant
- Buttons for mute audio, video and kick off will show

✓ Audio is done via the H323 terminal installed in the BC room.

- Thus you must immediately mute the desktop client, both speaker and mic icons



✓ To share the Desktop from the VC PC click the third button on the Vidyo interface and choose which application you wish to share



***Complete instructions are in the manual.  
Login in and have a go!***

- ✓ Moderators Manual – has all the information you need for the VC!
- ✓ Twiki <https://twiki.cern.ch/twiki/bin/view/Main/InternationalMasterclassesModeratorManual>
- ✓ Schedule will show which VC you are signed up for  
<http://physicsmasterclasses.org/neu/index.php?cat=schedule>
  
- ✓ Two Locations for the VC
  - Teachers Lab (building 3-R-002) – obtain keys from office 3-R-006
  - CMS center (building 354-1-002, first floor, main room)
- ✓ Names and numbers of contact people for both rooms are available on the twiki and in the Manual
  
- ✓ VC meeting rooms – video link up via Vidyo
  - ✓ Common login and passwords. – Available from the manual and twiki soon.

Please arrive 30 minutes before the start of the VC to setup, prepare and download material including: (all can be downloaded/accessed from links in manual and twiki)

- ✓ Live stream from the control room
- ✓ Masterclass map
- ✓ Table/website for combination of results
- ✓ Animated Quiz

*So smile, initiate dialogue and make it fun! The success of the conference relies on you! (no pressure)*