

Making the most of your 10 minutes of fame

Dave.Barney@cern.ch



Making engaging presentations
≠ soft skill!

**THE PRESENTATION IS FOR THE AUDIENCE
MAKE SURE YOU KNOW YOUR AUDIENCE AND
TRY TO GET IN THEIR HEADS TO UNDERSTAND
WHAT THEY WANT!**

i.e. students, teachers, general public, media,
influencers: all want/need different things

What is the purpose of a presentation?

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For the audience to understand one or more **messages**

And possibly act upon those messages

message \neq information

Supercars of Prague (1/3)



This is “information”

Bugatti Divo in Prague



This is also “information”

The only Bugatti Divo in Prague is the official ICHEP taxi!



This is a **“message”** that you can act upon!

What is a message?

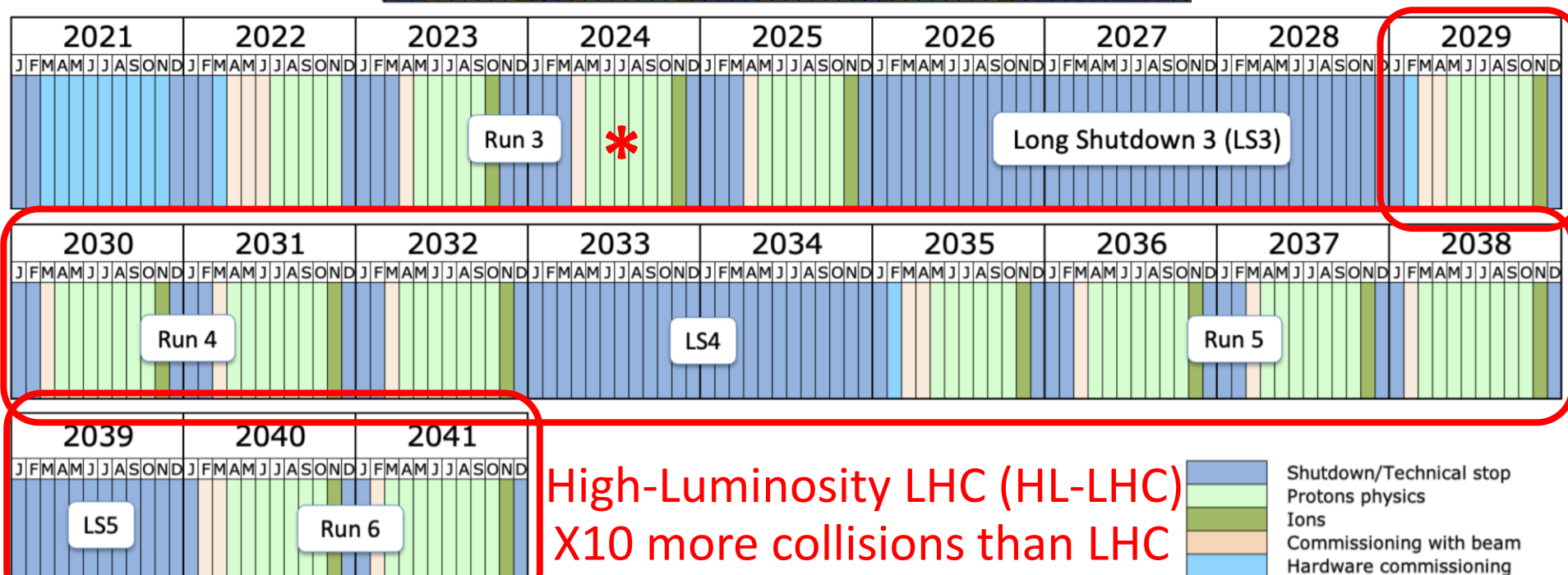
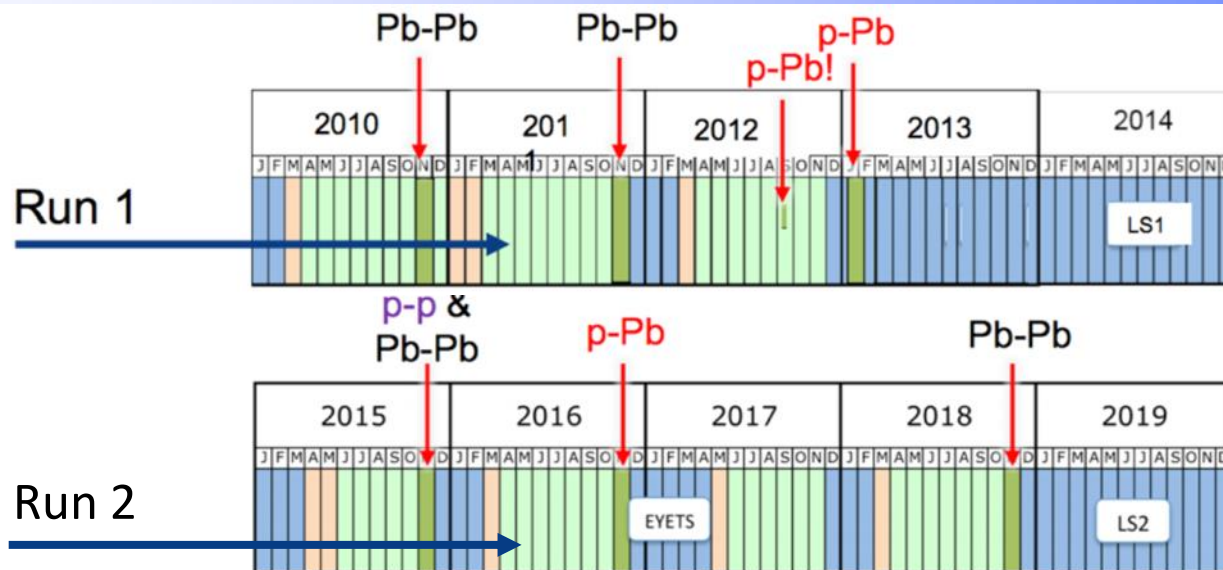
It is not the “what”

It is the “*so what?*”

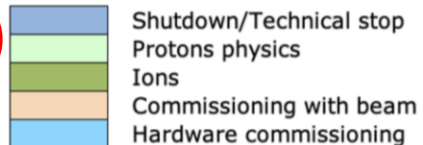
Including the “so what?” explicitly on
your slides is a basic redundancy

Even if the “so what?” is the **only text on your slide**, an offline reader will be able to understand the important points of the presentation – e.g. in the “**title**” part of your slides!

Long-term LHC schedule

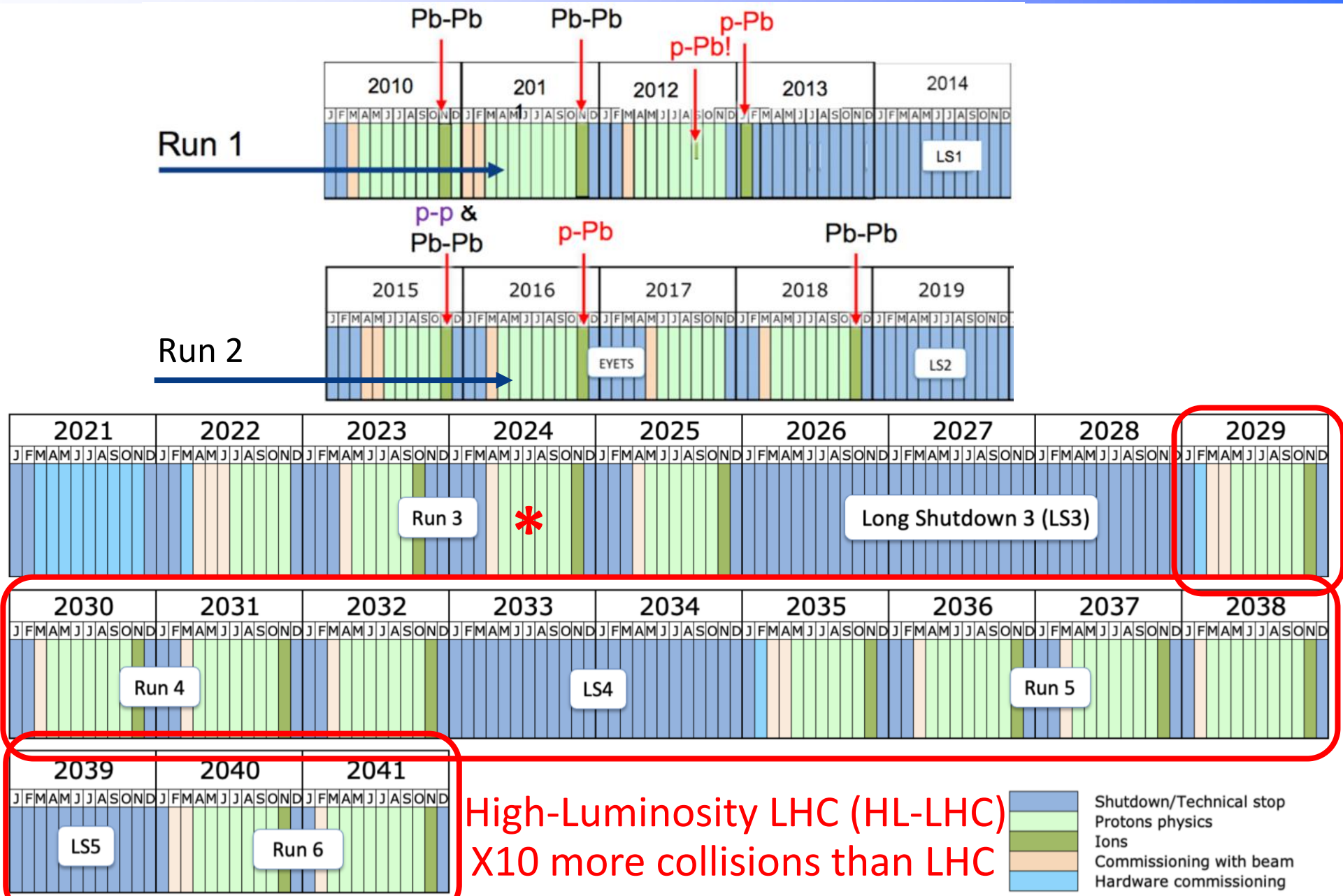


High-Luminosity LHC (HL-LHC)
X10 more collisions than LHC





CMS has taken ~4% of the planned amount of data!



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X10 more collisions than LHC

Last update: April 2023

When preparing a presentation, think of **one or two main messages** that you want to pass – depending on the target audience of course. For example:

- HEP is worth funding, now and in the future
- The LHC experiments are doing precision physics
- You too can take part in HEP, whether you are a physicist, an engineer, a technician, work in administration etc.
- Understanding more about our place in the Universe is fundamental to the survival of the human race

And make sure all of your presentation focuses on these main messages

Anecdotes can be even more memorable than messages, especially if the story includes something that went wrong, and how it was solved

1975

A Phenomenological Profile of the Higgs Boson

- First attempt at systematic survey

A PHENOMENOLOGICAL PROFILE OF THE HIGGS BOSON

John ELLIS, Mary K. GAILLARD * and D.V. NANOPOULOS **
CERN, Geneva

Received 7 November 1975

A discussion is given of the production, decay and observability of the scalar Higgs boson H expected in gauge theories of the weak and electromagnetic interactions such as the Weinberg-Salam model. After reviewing previous experimental limits on the mass of

We should perhaps finish with an apology and a caution. We apologize to experimentalists for having no idea what is the mass of the Higgs boson, unlike the case with charm [3,4] and for not being sure of its couplings to other particles, except that they are probably all very small. For these reasons, we do not want to encourage big experimental searches for the Higgs boson, but we do feel that people performing experiments vulnerable to the Higgs boson should know how it may turn up.

The ATLAS endcap toroids faced some unexpected difficulties when being transported to CERN

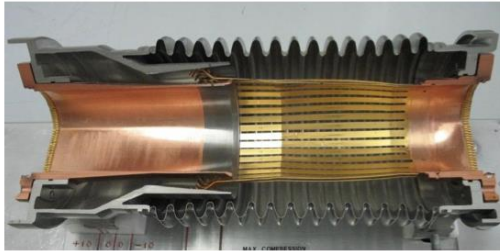


A bridge at a ski resort appeared unexpectedly

When excavating the CMS shaft in Cessy, we hit the water table.
We froze the ground with liquid N_2 so we could dig through it!



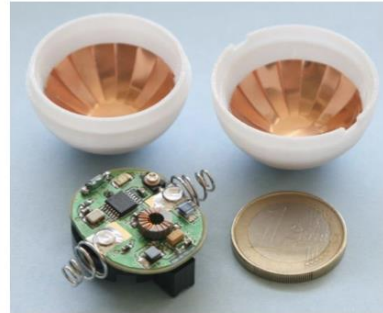
LHC RF ball for detecting obstacles in the beam pipes



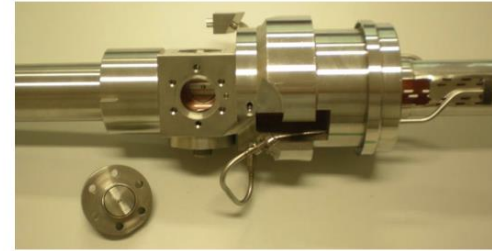
As the magnets cool down from room temperature to $-270\text{ }^{\circ}\text{C}$ they shrink in length.

In order to keep a good electrical contact between the vacuum chambers in neighbouring magnets a plug-in module fitted with gold coated contact fingers is used.

The first time the LHC was warmed-up, some of these fingers were found to have buckled into the chamber.



To allow these to be repaired it was necessary to find out exactly where they were without having to open the whole machine. The solution was to suck a ping-pong size ball fitted with a radio transmitter through the 3km magnet chain which extends from one LHC access point to the next.



It was possible to follow the ball's progress using the LHC beam position monitoring system, which usually measures the beam position by picking up the radio signals generated by the beam. One such monitor is located every 54 m in the LHC.

If the ball stopped, the faulty location was easily found without needing to open the whole LHC.



Add some “local interest” to your talk

Czechia in CMS:

Charles University, Prague

2 physicists

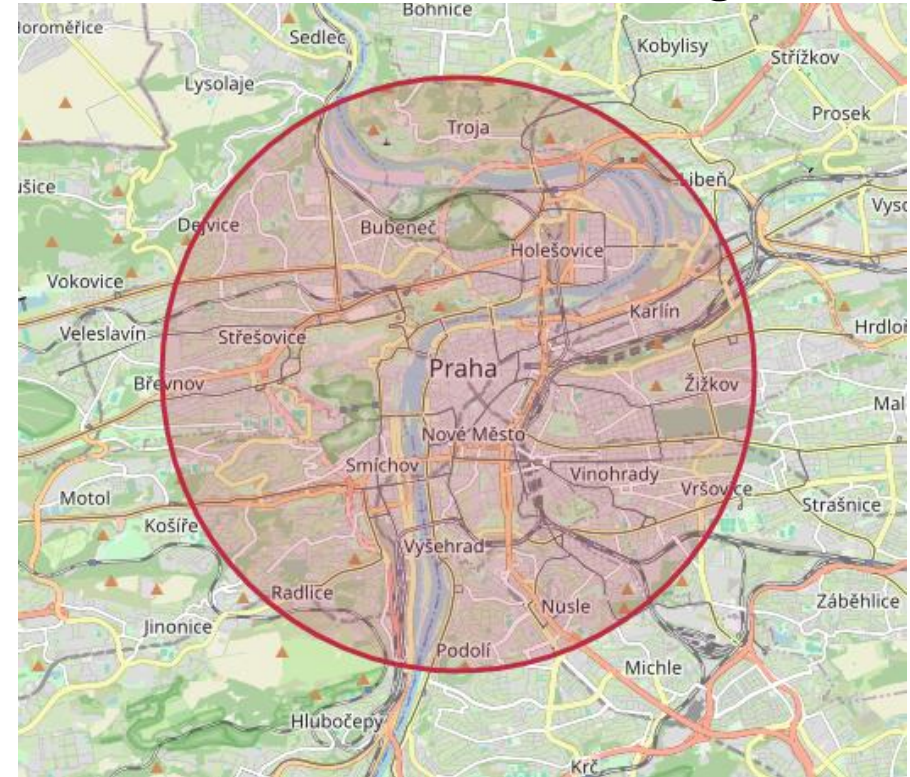
2 software engineers

2 students

Mainly working on
Hadron Calorimeter



Size of the LHC,
if it were around Prague



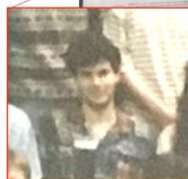
<https://natronics.github.io/science-hack-day-2014/lhc-map/>

Add some personal history if you can (and if appropriate): i.e. what have YOU done in HEP?



How did I get here?

- Born and bred in the UK. Left school with “OK” A-levels in Physics, Maths, Chemistry and Computer Science
- BSc degree in Physics at Imperial College London (1987-1990)
 - CERN Summer Student in 1990
- PhD in High Energy Physics at Imperial (1990-1993)
 - Based in UK with visits to CERN
- Have been working for CERN for the CMS Experiment for 30 years!



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Be interactive, if appropriate and if you can
e.g. don't give all the answers; ask the audience!

What do we do at CERN?



We smash things together
and see what happens!

Before the particle accelerator

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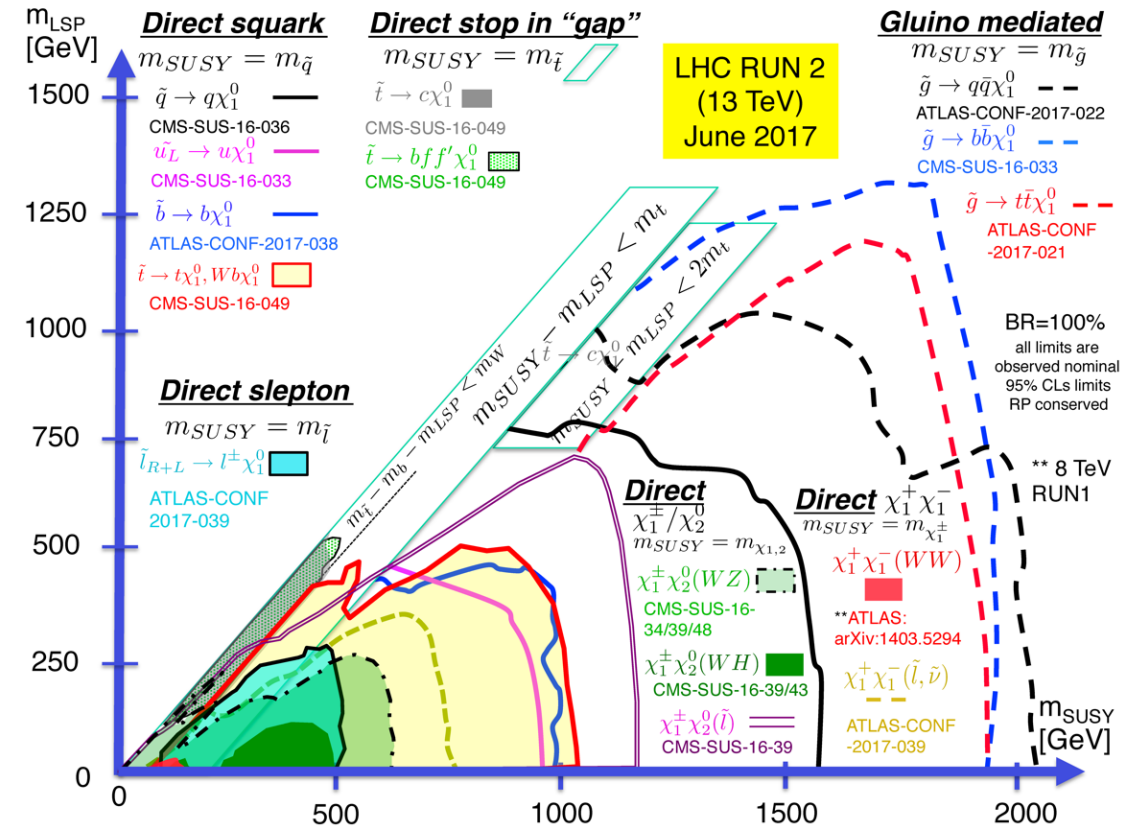
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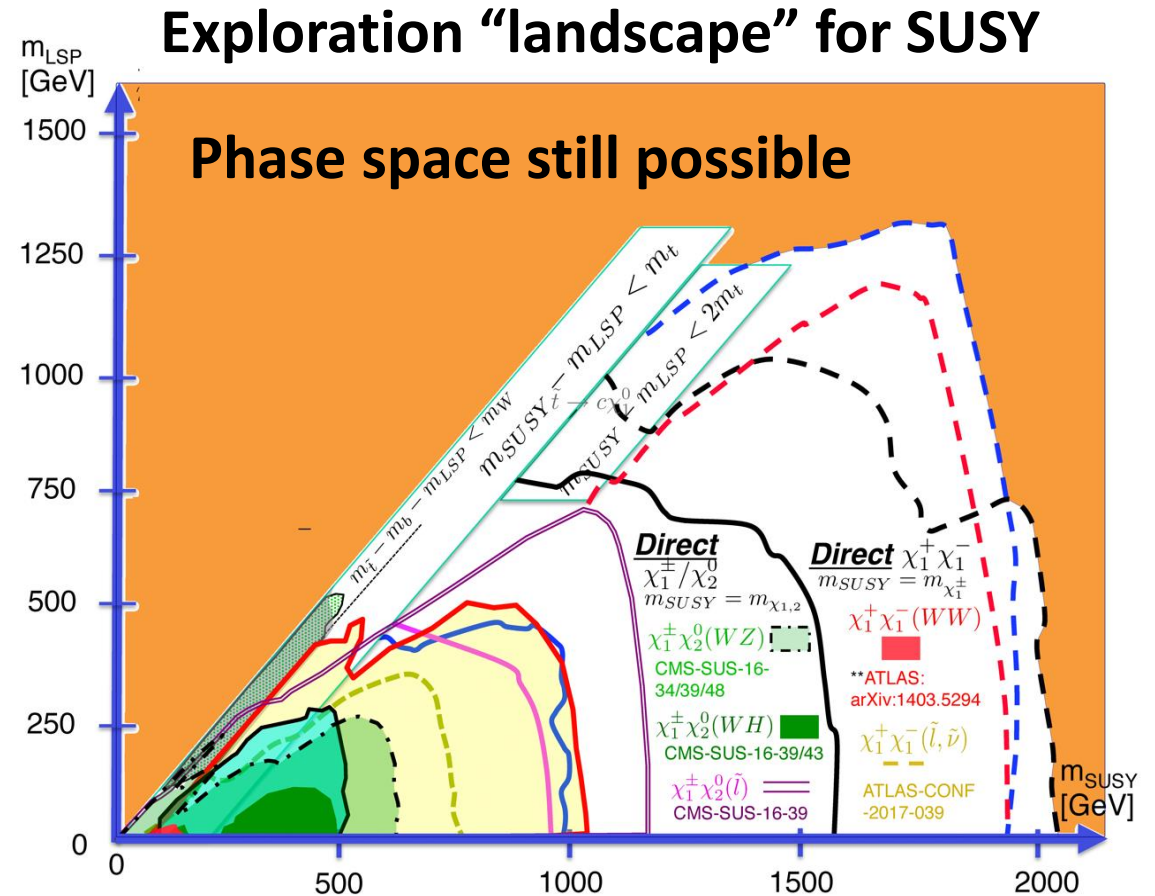
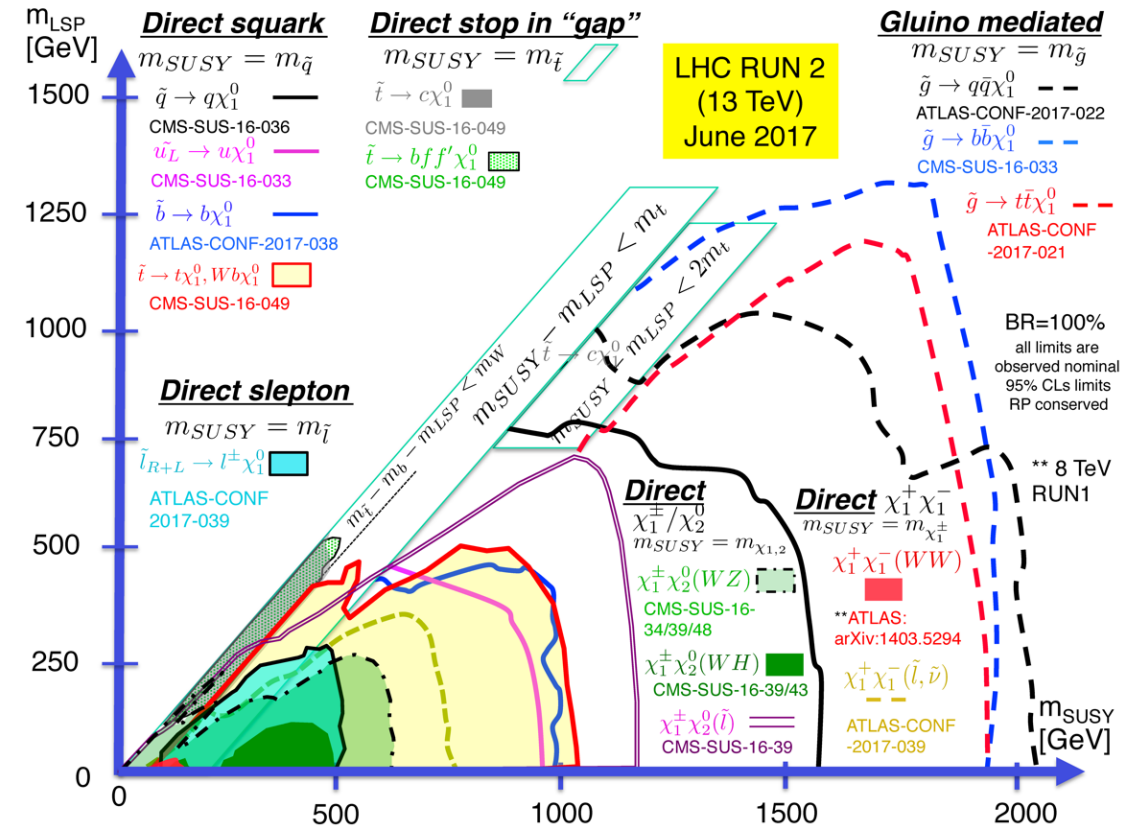
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And regularly come back to the audience for more interaction
→ Helps keep them attentive and interested

Adapt your plots to focus on the main message



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Content ordering for most of our talks follows a “standard” format. Does it have to?

- title
- overview of talk
- what we did
- what we found
- what this means
- what we do next

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This is the exciting stuff!



But compare to a newspaper...



Why hurricanes are moving dangerously slowly

The behaviour of the world's most powerful storms is evolving. To adapt to more destructive hurricanes, we need to know how they're changing.

[See more](#)

- **Headline & image to get attention!**
- **Give the main message(s)**
- **links to more information**

<https://www.bbc.com/future/article/20240712-modern-hurricanes-are-rewriting-the-rules-of-extreme-storms>

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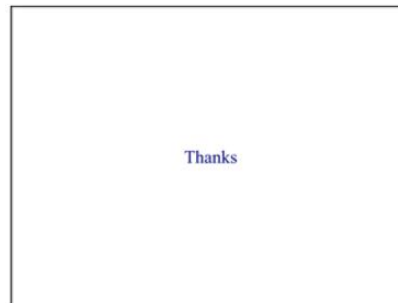
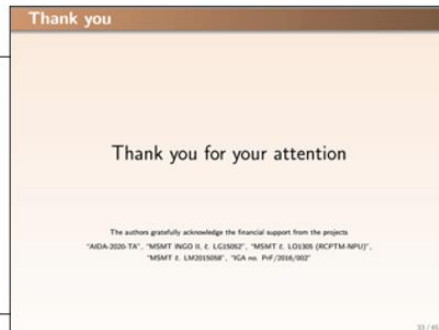
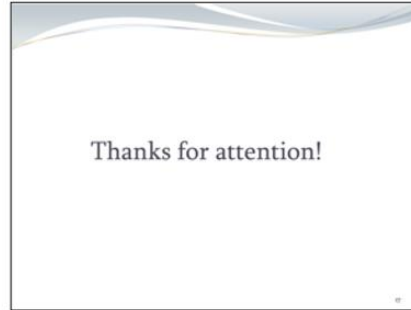
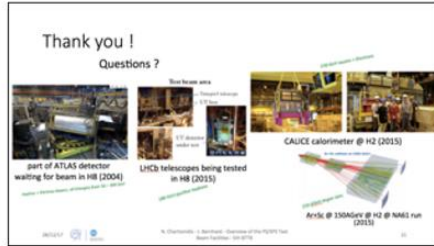
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Can a similar structure be used in your talks?

And finally...some thoughts about **presenting the presentation!**

- Be **passionate** about your topic!
- **Engage with the audience** - talk to them and not the screen; **do not read the slides!**
 - limiting the text on slides helps
- **Use the space you have** and **use body language** (but not excessively)
 - and don't play with coins, keys etc.!
- **Pay attention to timing!**

For ending a talk, a transition to Q&A is normally the most effective



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DOES ANYONE HAVE ANY QUESTIONS?

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Another good way to end a talk is with a summary of the main messages!

- **Know your audience** and target them!
- Select a few main messages that you want to get across and **focus the talk around these messages**
- Anecdotes – especially “**triumph over adversity**” – are really powerful
- Add **local interest** if you can
- Add some **personal history** if you can
- Be **interactive** (if appropriate)
- **Simplify plots** to focus on the main message
- Don't be afraid to **think differently** for the content ordering

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All of these guidelines are perfectly applicable to any talk you give – including to the HEP community!