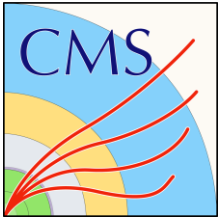


CMS Communications

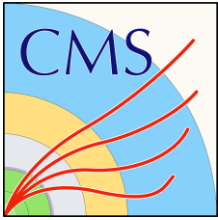
July 2015



What communications?

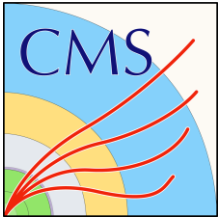
- Outreach
- Education
- Internal

In coordination with Spokesperson and CB Chair



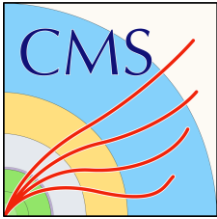
How?

- Small dedicated team supported by CMS and CERN
 - Currently 3 people
- Several/many regular contributors
- Regular weekly CMS weeks meetings open to interested people
 - Present projects
 - Share ideas
 - Prepare for special events



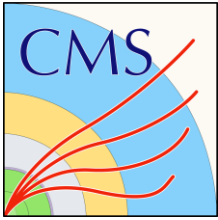
Activities

- WORK PACKAGE 1: Information Systems
 - 1.1 Public website
 - 1.2 DocDB
- WORK PACKAGE 2: Education and Outreach
 - 2.1 Public communication
 - 2.2 Media inquiries
 - 2.3 Print/digital
 - 2.4 Multimedia production
 - 2.5 Visits P5
 - 2.6 Virtual Visits
 - 2.7 Data for public/education
 - 2.8 Local Events
 - 2.9 Art@CMS
 - 2.10 Products
 - 2.11 Souvenirs
- CMS Communications Work Packages Breakdown can be view [here](#)



Service work

Project	Activity	Task	Months
General	Commun	Communications Infrastructure	18
		Information Systems - Design new public web site on CERN	
General	Commun	platform	3
General	Commun	Information Systems - New public web site content migration	3
General	Commun	Information Systems - DocDB maintenance	2
General	Commun	Education and Outreach - Open Data applications	4
General	Commun	Education and Outreach - Comic book	3
General	Commun	Education and Outreach - Visitors feedback	1
General	Commun	Education and Outreach - Posters translation	1
General	Commun	Education and Outreach - Masterclass pack for teachers	1
General	Commun	Education and Outreach - CMS pack	2
General	Commun	Education and Outreach - CMS pack pdf	1
General	Commun	Education and Outreach - CMS pack apps	1
General	Commun	Education and Outreach - CMS pack translation (1w/language)	2.5
General	Commun	Education and Outreach - Virtual Visits guide for remote sites	1
		Education and Outreach - Virtual Visits guides (1d/visit,	
General	Commun	2d/week-ends)	6
Total			49.5



Print/digital

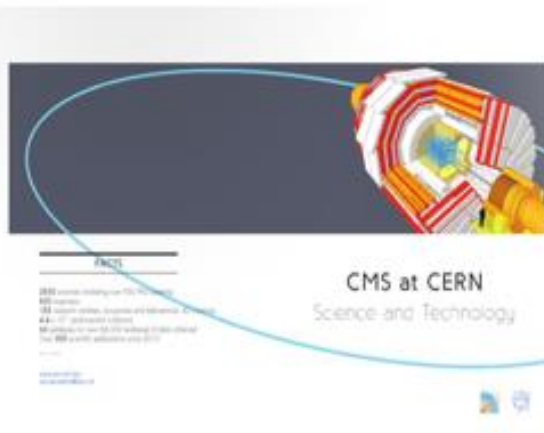
Initiative of the CMS
Collaboration Board

Three core CMS pillars:

1. Science and
Technology
(produced May 2014)
2. Fundamental Physics
(in progress)
3. Worldwide
Collaboration
(in progress)

Target audience

- General Public
- Decision makers
- Students, Teachers,
...



FACTS

- 2012 started building the CMS detector
- 2013 started taking data
- 2014 started taking data
- 2015 started taking data
- 2016 started taking data
- 2017 started taking data
- 2018 started taking data
- 2019 started taking data
- 2020 started taking data
- 2021 started taking data
- 2022 started taking data
- 2023 started taking data
- 2024 started taking data
- 2025 started taking data
- 2026 started taking data
- 2027 started taking data
- 2028 started taking data
- 2029 started taking data
- 2030 started taking data

CMS at CERN
Science and Technology

[www.cms.cern.ch](#)



FACTS

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CMS at CERN
Fundamental Physics

[www.cms.cern.ch](#)



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- 2029 started taking data
- 2030 started taking data

CMS at CERN
Global Collaboration

[www.cms.cern.ch](#)

14 A0 posters

11 CMS languages

(in DocDB):

EN/FR, English, French,
Finnish, German, Greek,
Serbian, Turkish,
Bulgarian, Portuguese,
Hungarian, Spanish,
Italian

4 languages in the
pipeline: German, Malay,
Thai, Persian

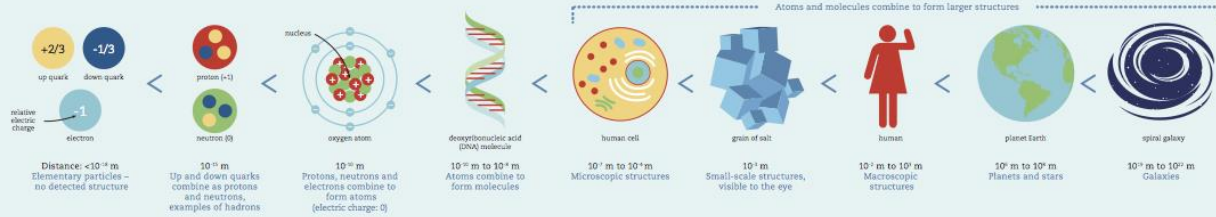


Target audience:

- General public
 - Exhibition visitors
 - Used on CERN 60 anniversary local events (Bulgaria, Italy, France, Finland, Hungary, Turkey)
- Students
 - Preparatory material before Virtual Visits CMS Institutes.
- CMS Institutes
 - possibility to print locally

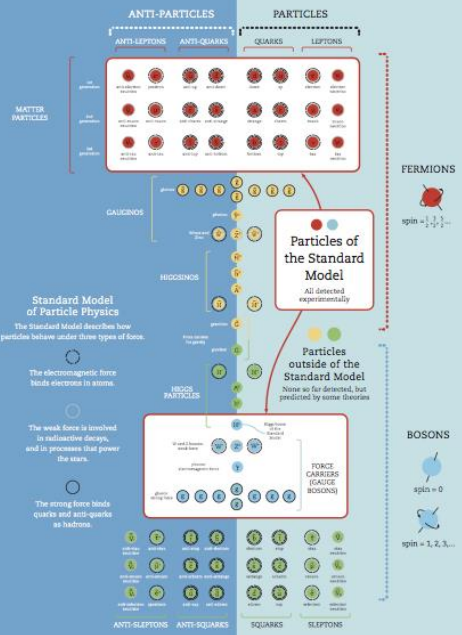
How the world is built

All everyday objects seem to be made from just three types of basic building block – the up quark, the down quark, and the electron.



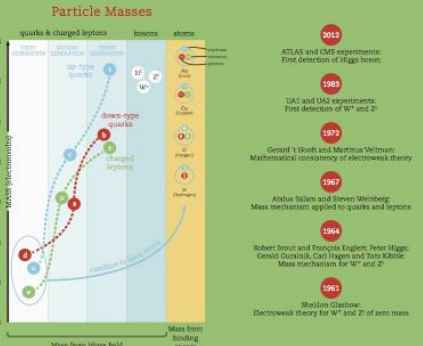
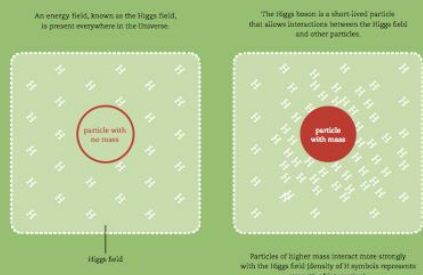
Particle Universe

Elementary particles, objects with no detected structure, include quarks, leptons, force carriers, and the Higgs boson.



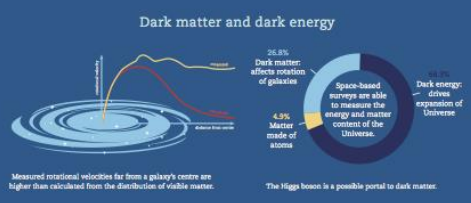
Mass and the Higgs boson

Elementary particles acquire mass through interactions with an energy field, where the Higgs boson acts as energy carrier.



Beyond the Standard Model

The Standard Model successfully describes a wealth of experimental data, but seems to explain only 5% of the Universe.

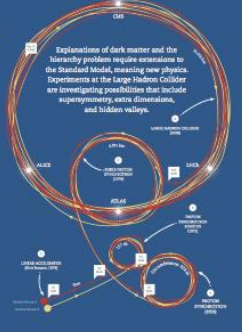


Hierarchy problem

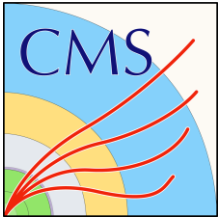
The measured mass of an elementary particle can be regarded as the sum of a bare mass and a self-energy. The bare mass is from interaction with the Higgs field, and the self-energy is from emission and reabsorption of other particles. For the Higgs boson, the calculated self-energy implies an enormous difference between measured mass and bare mass. This is known as the hierarchy problem.



Searching for new physics



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Public communication

News articles

- Timely stories about key CMS topics:
 - Scientific results
 - Engineering activities
 - Awards
 - Outreach events
- Two “streams”
 - Physics
 - General
- Example: <http://cern.ch/go/RKq9>

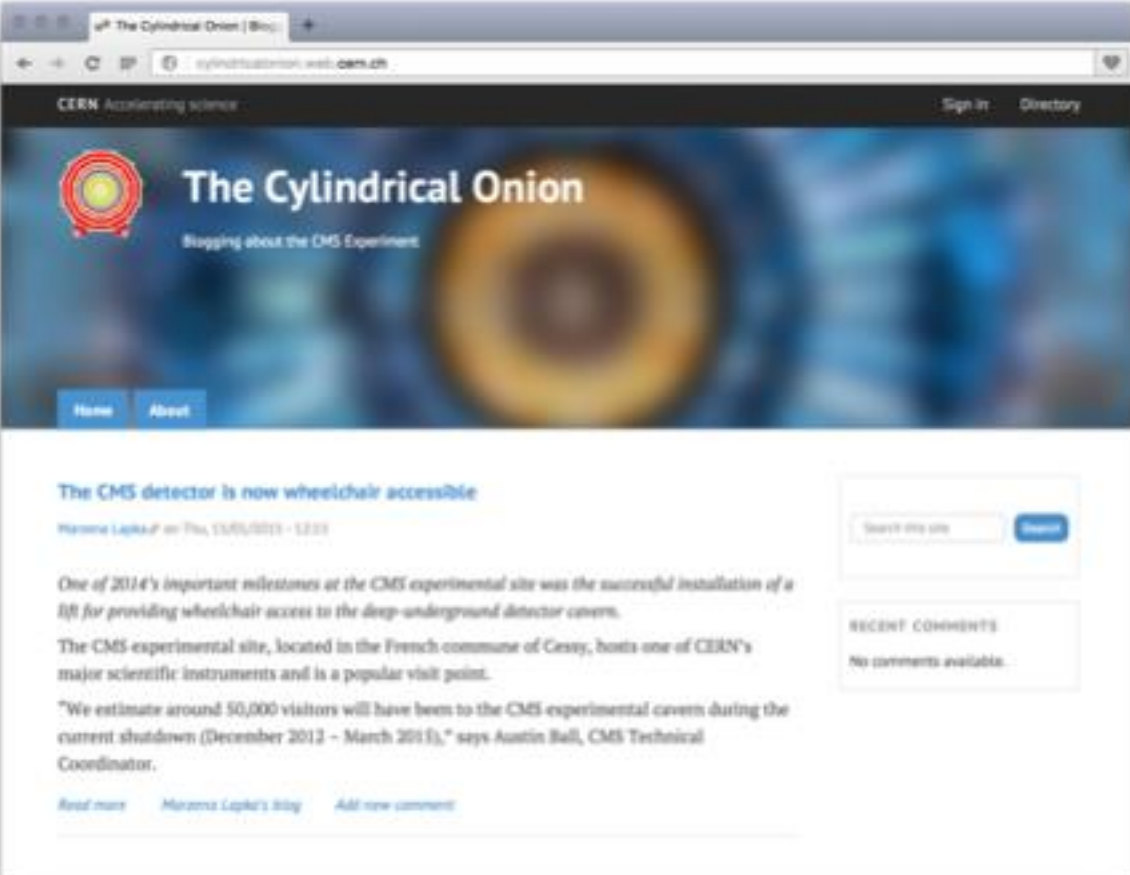
Official Statements

- Major CMS announcements
 - New physics results
 - Updates from major conferences
 - LHC milestones
 - First beam
 - First collisions at 7 TeV
 - ...
- Usually related to a CERN press release
- Translations often produced
- Example: <http://cern.ch/go/7LMT>

How can YOU contribute?

- **Story ideas for the public**
 - Inform us of results, events etc.
 - Give enough notice for key milestones well in advance
 - Photographs
 - Send us those you take
 - Contact us to take photographs for you
- **Statements: Translations**
 - List of volunteers not updated in a while
 - Volunteer if interested!

cern.ch/cylindricalonion



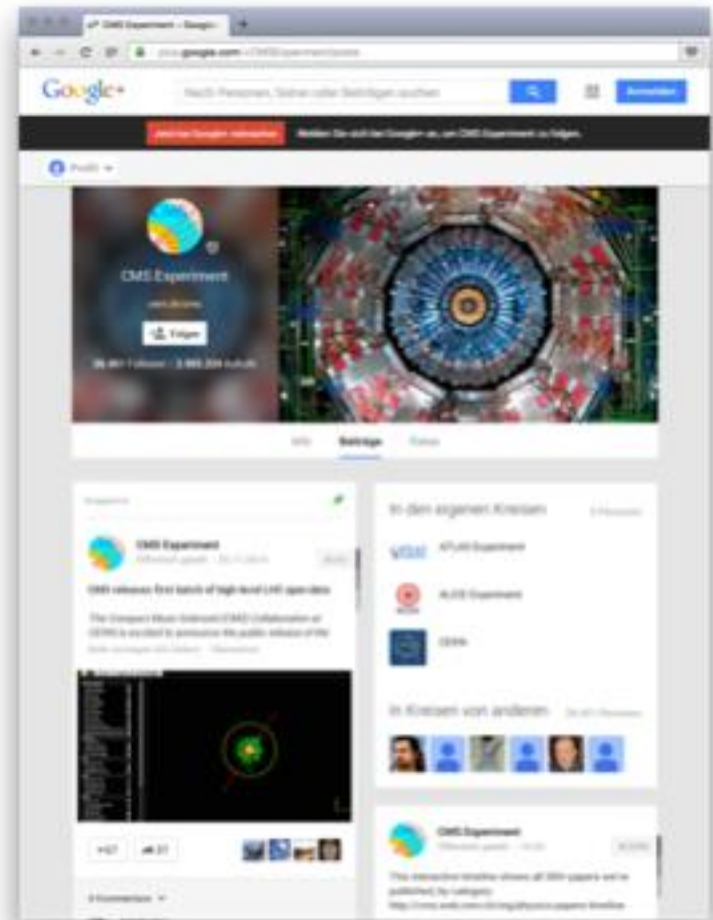
The screenshot shows a web browser window displaying the CERN website. The page title is "The Cylindrical Onion" and the subtitle is "Blogging about the CMS Experiment". The main content area features a blog post titled "The CMS detector is now wheelchair accessible" by Marlene Luptak, dated Thu, 13/05/2015 - 12:23. The post text describes the successful installation of a lift for wheelchair access to the deep-underground detector caverns at the CMS experimental site in Gevey, France. It mentions that the site is a popular visit point and that approximately 50,000 visitors are expected during the current shutdown (December 2012 - March 2015). The post includes a "Read more" link, the author's name "Marlene Luptak's blog", and a link to "Add new comment". On the right side of the page, there is a search box with the text "Search this site" and a "Search" button, and a "RECENT COMMENTS" section with the text "No comments available."

How can YOU contribute?

- Contact us if you want to provide short, fairly regular updates on:
 - your research area
 - conferences
 - technical work at CMS
 - outreach events you organise / participate in

fb.com/CMSExperiment

google.com/+CMSExperiment



twitter.com/CMSExperiment

twitter.com/CMSpapers

CMS Experiment CERN
@CMSExperiment
Official account of the CMS Experiment at CERN. Follow @CMSpapers for updates on our publications.
Cessy, France
cern.ch/cms
Joined November 2009

Tweets Tweets & replies Photos & videos

Placed Tweet
CMS Experiment CERN @CMSExperiment · Nov 20
CMS releases first high-level LHC open data: cms.web.cern.ch/news/cms-relea... #cernopendata For press: press.web.cern.ch/press-releases...

360 papers submitted as of 2015-01-12

CMS Publications
@CMSpapers
Updates on the latest papers and Physics Analysis Summaries (PAS) from @CMSExperiment at CERN. Official account. #CMSpaper #CMSPAS
Cessy, France
cms.web.cern.ch/content/how-re...
Joined November 2012

Tweets Tweets & replies Photos & videos

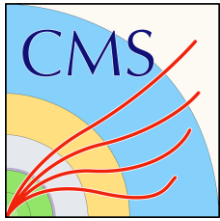
CMS Publications @CMSpapers · 13h
FYI, this interactive timeline shows all 300+ papers from @CMSExperiment by category: cms.web.cern.ch/org/physics-pa...
#Show all #Total #GCD #Exotica Searches #Supersymmetry #Physics #Electroweak #Top Physics #Heavy Ion #Higgs #Forward Physics #Standard Model #Beyond the SM #BSG

300 papers submitted as of 2015-01-12

Worldwide Trends · Change
#cyberbully
#GHVPeSASURA
#4DaysToGoKianAndJo
#MyLastWordsInWords
Hallowic
#NadaMasRico
David Ginoia

How can YOU contribute?

- Do you use Quora / reddit / Tumblr / ...?
 - Have you come across (or yourself produced)
 - a clear explanation,
 - piece of trivia,
 - CMS-inspired work?
- Follow the official CMS channels and re-share content



Visits

Objectives

- **Fundamental Science is fascinating and advances mankind**
- **CMS is a very large and ultra precise Detector which takes pictures of the collisions**
- **CERN hosting CMS is the world largest particle physics laboratory and is one Institute in the CMS collaboration**
- **CMS and CERN are like an “open enterprise” ‘you are a part of this’, be a partner, participate via different education programs or similar**

Target Audience



1) NON – expert public 2) students/ teachers/... 3) VIP/Press

P5 visits development 2011-2014

2011	:	3 000
2012	:	10 384
2013	:	30 000
2014	:	34 000

**All visitors 2013 & 2014 brought underground
to see the detector !!!**

What is CMS Virtual Visit?

Video connection between CMS CR and CMS Experimental cavern and remote locations.

Opportunity to:

- ❖ see the CMS Experiment (or other installations)
- ❖ discuss with a CMS scientist (in native language)

... no travel expenses

CMS Virtual Visits





ONLY 5 months (September 2014 – February 2015)

- 17 countries
- 4 500 participants
 - 2 800 students
 - 1 700 general public

Many more ahead of us!

This map is available at:
<http://cms.web.cern.ch/content/virtual-visits>

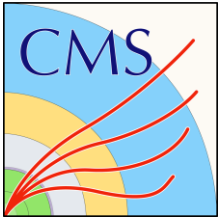


Google

If you wish to become involved..

- ❖ Organise Virtual Visit @ your institute/conference/exhibition/event
- ❖ Become a part of the Virtual Visits crew
 - Technical team (help Noemi and Zoltan)
 - Virtual Guide

Contact us: cms-communications-team@cern.ch



Art@CMS

Objectives

- Reach out to and engage citizens, especially the youth, in science, HEP, CMS & CERN
- Empower CMS institutes and scientists to participate in dialogue with society
- Enhance the public image of CMS & CERN and their contribution to education & society

Art@CMS exhibitions

Increase CMS visibility by:

- Attract artists or university art departments to work on a CMS/HEP topic
- Connect them with local CMS institutes to create original artworks in various mediums
- Organize exhibitions both at P5 and CMS institutes, schools, exhibitions, etc.
- *Use art as catalyst for citizens' engagement with science*

Chris Henschke, Wolfgang Adam Pasco Falco, Pierluigi Paolucci



**Chris Henschke,
Wolfgang Adam**

Collaboration Statement

Chris Henschke: Chris Henschke is a Melbourne-based artist who has been working with digital media since the late 20th century. His main areas of practice are in the experimental combining of sound and image, space and time, and art and science.

Wolfgang Adam: Wolfgang Adam is senior physicist responsible for CMS data analysis at the Institute of High Energy Physics in Vienna, Austria. He has been working for the CMS experiment for 15 years and he is deeply involved in searches for supersymmetry.



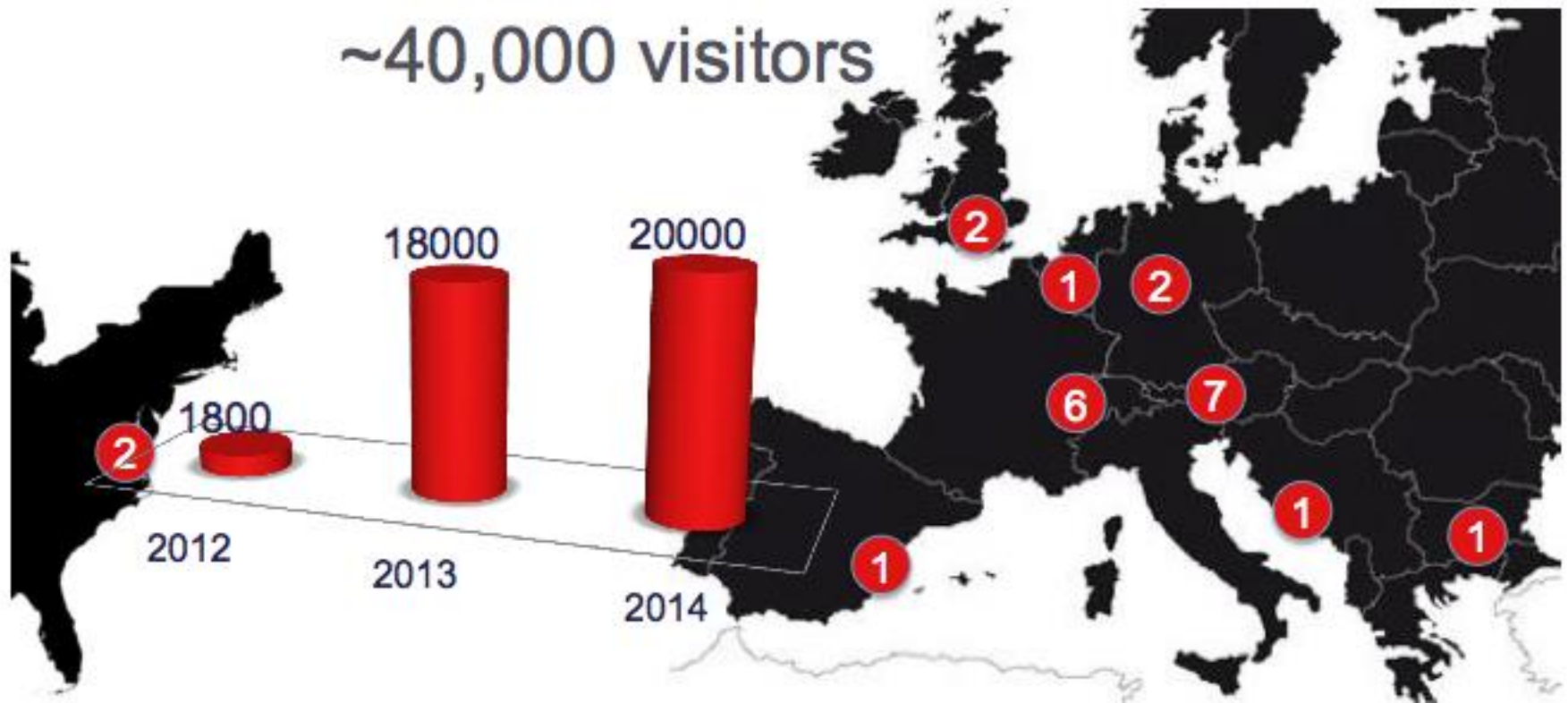
ICHEP 2014

Art@CMS exhibitions

23 exhibitions

9 countries

~40,000 visitors



Science&Art@School

Designed to help students:

- Understand and appreciate how scientific research in HEP, CMS and CERN works
- Think creatively and critically about the collaborative scientific effort in CMS and HEP
- by engaging in creative activities inspired by big questions driving research in CMS and HEP
- *to develop positive attitudes towards STEM subjects*

07-09 Apr 2014 | Graz, Austria



07-09 Apr 2014 | Graz, Austria

High energy physics meets art

Participating schools:

Graz International Bilingual School (GIBS) & BORG Monsberger

Participating CMS Institute:

Institute of High Energy Physics Vienna (HEPHY)

Workshop co-ordinator:

Michael Hoch (CMS/CERN)

With the support of:

Joanneum Universal Museum, City of Graz & Pathway Project

RESOURCES



Workshop programme

For the second consecutive year, Art@CMS goes to Graz, Austria, to run a Science&Art@School workshop, bringing together 55 high-school students from two high schools – Graz International Bilingual School (GIBS) & BORG Monsberger – with the aim to inspire them in the world of scientific research

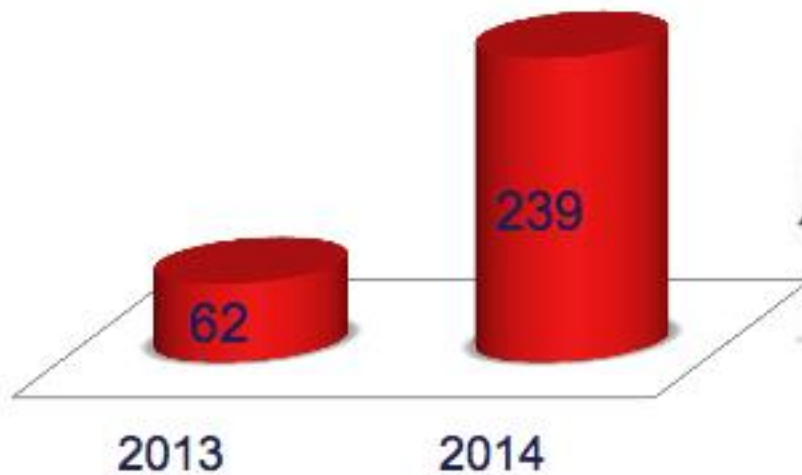


Science&Art@School

9 workshops

5 countries

301 students



1 in Rwanda

www.cern.ch/artcms

art@CMS
an art@CERN initiative

About art@CMS
"Science requires that we continually reassess our place in the cosmos. Who are we? Where do we come from? Where are we going? Great art asks the same questions and when we view it, it changes our perspective, just as science does"
Ian Shipsey
CMS Collaboration Board Chair, University of Oxford

news & events

5 Nov 2013
Physics meets art at London School
At the City of London School last week, an art@CMS programme brought artists, researchers and pupils together to discuss the intersections of art and science.

projects & collaborations

- science@art@school
- art@CMS@CERN
- art@CMS@CERN

blog

21 Nov 2013
Art@CMS at the Capital in Washington DC, USA
The art@CMS community organized a meeting, "High Energy 2013 for the US Year of Nanoscience: Training the next generation physics graduate artists" to discuss the intersections of art and science.

gallery

art@CMS
an art@CERN initiative

© 2013 art@CMS



Questions?