



#askCERN

Hangout with CERN: The Dark Side of the Universe

27 June 2013





Flückiger in Internet Hall Of Fame



<http://home.web.cern.ch/about/updates/2013/06/cerns-fluckiger-joins-internet-hall-fame>

Bill Fontana – artist in residence



<http://home.web.cern.ch/about/updates/2013/06/sound-sculptor-begin-arts-residency-cern>

Today's trivia question

When was dark matter first proposed, by whom, and what was the scientist looking at?

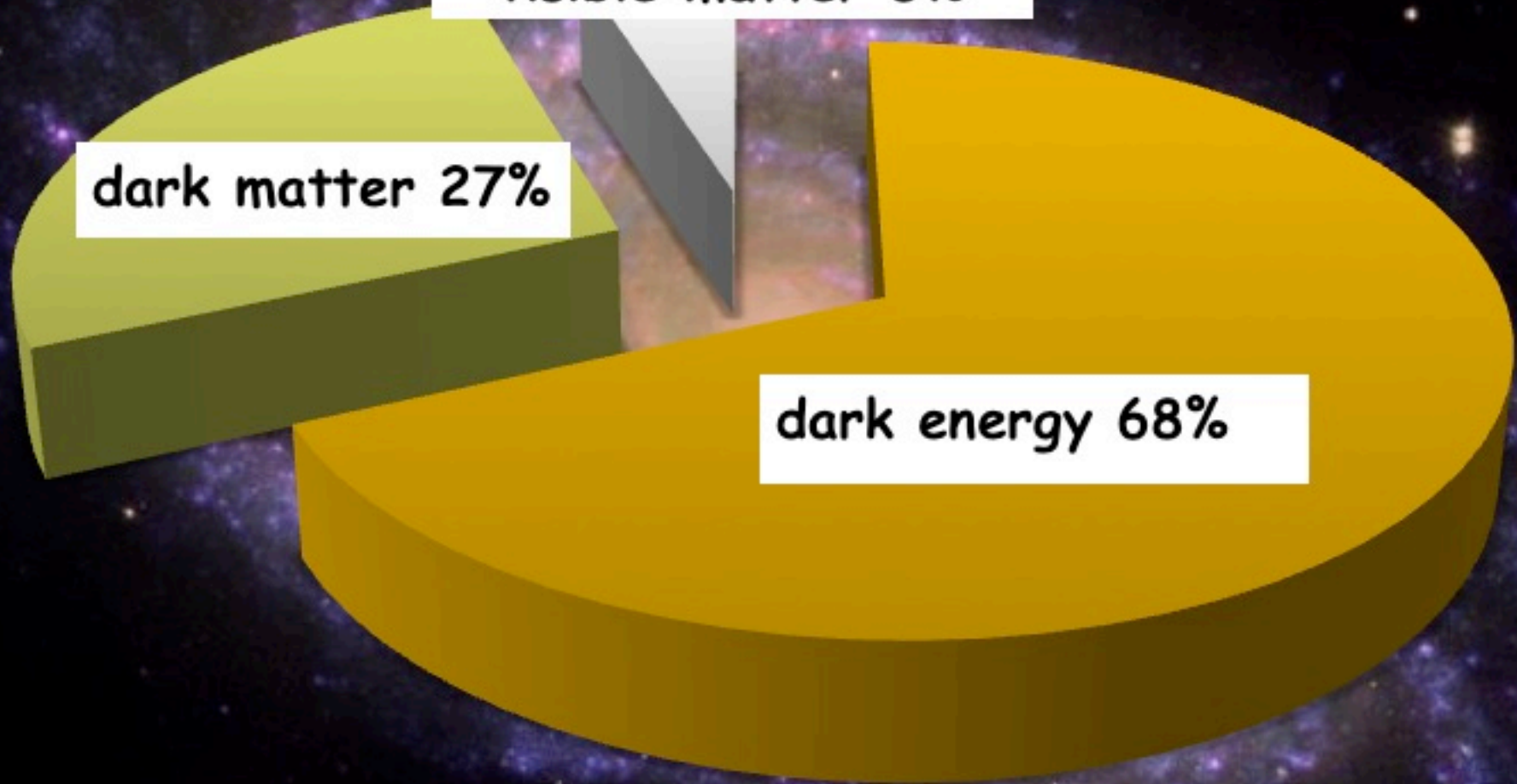
Extra Credit: Who confirmed this idea by measuring the rate of rotation of stars in a galaxy?

Universe content

visible matter 5%

dark matter 27%

dark energy 68%



v (km/s)

100

50

observed

expected
from
luminous disk

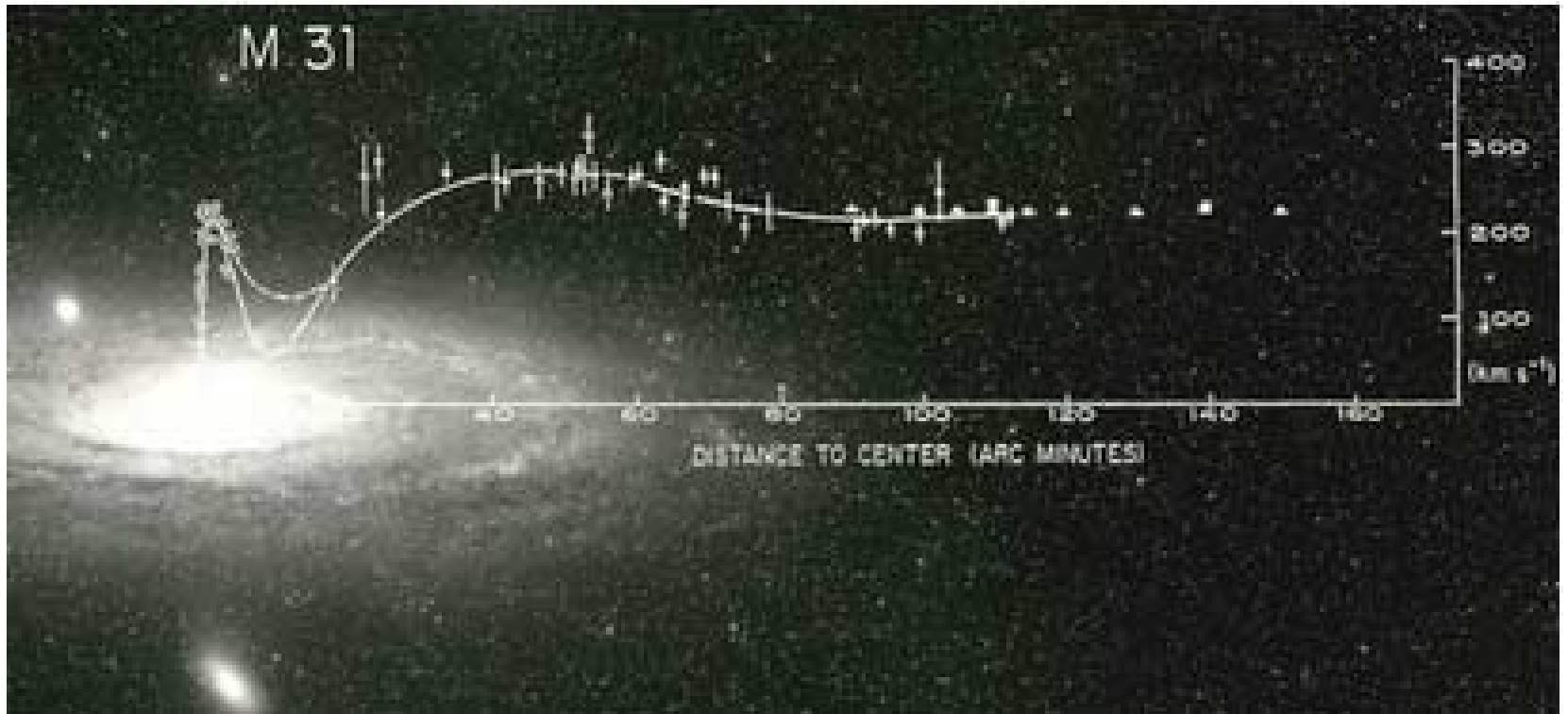
5

10

R (kpc)

M33 rotation curve







LHCb

ATLAS

CERN Meyrin

CERN Prevesin

SPS 7 km

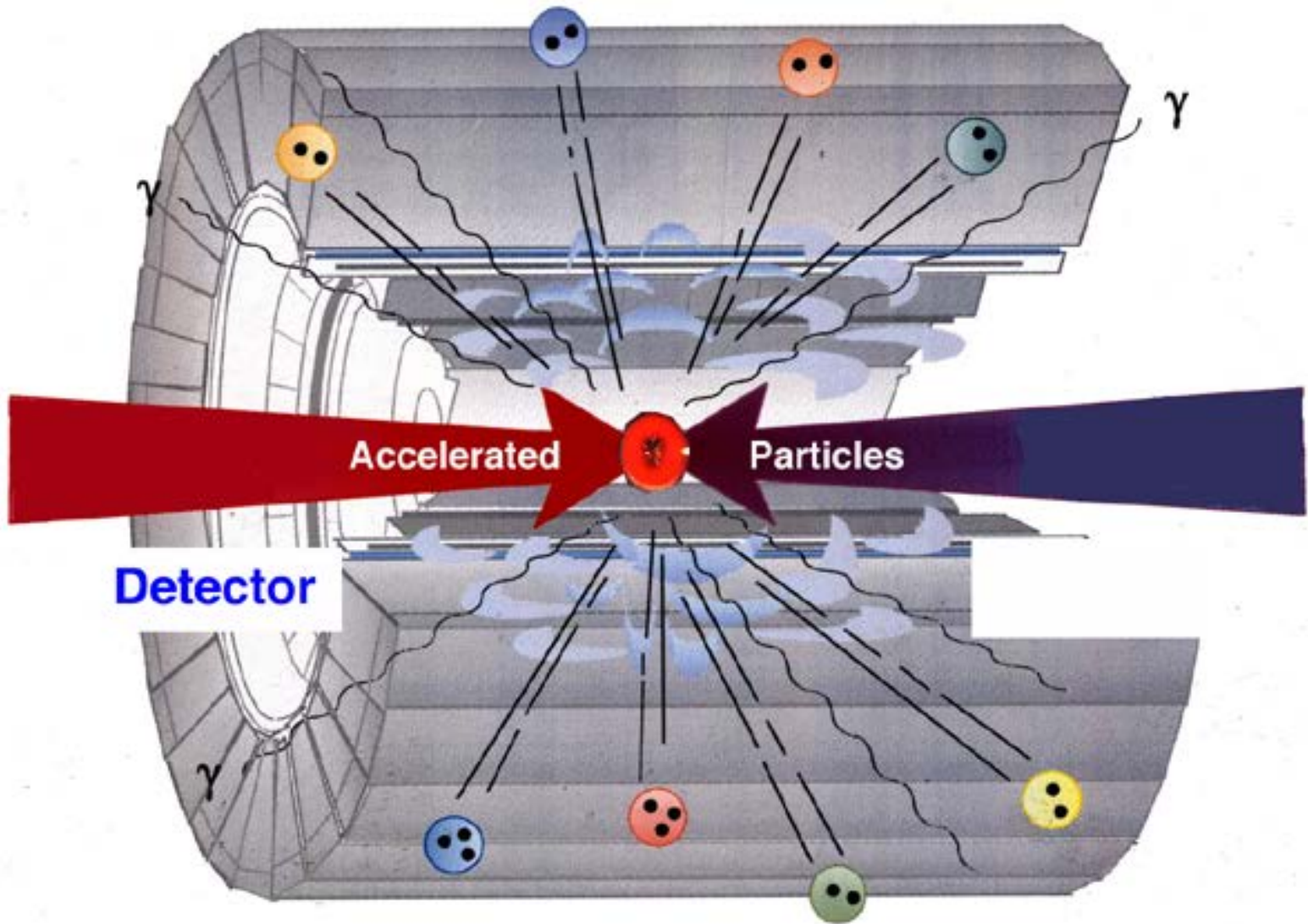
ALICE

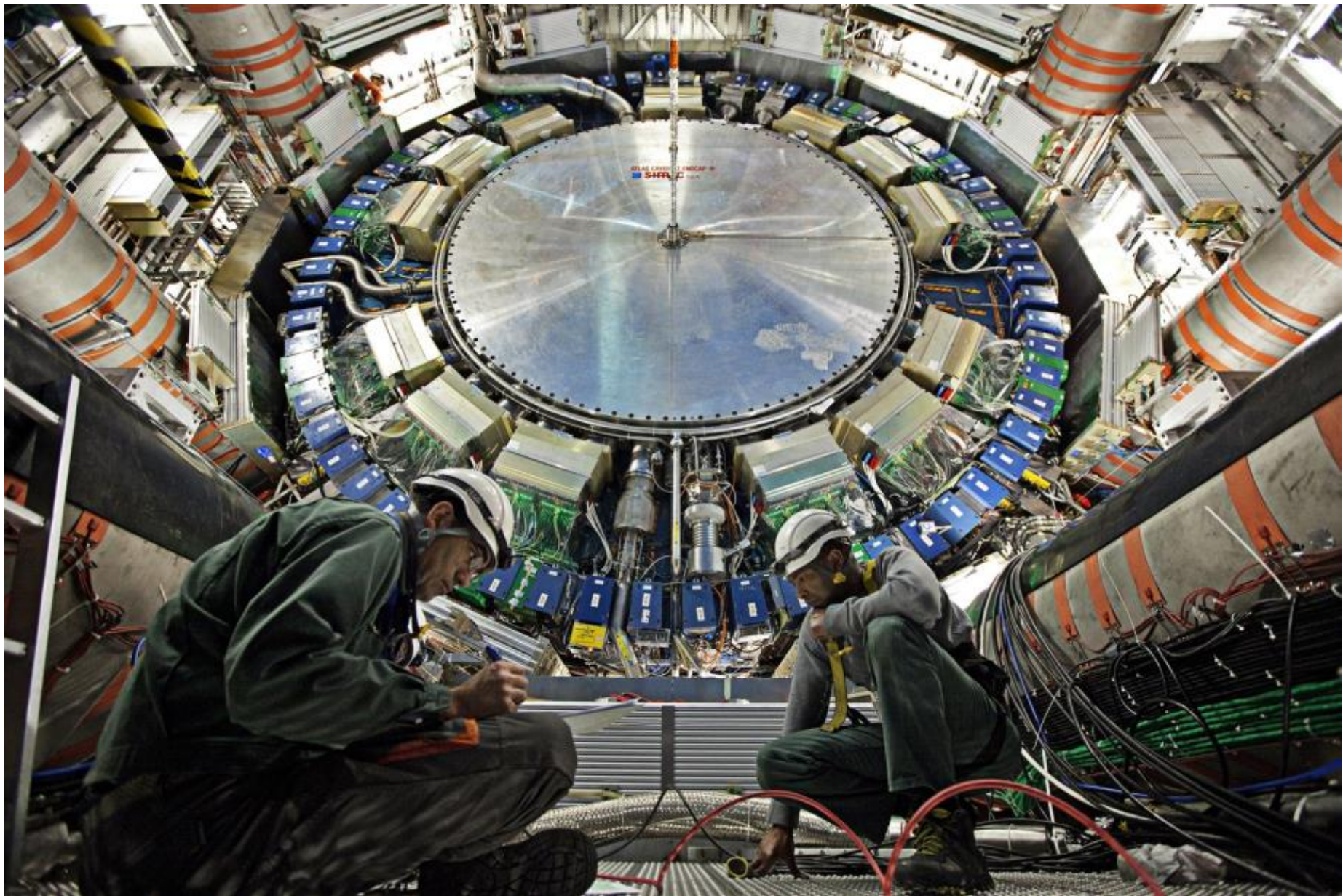
CMS

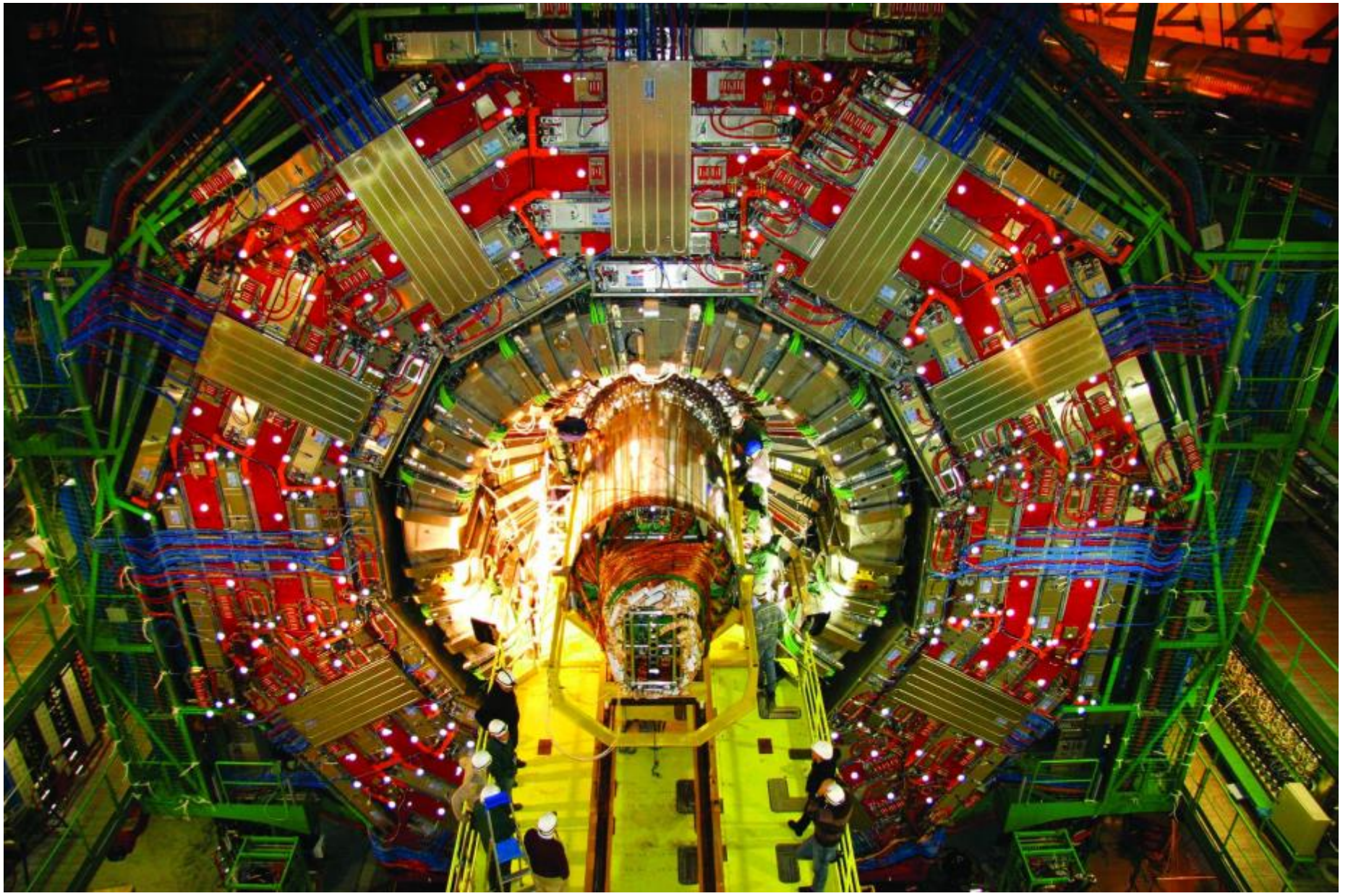
LHC 27 km

SUISSE

FRANCE







 **ATLAS**
EXPERIMENT

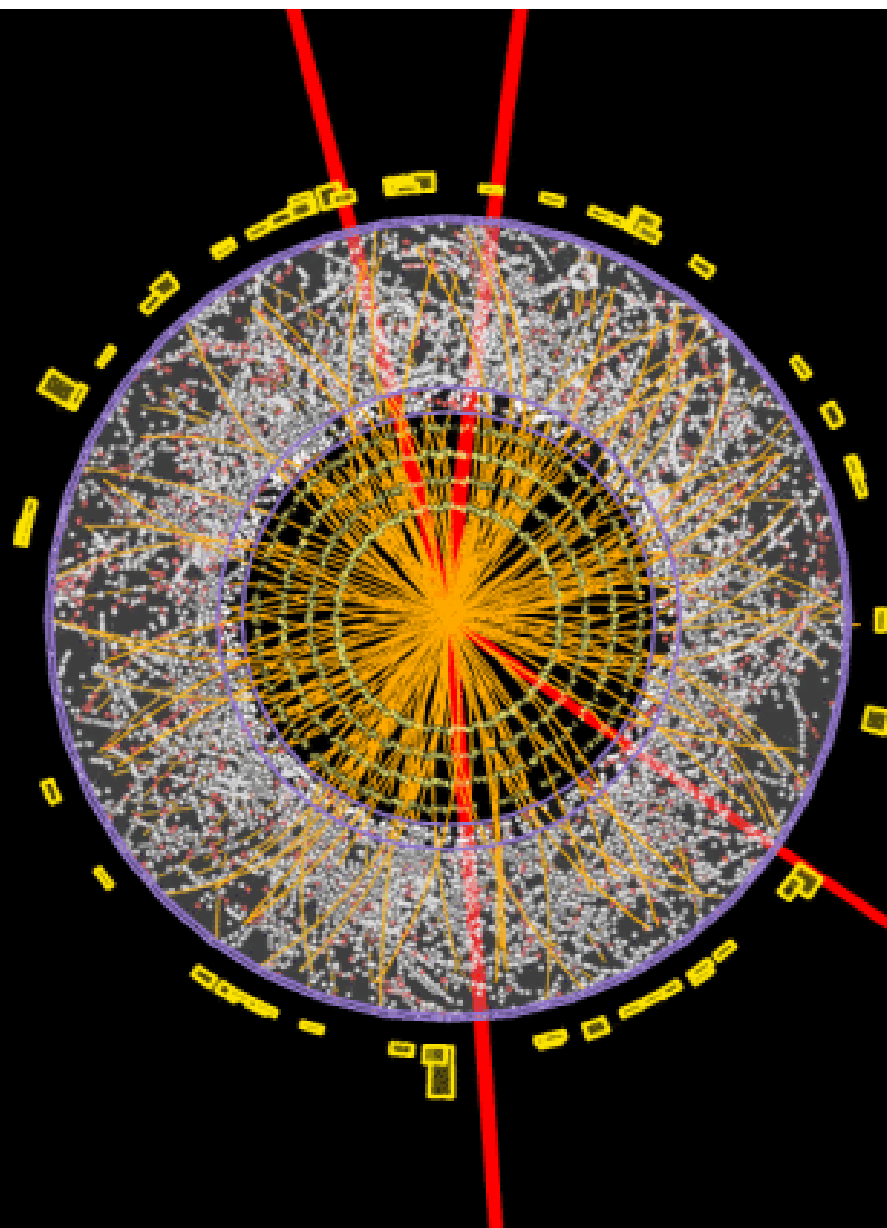
<http://atlas.ch>

Run: 204769

Event: 71902630

Date: 2012-06-10

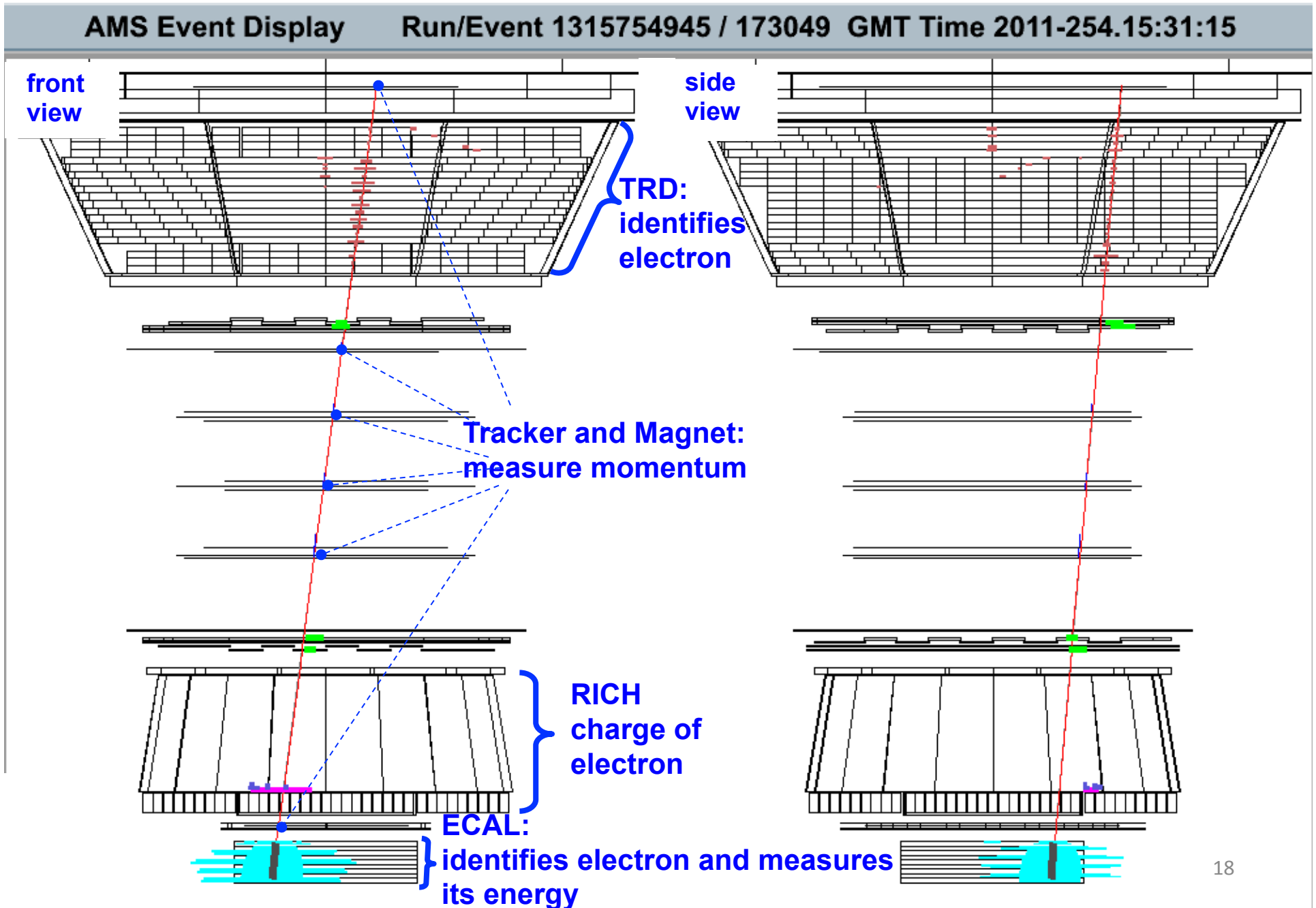
Time: 13:24:31 CEST





AMS data on high energy e^\pm :

1.03 TeV electron





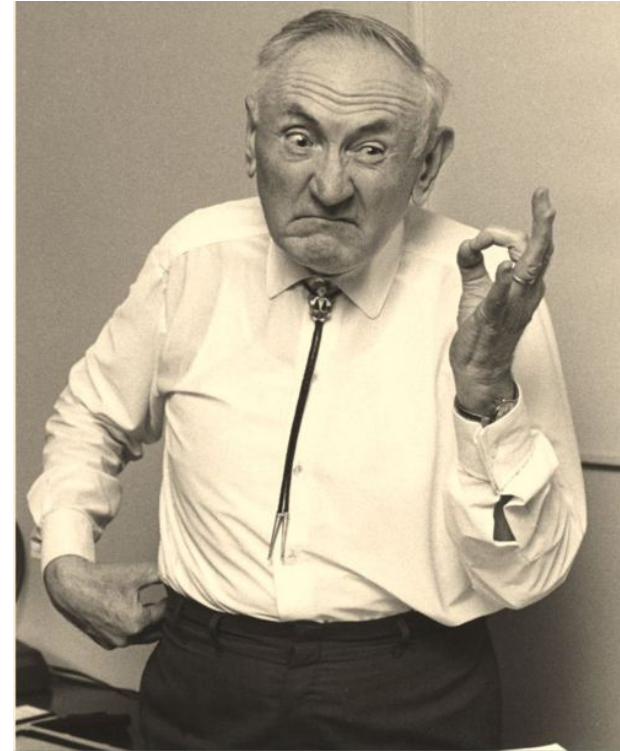
Today's trivia answer

Q: When was dark matter first proposed, by whom, and what was the scientist looking at?

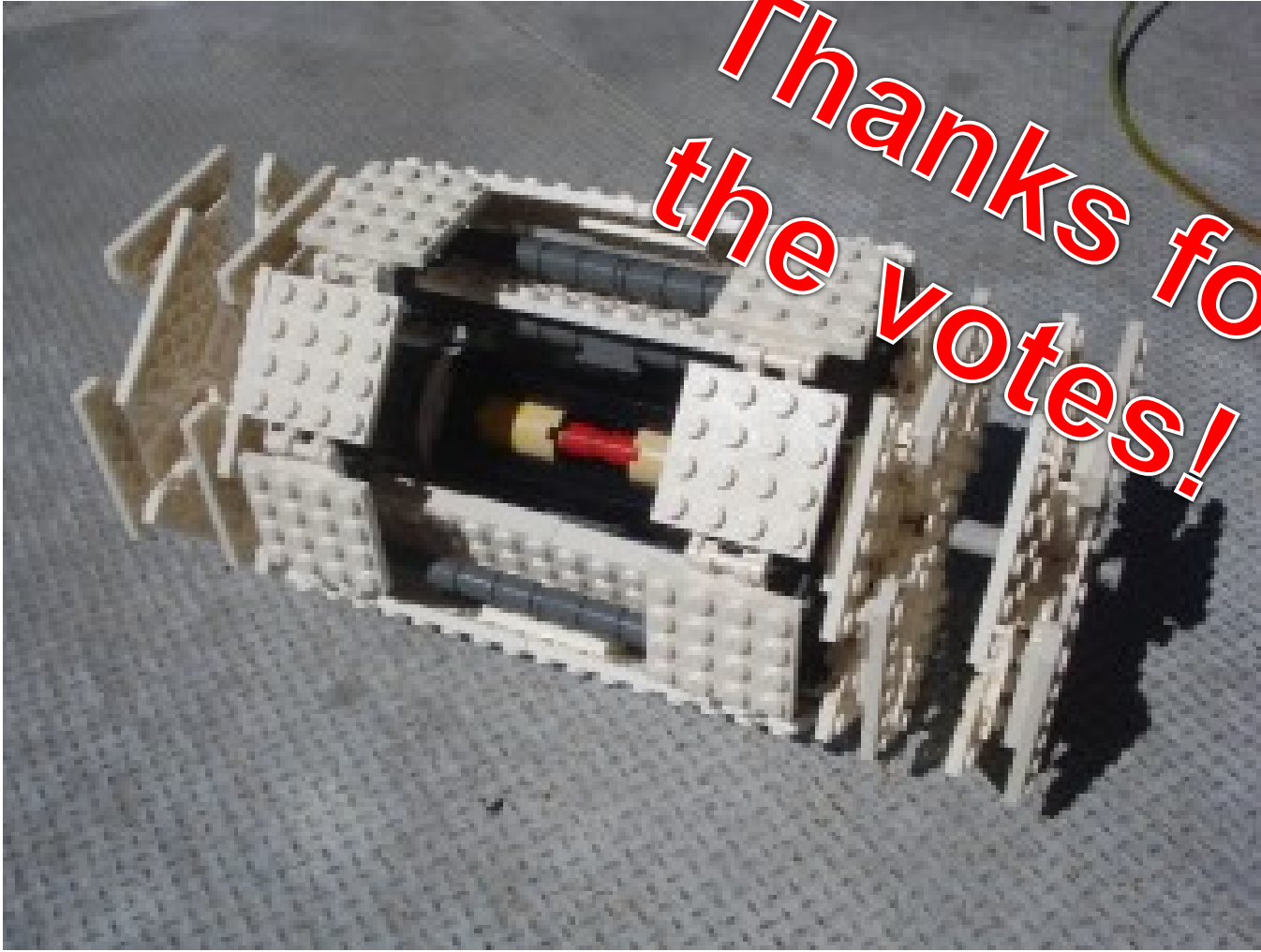
Extra Credit: Who confirmed this idea by measuring the rate of rotation of stars in a galaxy?

A: **Fritz Zwicky** proposed dark matter in **1933**, when making measurements of the **Coma Cluster**. He calculated that the cluster had to have 400 times the mass than what he measured with his telescope.

Extra Credit: **Vera Rubin** in the 1970s saw that stars on the outside of the galaxy rotated faster than predicted by Newton's Laws.



<http://atlas.ch/blog/?p=1839>



CERN at Montreux Jazz Festival, 17-18 July



The Physics of Music and The Music of Physics

What do scientists do to celebrate fundamental discoveries about our universe? Make music, of course! The discovery of the Higgs boson has inspired CERN to bring its show to Montreux to share their excitement in a seminar called "The Music of Physics and the Physics of Music". The 'Rock Doctor', Mark Lewney will start things off with a plugged-in, musical presentation titled "Rock Guitar in 11 Dimensions". Piotr Traczyk, a physicist from the CMS experiment, will follow-up with an electrified description of the Higgs Discovery, and Lily Asquith, a physicist from the ATLAS experiment will present "LHC Sound – the sound of science", a sonorisation of real LHC collisions. Ever wonder what a Higgs boson sounds like when it blows up? Now is your chance to find out.

Date	Scène	Artiste	Horaire	Prix	Billets
Jedi 18 Juillet	Montreux Jazz Workshops	CERN COMES TO MONTREUX The Physics of Music and The Music of Physics <hr/> ARTISTS-IN-LABS PROGRAM / ZHDK / ICS The Poetry of Sleep: Rhythm, Writing and Consciousness <hr/> SANDRA HUBER - ZHDK & THOMAS CURIE, PH.D.	13:00	Free	

<http://opendays2013.web.cern.ch/>

CERN OPENDAYS

Our Universe is Yours
Notre Univers est le vôtre



Français English

Home

Event

Activities

Practical Info

Sponsors

Press Corner

CERN opens its doors September 28th - 29th



CERN is the biggest particle physics laboratory in the world.

More than 10,000 physicists from all around the world come to CERN to carry out experiments whose aim is to advance the understanding of the fundamentals of matter and the nature of our universe.

To explore these new frontiers of knowledge, CERN has developed a chain of accelerators, culminating in the LHC, has installed enormous particle detectors, and has pushed technology to its limits.

News

Two full days for the general public!

03/05/2013

CERN will open its doors to the general public over two days and not just one as it was the case in 2004 and 2008.

There is a great deal of interest in what is happening at CERN so we expect a very large number of visitors.

As there are only a limited number of visit points, spreading the visits over two days will give many more people a chance to experience the fascinating things on show.

We have also extended the opening hours to 09:00-20:00 each day.

Next Hangout with CERN

Today is the last hangout in series 3

Series 4 is planned for after the open days

Participants

Julia Hoffman, AMS experiment
Bilge Demirkoz, AMS experiment

Cenk Yildiz, CAST experiment

Xavier Portell Bueso, ATLAS experiment
Sarah Malik, CMS experiment, Fermilab

Marco Cirelli, Theorist

Laura Hourican, student intern

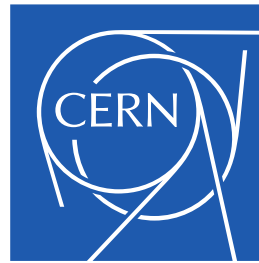
Credits

Steven Goldfarb — Host

Seth Zenz — Q&A from Social Media

Kate Kahle and Kelly Izlar — Production

Thank you for watching!



www.cern.ch