

CERN

European Organization for Nuclear Research

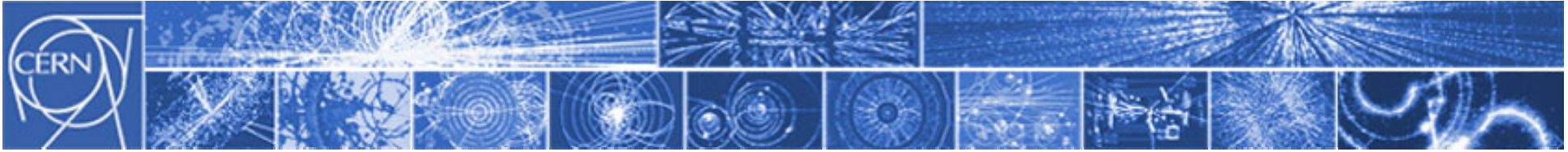
Organisation Européenne pour la Recherche Nucléaire

News from CERN

James Gillies

EPPOG 29 May 2007, Lisbon



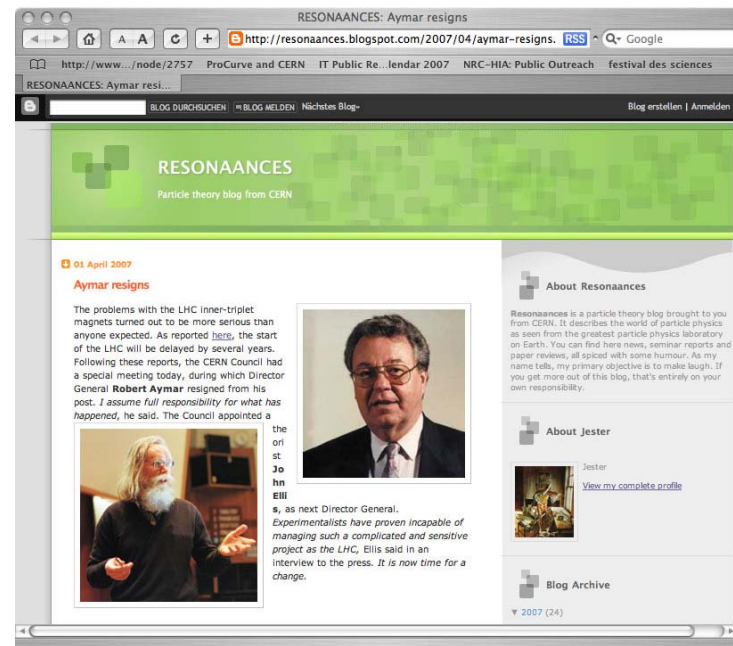


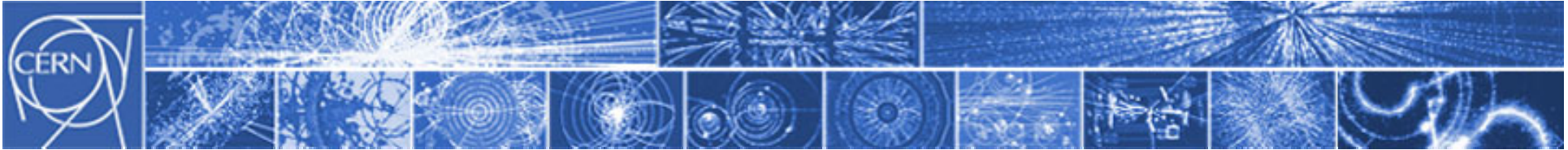
Monster Black Hole devours LHC magnet!

“The part was destroyed and subsequently compressed into a singularity by the black hole that the device created.” Slashdot 31 March 2007

QuickTime™ and a
TFF (Uncompressed) decompressor
are needed to see this picture.

John Ellis becomes DG of CERN!



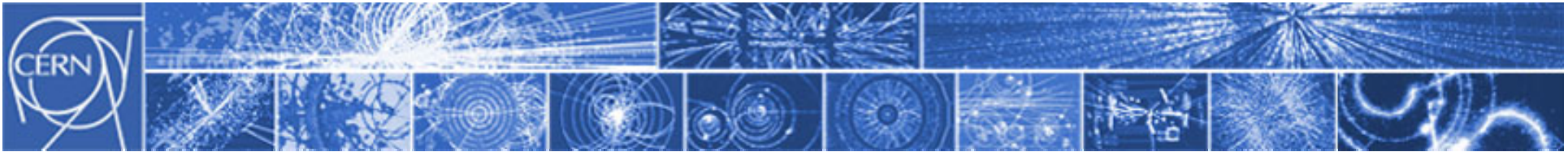


But seriously...

“The superconducting magnets themselves are in a pressure vessel (called the cold mass) that will eventually be cooled to 1.9 K for operation. These cold masses are suspended inside a cryostat (a vacuum vessel) so that they can be isolated from the heat that would otherwise make it impossible to cool the magnet. The suspension is made of a composite glass/epoxy material to minimize the heat flow from the outside of the vessel into the magnet.

Because of the geometry and the connections between magnets in the inner triplet, there is an unbalanced longitudinal force on the cold mass when the cold mass is pressurized. This force is transmitted from the cold mass to the the cryostat through the composite suspensions. The design of the suspensions is inadequate to withstand those forces, and at 20 atmospheres, they broke. The pressure test would have been successful if the pressure had gotten to 25 atm.”

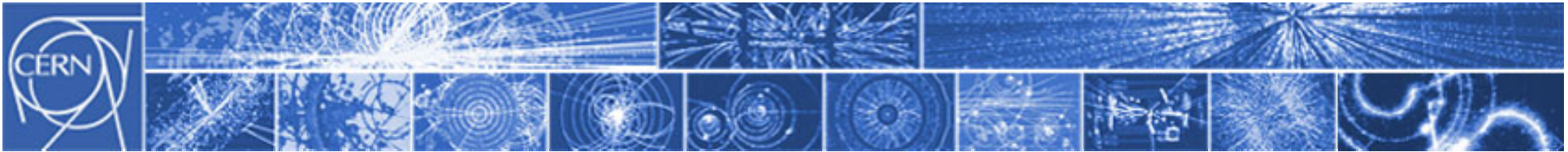
... Peter Limon



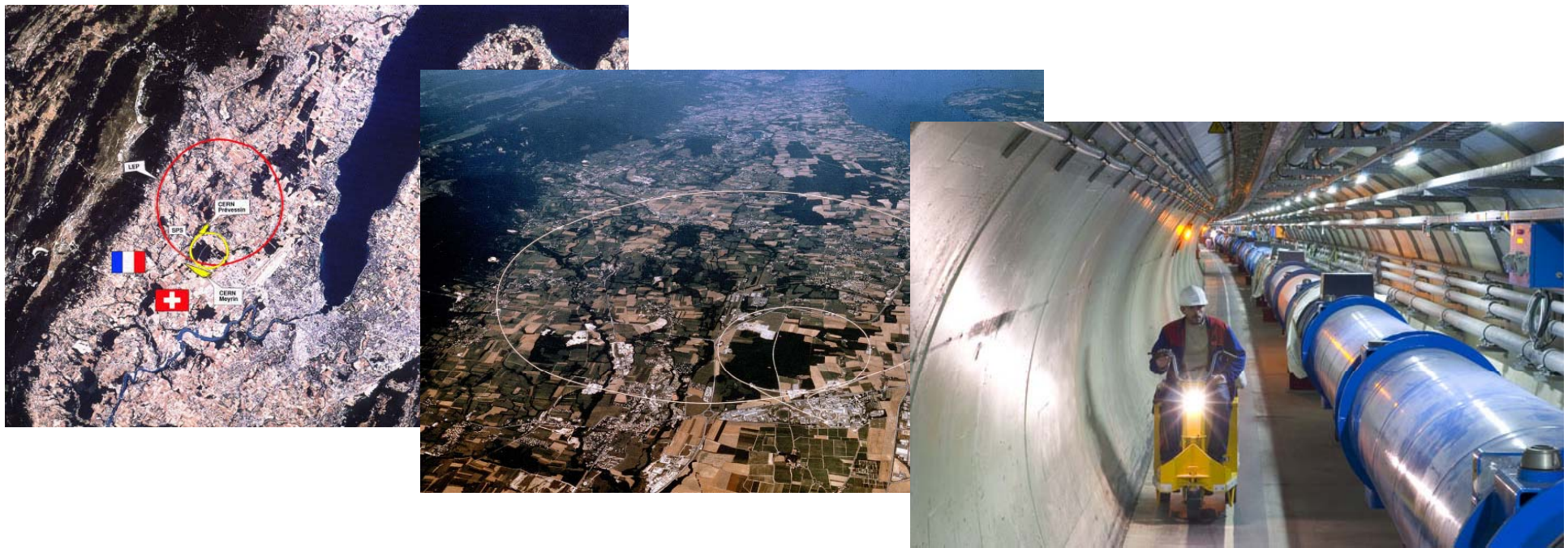
LHC start-up preparations...

111	CERN AB	31-11-07	12:20:26	
LHC Run 1234	data of	31-11-07	12:20:16	
— ** STABLE BEAMS ** —				
E = 0.450 TeV/c	Beam	In Coast	0.5 h	
Beams	Beam 1	Beam 2		
#bun	43	43		
Nprot(t)	1.71e12	1.73e12		
tau(t) h	121	140		
Luminosities	ATLAS	ALICE	CMS	LHC-B
L(t) 1e28 cm-2s-1	5.23	6.23	7.13	5.21
/L(t) nb-1	0.78	0.68	0.78	0.52
BKG 1	1.20	0.52	0.90	0.43
BKG 2	0.85	0.82	0.50	0.80
Comments 31-11-07 11:40:26				
COLLIMATORS in coarse settings				
Separation Scan in IR1/Atlas				

- Sector 7-8 reached 1.9K
- Last magnet in the tunnel
- Interconnections ahead of schedule
- Schedule review for June Council

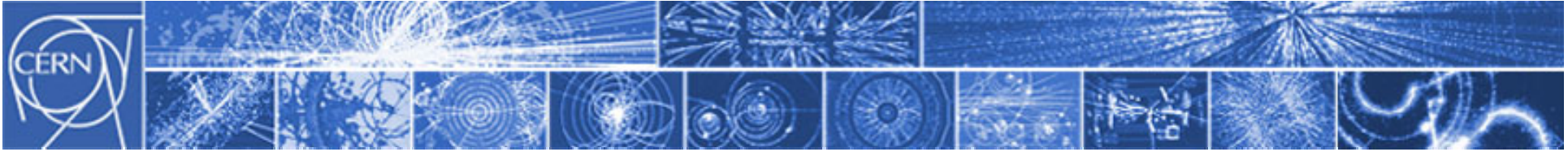


LHC start-up



“The engineering run at the end of this year was extremely tight due to accumulated delays. The inner triplet problem now makes it impossible. We are now working to maintain the startup for the beginning of April 2008, as always foreseen, and will commission the machine to full energy in one go.”

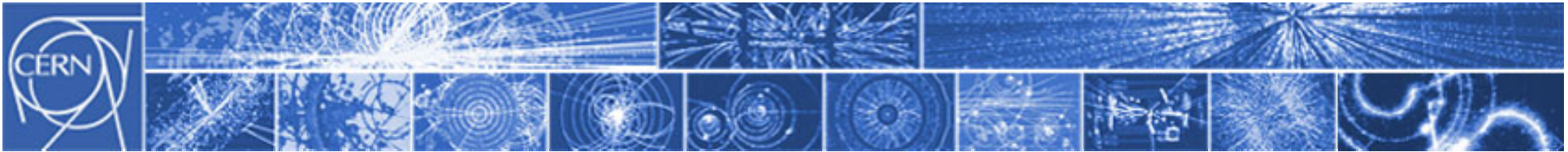
Lyn Evans, 21 May 2007



Are LHC collisions safe?

Has the experiment been done by nature?

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.



What are we doing about it?

http://public.web.cern.ch/Public/Content/Chapters/AboutCERN/CERNFuture/LHCSafe/LHCSafe-en.html

http://public.web.cern.ch/Public/Content/Chapters/AboutCERN/CERNFuture/LHCSafe, ilc newslite

http://www.../node/2757 ProCurve and CERN IT Public Re...lendar 2007 NRC-HIA: Public Outreach festival des sciences Science/AAA... 311 (5757)

http://public.web.cern.ch/P...

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What's next at CERN?

Are LHC collisions safe?

The Large Hadron Collider (LHC) can achieve energies that no other particle accelerators have reached before. The energy of its particle collisions has only previously been found in Nature. Only by using such a powerful machine can physicists probe deeper into the key mysteries of the Universe. Some people have expressed concerns about the safety of whatever may be created in high-energy particle collisions. However there are no reasons for concern.

Modest by Nature's standards

Accelerators recreate the natural phenomena of cosmic rays under controlled laboratory conditions. Cosmic rays are particles produced in outer space in events such as supernovae or the formation of black holes, during which they can be accelerated to energies far exceeding those of the LHC. Cosmic rays travel throughout the Universe, and have been bombarding the Earth's atmosphere continually since its formation 4.5 billion years ago. Despite the impressive power of the LHC in comparison with other accelerators, the energies produced in its collisions are greatly exceeded by those found in some cosmic rays. Since the much higher-energy collisions provided by Nature for billions of years have not harmed the Earth, there is no reason to think that any phenomenon produced by the LHC will do so.

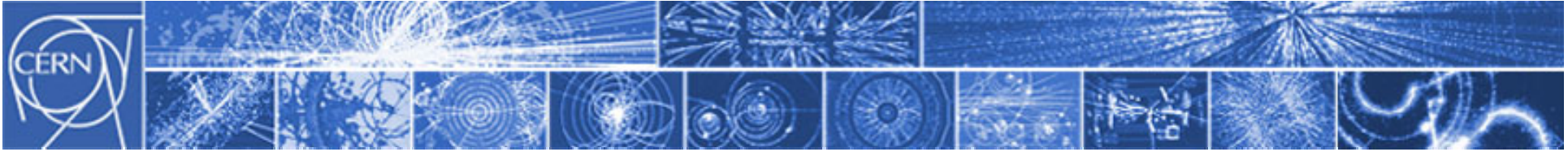
Cosmic rays also collide with the Moon, Jupiter, the Sun and other astronomical bodies. The total number of these collisions is huge compared to what is expected at the LHC. The fact that planets and stars remain intact strengthens our confidence that LHC collisions are safe. The LHC's energy, although powerful for an accelerator, is modest by Nature's standards.

TGVs and mosquitoes

The total energy in the two beams of protons in the LHC is equivalent to a 400 tonne train (like the French TGV) travelling at 150 km/h. However, only an infinitesimal part of this energy is released in each particle collision - roughly equivalent to the energy of a dozen flying mosquitoes. In fact, whenever you try to swat a mosquito by clapping your hands together, you create a collision energy much higher than the protons inside the LHC. The LHC's speciality is its impressive ability to concentrate this collision energy into a

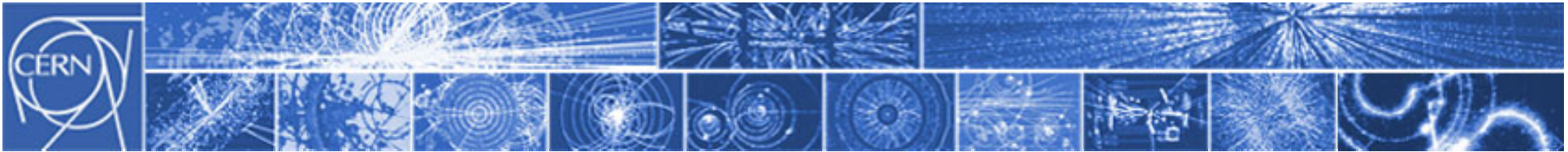
New material on public web page.

LHC safety advisory group revising CERN yellow report



The LHC start-up

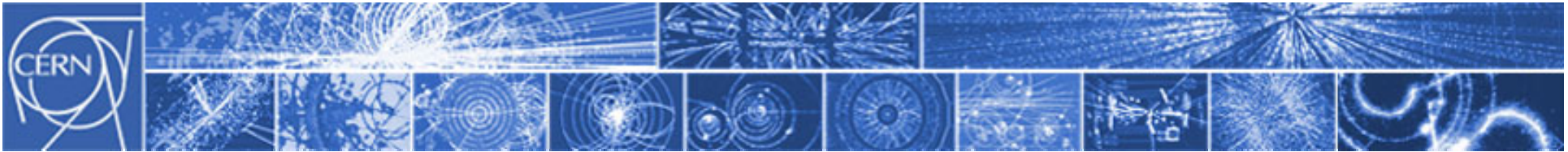
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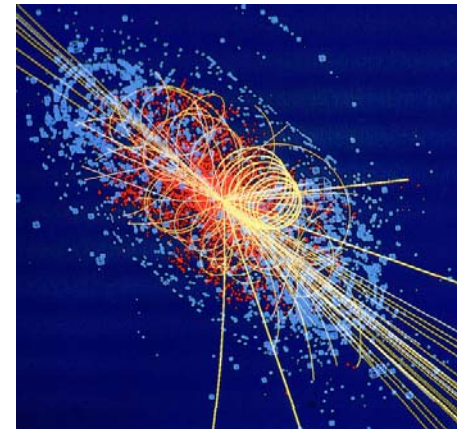
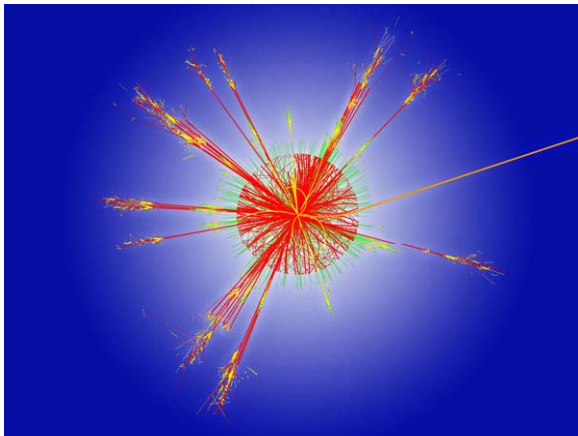
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How do we reconcile media desire for red button start
with reality?

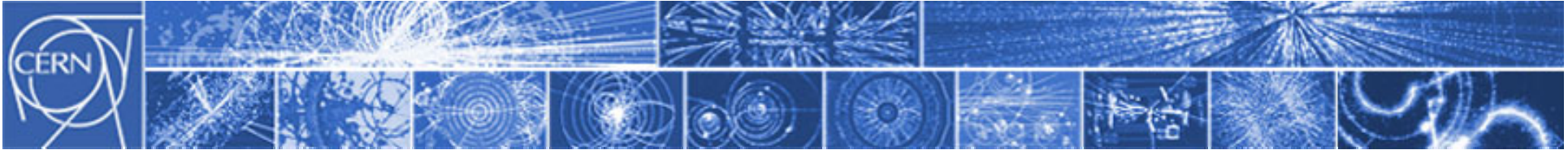


The European Strategy for Particle Physics

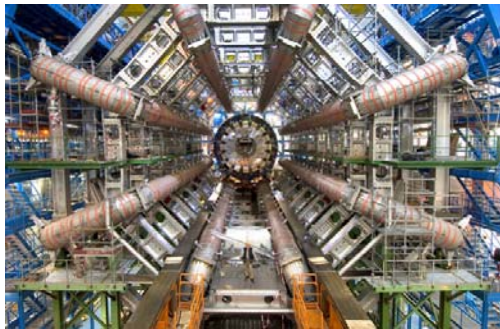


Complimentary issues:

15. Fundamental physics impacts both scientific and philosophical thinking, influencing the way we perceive the universe and our role in it. It is an integral part of particle physics research to share the wonders of our discoveries with the public and the youth in particular. Outreach should be implemented with adequate resources from the start of any major project; Council will establish a network of closely cooperating professional communication officers from each Member state, which would incorporate existing activities, propose, implement and monitor a European particle physics communication and education strategy, and report on a regular basis to Council.

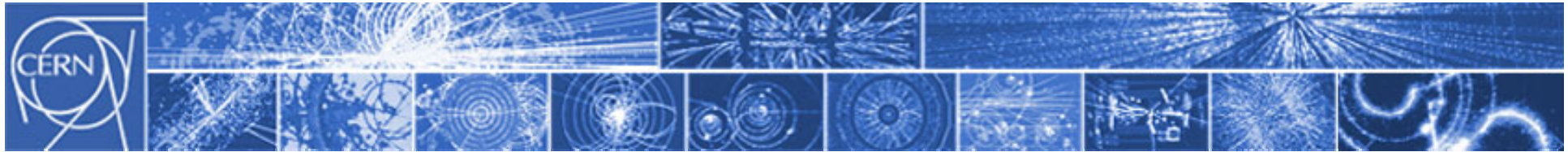


Letter to Council...



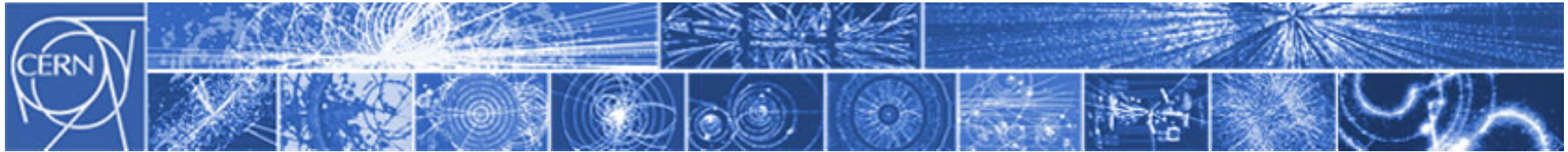
Following Council's unanimous approval of the document CERN/2713, 'European Particle Physics Communication', the CERN communication group would like to convene a meeting of the new European particle physics communication network on 11 June 2007. The meeting would have the objective of examining in detail CERN's LHC communication plan, outlined in the appendix to CERN/2713, and putting in place concrete and costed collaborative measures between the network members for each of the plan's major objectives.

CERN/2713 requests Member States to nominate professional communicators as members to the network. I am enclosing a list of those already in contact with the CERN communication group. Where a network member exists, I would be grateful if you could confirm the nomination or nominate an alternative. Where no member exists, I would be grateful if you could provide a nomination.



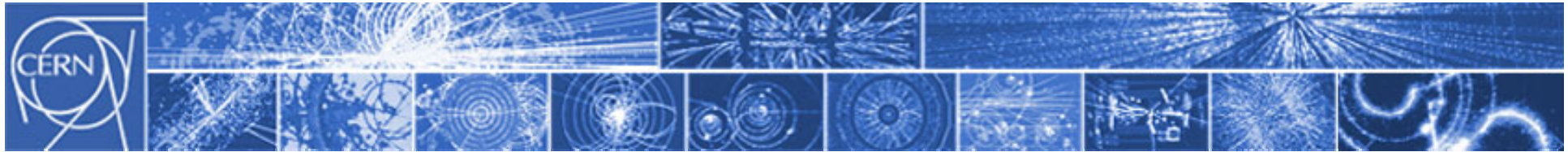
Network members

Austria	
Belgium	
Bulgaria	
Czech Republic	
Denmark	
Finland	Minna Merilainen, Helsinki University
France	Perrine Royole-Degieux, IN2P3
Germany	Thomas Naumann, DESY
Greece	Nick Tracas, NTUA
Hungary	
Italy	
Netherlands	Gabby Zegers, NIKHEF
Norway	Ingvil Bjornaes, Research Council
Poland	Stanislaw Latek, National Atomic Energy Agency
Portugal	Pedro Abreu, LIP
Slovakia	
Spain	
Sweden	Camilla Jacobsson, Vettenskapsradet
Switzerland	
United Kingdom	Peter Barratt, STFC



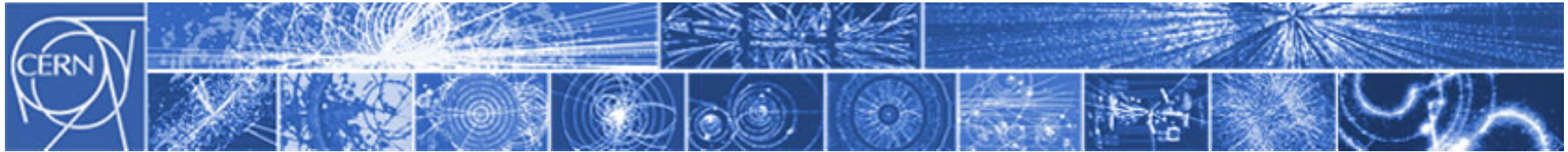
LHC communication plan...

Likely to be funded to CHF480k over two years.



Draft agenda for meeting...

- 1) Welcome - Maximilian Metzger
- 2) Objectives of the meeting - James Gillies
- 3) Presentations from Member States
- 4) Media work - James Gillies
 - 4.1) Arranging media visits to CERN
 - 4.2) Start-up plans
 - 4.3) Working together to maximize impact (BBC TV and radio as case study)
- 5) Corporate communication - Christine Sutton
 - 5.1) Core publications
 - 5.2) VIP launch publication
 - 5.3) Web matters
 - 5.4) Multimedia matters
- 6) Public outreach - Bernard Pellequer
 - 6.1) Exhibitions: sharing experience from Globe, catalysing exhibitions in MS
 - 6.2) Open day: working to ensure that MS well represented
 - 6.3) Visits: preparing people for a visit to CERN



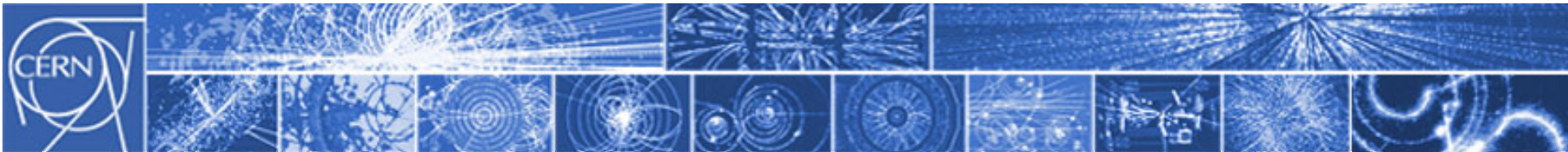
Science (in) fiction...

Good coverage for particle physics

If want to go on living in this great big universe, we'd better understand it better

Generally more interest from outside the science ghetto - Dr Who, Andrew Marr, Stephen Fry, Black Eyed Peas, MTV...

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Astroparticle European Research Area Network...

ASPERA this month

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About ASPERA
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conferences

Current issue

May 2007

AGILE launched successfully!

The AGILE high-energy astrophysics satellite was successfully launched on April 23, 2007 by the Indian PSLV-C8 rocket from its base in Sriharikota.

[Read more](#)

On the way to a common roadmap

Interview about the European Astroparticle Physics Roadmap process, with Christian Spiering, DESY, Chairman of the ASPERA Roadmap Committee.

[Read more](#)

Great success for the Dutch National Day

On Friday 13 April 2007, Nikhef organised in Amsterdam the 2nd ASPERA National Day to present the Dutch astroparticle physics funding scheme.

[Read more](#)

First tracks in ANTARES neutrino telescope

ANTARES has detected its first events. Since February 2007, it has 5 lines in operation. It will be fully operational with 12 detector lines by early 2008.

[Read more](#)

Subscription

To subscribe, please fill in the form [here](#).

Next conference

4th Conference on Research Infrastructures 4 & 5 June 2007 Hamburg - Germany

[Read more](#)

ASPERA next meetings

- German National Day
22 June - Hamburg
- United Kingdom National Day
23 July - London
- Preparatory Roadmap Phase II Workshop
19-20 July 2007 - Paris
- Roadmap Phase II Workshop
20-21 September 2007 - Amsterdam

Contact us

ASPERA website
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