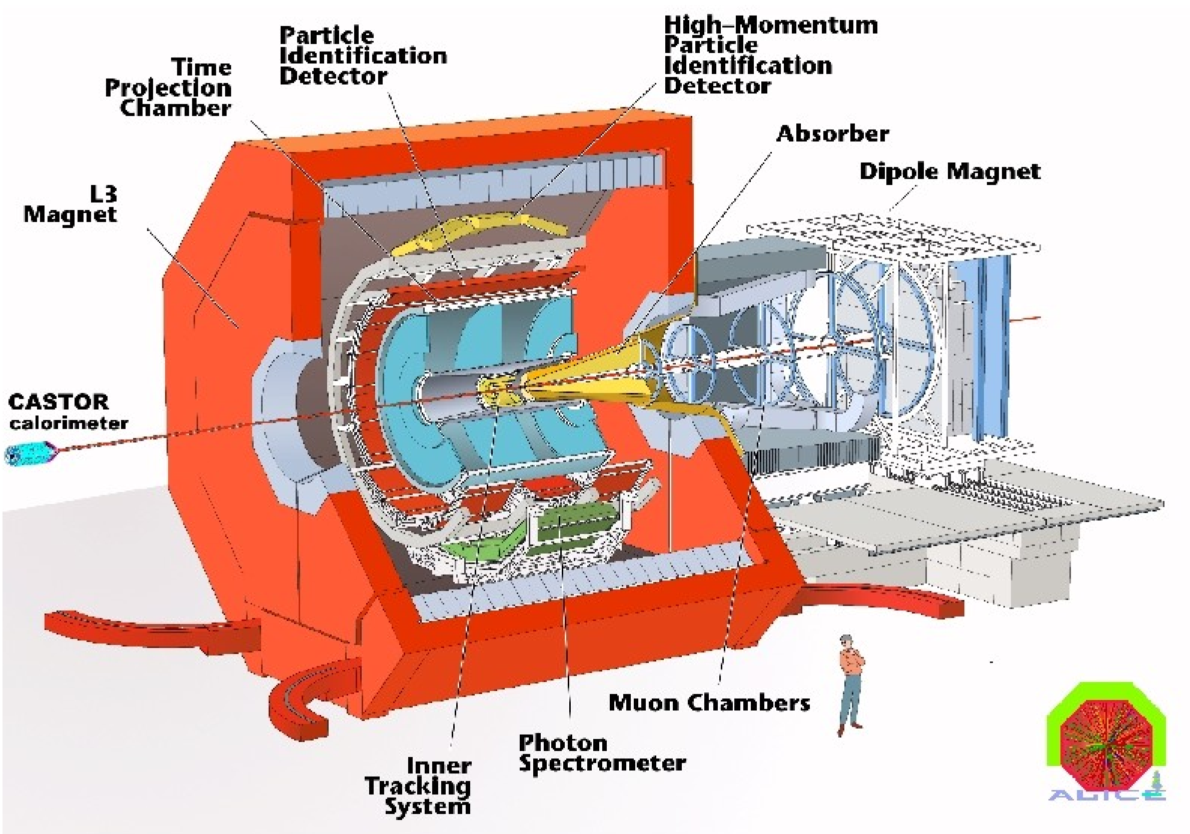
# THE LEAK

CASTOR: a Detector of Strangelets at the Core of the Large Hadron Collider (LHC)




Dear Sir:

I would like to call your attention to a project of the Nuclear Industry, called CASTOR, acronym of Centauro and Strangelet Objects Detector, aimed to detect the production of strangelets in the collisions between lead atoms that will take place at the European Organization of Nuclear Research (CERN) this Fall, starting the 11/9.

CERN was taken to trial in America and Europe, in human right courts (UNO, Strasbourg) and federal courts (US), by different scientists - physicists, mathematicians, complexity theorists and risk experts - which tried to halt those experiments, asking for an independent Panel of scientists, which according to the Environmental laws of  the US (NEPA) and Europe must assess the risks of experiments that can affect the environment, alleging that the Safety Report of the Organization (LSAG) was an in-house job done by the physicists related to the Organization.

However all those court suits were dismissed since CERN adamantly denied in its Safety Report, LSAG, that the LHC will produce strangelets (abbreviate for strange liquid, the first of a new generation of Nuclear Explosives, which dwarf the destructive capacity of the Hydrogen Bomb) and/or black holes (which according to standard science on black holes – Einstein's Relativity – should grow exponentially till devouring the Earth).
Instead CERN affirmed that all the experiments it will do are mere replicas of the collisions that take place in the atmosphere, when cosmic rays enter this planet. Hence, since Cosmic rays have performed the same experiments for millions of years, the LHC was safe:

# Review of the Safety of LHC Collisions

**LHC Safety Assessment Group**[(*)]

**lsag@cern.ch**

**Summary**

*The safety of collisions at the Large Hadron Collider (LHC) was studied in 2003 by the LHC Safety Study Group, who concluded that they presented no danger. Here we review their 2003 analysis in light of additional experimental results and theoretical understanding, which enable us to confirm, update and extend the conclusions of the LHC Safety Study Group. The LHC reproduces in the laboratory, under controlled conditions, collisions at centre-of-mass energies less than those reached in the atmosphere by some of the cosmic rays that have been bombarding the Earth for billions of years. We recall the rates for the collisions of cosmic rays with the Earth, Sun, neutron stars, white dwarfs and other astronomical bodies at energies higher than the LHC. The stability of astronomical bodies indicates that such collisions cannot be dangerous. Specifically, we study the possible production at the LHC of hypothetical objects such as vacuum bubbles, magnetic monopoles, microscopic black holes and strangelets, and find no associated risks. Any microscopic black holes produced at the LHC are expected to decay by Hawking radiation before they reach the detector walls. If some microscopic black holes were stable, those produced by cosmic rays would be stopped inside the Earth or other astronomical bodies. The stability of astronomical bodies constrains strongly the possible rate of accretion by any such microscopic black holes, so that they present no conceivable danger. In the case of strangelets, the good agreement of measurements of particle production at RHIC with simple thermodynamic models constrains severely the production of strangelets in heavy-ion collisions at the LHC, which also present no danger.*

[(*)] **John Ellis, Gian Giudice, Michelangelo Mangano, Igor Tkachev**[(**)] and **Urs Wiedemann**
Theory Division, Physics Department, CERN, CH 1211 Geneva 23, Switzerland
[(**)] Permanent address: Institute for Nuclear Research of Russian Academy of Sciences, Moscow 117312, Russia

## Cosmic rays

The LHC, like other particle accelerators, recreates the natural phenomena of cosmic rays under controlled laboratory conditions, enabling them to be studied in more detail. Cosmic rays are particles produced in outer space, some of which

*CERN safety report and Public web (below: http://public.web.cern.ch/public/en/lhc/Safety-en.html ) affirm that its experiments are equivalent to those of cosmic rays.*

The plaintiffs insisted that the collisions at CERN between lead atoms (called hadrons) had far greater mass-energy than those between cosmic rays. And according to Einstein's well known formula, E=Mc2, this implied that heavy masses (strange matter is heavier than our matter) will be produced in greater quantities. Hence the LHC should produce strange liquid - the explosive substance, which is only found within the inner core of stars, and it is believed to be responsible for the explosion of supernovas, which leave behind a remnant star with a nucleus of strange liquid, called a Pulsar.

CERN denied this once and again in its web and press releases, as the previous LSAG document shows.

However we have now documents from the Organization, in which CERN acknowledges:

1) That its high energy/mass collisions at the Large Hadron Collider will create events that never happen in cosmic rays.
2) That its Hadron collisions starting 11/9 this year will 'likely' create strangelets.
3)

Unfortunately, according to the most advanced theoretical research on strangelets (the work of Peng & Chen from the Shanghai Institute of High Energy Physics) and Jaffe and Wilczek from MIT, if strangelets are formed they could easily start a chain reaction called 'ice-9' that would catalyze the conversion of the Earth into a 15 kilometers ultra dense strange star.

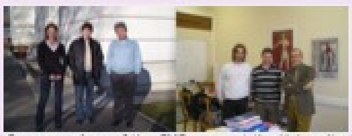
## THE DOCUMENTS

In the next page (left down), one of the physicists working on the CASTOR team flatly states:

'My name is Panos Katsas. I work as an experimental physicist for the CASTOR forward calorimeter of CMS and my main area of interest is the study of exotic events in heavy ion collisions, especially thE identification of strangelets, which are likely to be produced.'

**People**

**The University of Athens (Greece) in CMS**



Some members of the CMS group at the University of Athens at CERN (on the left) and in UoA (on the right).

The University of Athens (UoA) is the oldest and biggest university in Greece. Physicists from the UoA have been active on a number of experiments in High-Energy physics at CERN (NA 35, 49, UA1) and Fermilab (CDF). The people in the CMS group have been members of CMS since 1994, contributing to the Trigger and Data Acquisition systems in the early days. Nowadays the group consists of two faculty members, four PHD students and a number of undergraduate students.

The UoA CMS group is actively involved in both the pp and heavy ion (HI) physics programmes. The major involvement of the group, in parallel with preparing for physics analysis, is in the design and construction of the CASTOR calorimeter for the very forward region of CMS [see CMS Times 12 Nov. 2007]. Prof. A. Panagiotou has been leading this effort since the beginning and has seen it through three prototypes and test beam runs. He is currently the project manager of CASTOR.

On the physics side, Prof. P. Sphicas and students are working on pp physics, with a special interest in susy searches, whereas Prof. A. Panagiotou and students are investigating phenomena in the very forward region. In particular, the existence and identification of exotic states of matter, such as "Centauro" and "Strangelets", the later being a bulk of quark matter of about equal number of u, d and s quarks, believed to be produced in ultra-relativistic HI collisions. This search was one of the original motivations for the design of CASTOR.

Panos Katsas

My name is **Panos Katsas**. I am a Ph.D student at the Nuclear & Particle Physics department of the University of Athens, where I also obtained my bachelor and MSc degree. I work as an experimental physicist for the CASTOR forward calorimeter of CMS and my main area of interest is the study of exotic events in heavy ion collisions, especially the identification of strangelets, which are likely to be produced. I am currently also involved in the software development for CASTOR and analysis of the calorimeter's 2007 test beam.

I am stationed in Athens, visiting CERN usually for short periods of time. I arrived at CERN for the first time in 2004 and I always find it quite interesting to interact with all the different people that work here and share the same excitement about physics.

My hobies include listening to music, playing guitar, going to the cinema and reading.

Download a video podcast with Panos
(~ 29 Mbyte mp4 file)

weight as the pads slide along greased metal rails. The air supports the weight just like in a hovercraft: the pressure (about 30 times that of the atmosphere) enables each square centimetre to support 30kg, such that each 1m-diameter pad can take a weight of up to 250 tonnes. With their combined forces the air pads can easily support the 440, 880 or 1430 tonne endcap disks.

The friction factor of this system is just 1%, meaning that, effectively, the force needed to move them horizontally is only the equivalent of moving 1% of the component's weight. This system has been used in moving all of the heavy pieces, both above ground and in the cavern. The result is a swift but steady and graceful movement of which any dancer would be proud, with an entire segment rotating 90 degrees in less than an hour.

The initial and fairly bold reasoning behind using the air pads was that, due to their efficiency in bearing the load of the components, they would add flexibility to moving pieces, and the last minute waltz of the endcaps is an example of just this, enabling CMS to speed up the final stages of installation. "Nice to see the vision coming to fruition," says Austin. "They really do work!"

*From the CERN Bulletin*

*Submitted by:*

*Elizabeth Gibney*

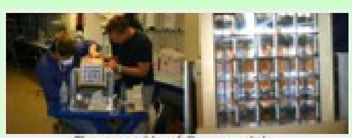
**Ecal Endcap Supercrystals assembly in lab27**

Alveolar, Interface Plate, Housing, Optical Fibre Insert, Crystal & VPT and End-Stop.

Since August 2007, the lab27 hall, where the 36 supermodules for the barrel ECAL were assembled over the last 7 years (2000 to April 2007) , has been reshuffled for the assembly of the endcap (EE) supercrystals (SC).

The supercrystals are an essential part of EE. Each supercrystal consists of a 5x5 matrix of $PbWO_4$ crystals (each crystal read out by a Vacuum Photo Triode (VPT)), 5 HV-cards and support structure. The 25 crystals are inserted in a carbon fibre alveolar structure. The inner alveolar wall thickness is 0.39mm±0.02mm. Prior to being assembled to a SC, all components undergo a quality control procedure.

All crystals are characterized with the automatic control machine (ACCOCE), that was used for the barrel crystals, at a rate of 100 crystals per day. In a next step, the crystals are glued to the VPTs using the barrel gluing set-up adapted to VPTs at a rate of 75crystals/day.



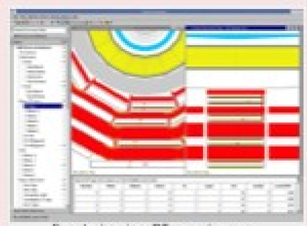
The assembly of Supercrystals.

The assembly of SCs is carried out using a special device that helps keep the overall dimensions of a SC within specification limits. It is terminated by connecting 5 HV-cards on the rear side. Many ECAL institutes are involved in this SC production.

The total number of SC in both endcaps is 624, representing 14648 $PbWO_4$ crystals. Currently 316 SC have been produced including some for beam tests etc. Nearly 200 are already installed on D1 and D4 (see CMS Times October 15).

After optimization of the assembly procedure and infrastructure of lab 27, the production rate is now 14 SC per week, allowing for having assembled all

challenging since the time available for preparation was limited by the annual maintenance of the cooling system. The principal change is that we are now utilizing a portion of the final DAQ system on the surface rather than the mini-DAQ. The detector subsystems participating include most of HCAL (as well as the luminosity system), several ECAL supermodules, the complete DT YB0 wheel, four sectors of RPCs on wheels YB0 and YB+2, and the Tracker Rod In a Box (RIB). The RIB was actually the first front-end to be read out during GREN, and the debugging of encountered problems gives us a head-start before operations begin next year with the complete Tracker installed and cabled. The RPC trigger was brought into operation, and synchronized with the DT trigger and readout. Further on the plans from the trigger side, an attempt will be made to deploy MIP triggers for both ECAL and HCAL at Level-1 using the RCT and GCT, and at the HLT several filters to select MIPs and also cosmic muons pointing to the calorimeter surfaces have been deployed. The processing at HLT is evident in the shown event which displays a DT cosmic muon using information provided directly by the HLT. There have been many challenges during the first week of GREN, but all participants look forward to stable operation and the accumulation of millions of events in the second week."



Event showing DT cosmic muon reconstructed by the HLT.

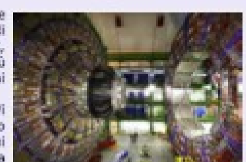
*Submitted by*

*Archana Sharma*

**CMS Outreach, Visits and Media**

**From *Focus.it*:**

***La macchina che cerca l'origine dell'universo***



In preparazione al CERN di Ginevra l'LHC, la macchina più complessa mai costruita dall'uomo. Vi hanno lavorato per 10 anni circa 5 mila scienziati e tecnici provenienti da una cinquantina di Paesi...

Read more:
http://www.focus.it/Speciali/Lacceleratore_di_particelle_Lhc_del_Cern_di_Ginevra_nellestate_2008_esplorer_i_segreti_ultimi_della_materia_e_delluniverso/default.aspx

***"The NICE Team" in CMS, 26 November 2007***

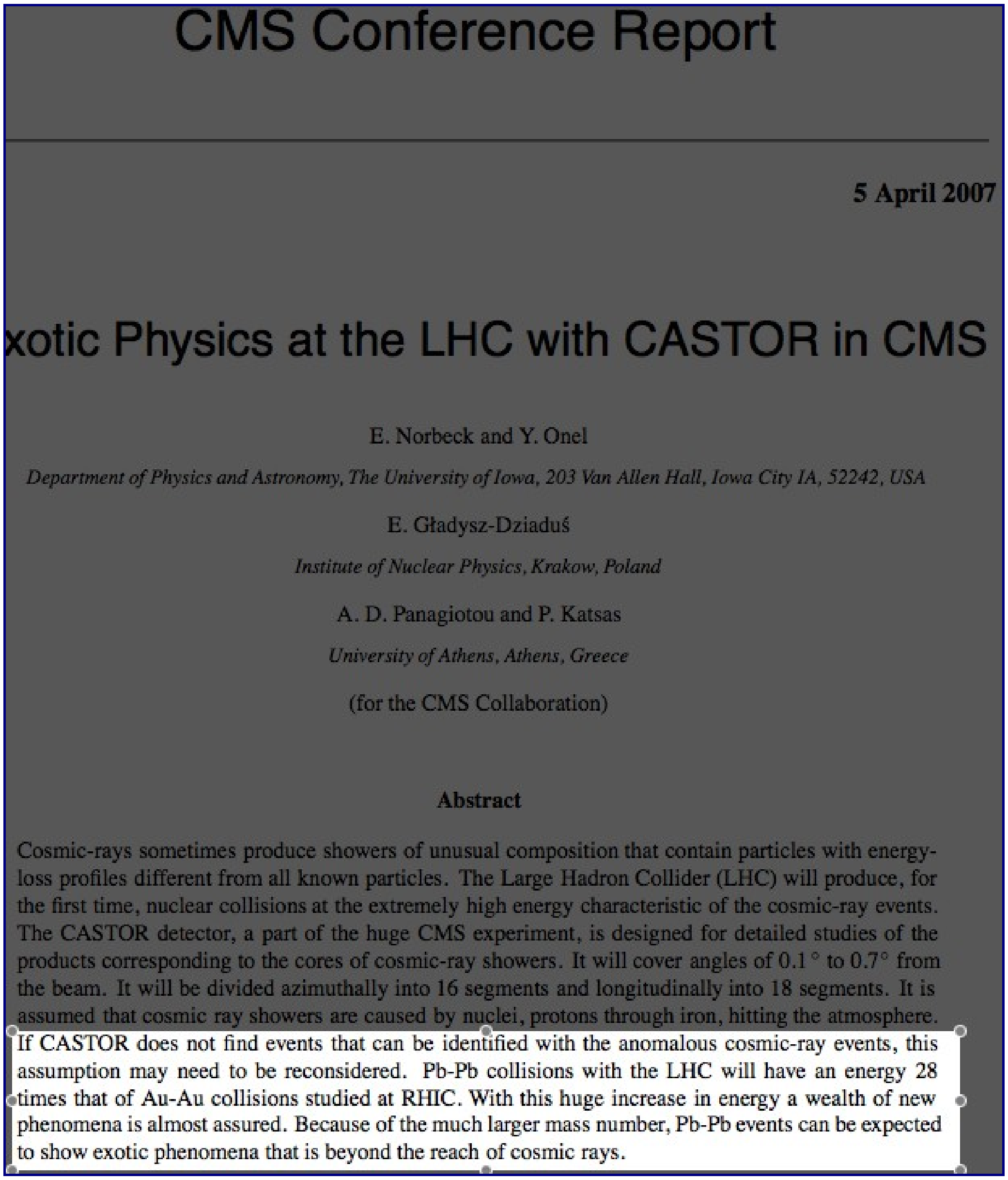
IT IS team in Point 5, outside the construction hall.

This declaration was also recorded in a video, bottom left, which was latter cut, and all the material with reference to Mr. Katsas work at CASTOR at the end of that video is now substituted by a fixed image of this young physicist, Mr. Katsas, no longer working at CERN.

### A decalogue of Leaks: the duplicity of CERN.

The duplicity of CERN is constant when referring to strangelets, whose production and dangers denies in public and in its Safety 'LSAG' report (downloaded from the bottom of the hyperlink) but affirms it will produce in its internal documents. Let us consider a Decalogue of contradictory statements between its safety reports and its inner documents, at a more technical level, 'illustrated' by slides of 'Team Castor' in one of its powerpoint presentations bor CERN scientists:

0) The Organization, which always defended that all the phenomena that will happen at CERN has happened in harmless cosmic rays, affirms in his first report on CASTOR, (below) that the detector has been constructed to study events at high energy that will never occur in Cosmic Rays:



CMS Conference Report

**5 April 2007**

xotic Physics at the LHC with CASTOR in CMS

E. Norbeck and Y. Onel

*Department of Physics and Astronomy, The University of Iowa, 203 Van Allen Hall, Iowa City IA, 52242, USA*

E. Gładysz-Dziaduś

*Institute of Nuclear Physics, Krakow, Poland*

A. D. Panagiotou and P. Katsas

*University of Athens, Athens, Greece*

(for the CMS Collaboration)

**Abstract**

Cosmic-rays sometimes produce showers of unusual composition that contain particles with energy-loss profiles different from all known particles. The Large Hadron Collider (LHC) will produce, for the first time, nuclear collisions at the extremely high energy characteristic of the cosmic-ray events. The CASTOR detector, a part of the huge CMS experiment, is designed for detailed studies of the products corresponding to the cores of cosmic-ray showers. It will cover angles of 0.1° to 0.7° from the beam. It will be divided azimuthally into 16 segments and longitudinally into 18 segments. It is assumed that cosmic ray showers are caused by nuclei, protons through iron, hitting the atmosphere. If CASTOR does not find events that can be identified with the anomalous cosmic-ray events, this assumption may need to be reconsidered. Pb-Pb collisions with the LHC will have an energy 28 times that of Au-Au collisions studied at RHIC. With this huge increase in energy a wealth of new phenomena is almost assured. Because of the much larger mass number, Pb-Pb events can be expected to show exotic phenomena that is beyond the reach of cosmic rays.

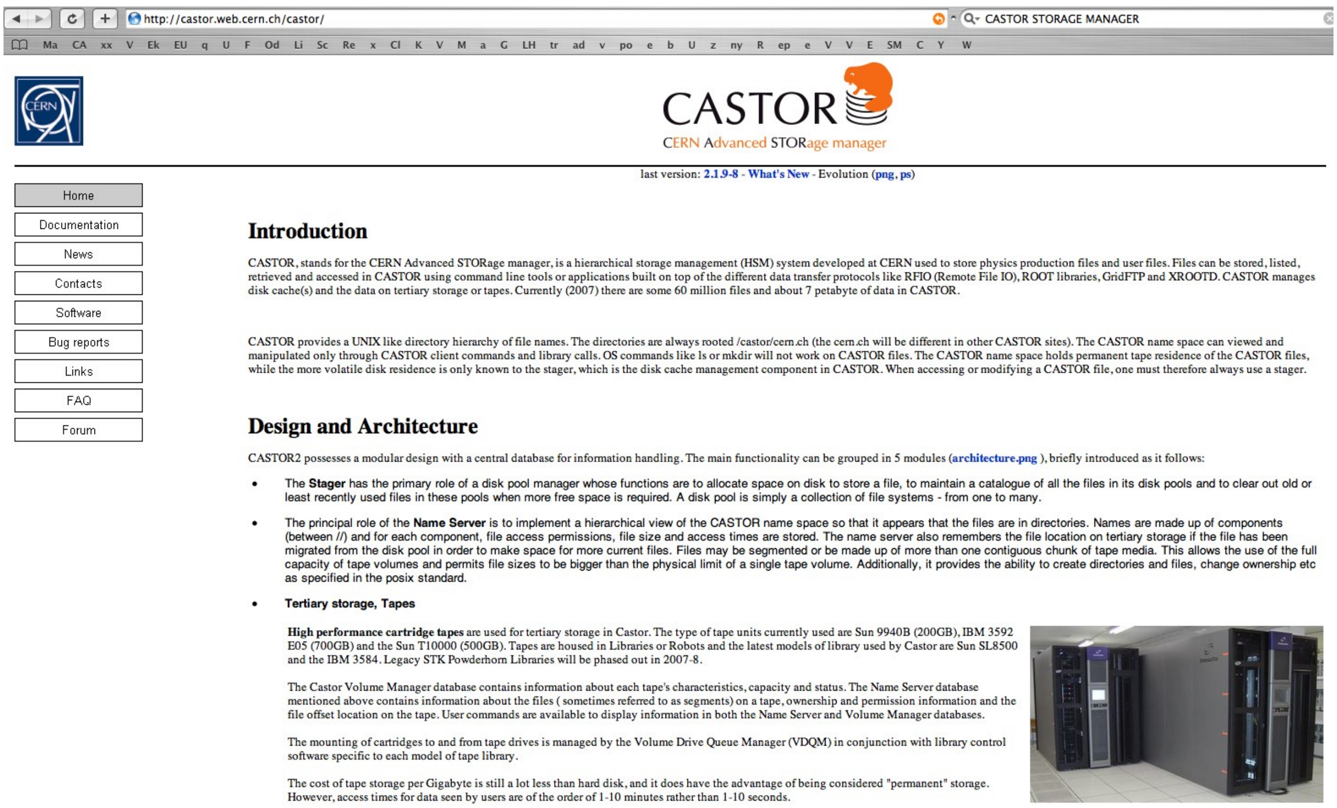
1) The Organization has been testing its machine, the Large Hadron Collider, at low energies with protons and now it has scheduled the first real experiment with hadrons the 11/9. That day it will collide lead and deconfine millions of quarks to replicate the conditions of the big-bang, by producing

massive amounts of quark-gluon liquids of which strange liquid (Ab. Strangelet) is the easiest to make, with the lightest u, s and d quarks as Mr. Katsas explains in the previous page (left, over his picture).

Yet the Organization never explains that quark-gluon liquids are not only responsible for the original cosmic big-bang but also for the big-bangs of stars into Supernovas, in a reaction called 'ice-9' that could also cover the Earth into a pulsar - a star with a surface of degenerated neutrons and a core of strange liquid.

2) Information on CASTOR, the detector of strangelets, is only available to physicists within CERN's site. Yet the existence of such CASTOR project does not come in google searches. Instead the Organization has another project also called CASTOR, which is the only one available in google searches and turns out to be 'CERN Advanced STORage manager'

Similar searches in google or CERN site search results do not yield links to the CASTOR detector site (IE 'centauro+strange or strangelet+castor') only to the CASTOR storage site.


http://castor.web.cern.ch/castor/

CASTOR STORAGE MANAGER

CASTOR

CERN Advanced STORage manager

last version: 2.1.9-8 - What's New - Evolution (png, ps)

Home

Documentation

News

Contacts

Software

Bug reports

Links

FAQ

Forum

**Introduction**

CASTOR, stands for the CERN Advanced STORage manager, is a hierarchical storage management (HSM) system developed at CERN used to store physics production files and user files. Files can be stored, listed, retrieved and accessed in CASTOR using command line tools or applications built on top of the different data transfer protocols like RFIO (Remote File IO), ROOT libraries, GridFTP and XROOTD. CASTOR manages disk cache(s) and the data on tertiary storage or tapes. Currently (2007) there are some 60 million files and about 7 petabyte of data in CASTOR.

CASTOR provides a UNIX like directory hierarchy of file names. The directories are always rooted /castor/cern.ch (the cern.ch will be different in other CASTOR sites). The CASTOR name space can viewed and manipulated only through CASTOR client commands and library calls. OS commands like ls or mkdir will not work on CASTOR files. The CASTOR name space holds permanent tape residence of the CASTOR files, while the more volatile disk residence is only known to the stager, which is the disk cache management component in CASTOR. When accessing or modifying a CASTOR file, one must therefore always use a stager.

**Design and Architecture**

CASTOR2 possesses a modular design with a central database for information handling. The main functionality can be grouped in 5 modules (architecture.png ), briefly introduced as it follows:

- The **Stager** has the primary role of a disk pool manager whose functions are to allocate space on disk to store a file, to maintain a catalogue of all the files in its disk pools and to clear out old or least recently used files in these pools when more free space is required. A disk pool is simply a collection of file systems - from one to many.
- The principal role of the **Name Server** is to implement a hierarchical view of the CASTOR name space so that it appears that the files are in directories. Names are made up of components (between //) and for each component, file access permissions, file size and access times are stored. The name server also remembers the file location on tertiary storage if the file has been migrated from the disk pool in order to make space for more current files. Files may be segmented or be made up of more than one contiguous chunk of tape media. This allows the use of the full capacity of tape volumes and permits file sizes to be bigger than the physical limit of a single tape volume. Additionally, it provides the ability to create directories and files, change ownership etc as specified in the posix standard.
- **Tertiary storage, Tapes**

  **High performance cartridge tapes** are used for tertiary storage in Castor. The type of tape units currently used are Sun 9940B (200GB), IBM 3592 E05 (700GB) and the Sun T10000 (500GB). Tapes are housed in Libraries or Robots and the latest models of library used by Castor are Sun SL8500 and the IBM 3584. Legacy STK Powderhorn Libraries will be phased out in 2007-8.

  The Castor Volume Manager database contains information about each tape's characteristics, capacity and status. The Name Server database mentioned above contains information about the files ( sometimes referred to as segments) on a tape, ownership and permission information and the file offset location on the tape. User commands are available to display information in both the Name Server and Volume Manager databases.

  The mounting of cartridges to and from tape drives is managed by the Volume Drive Queue Manager (VDQM) in conjunction with library control software specific to each model of tape library.

  The cost of tape storage per Gigabyte is still a lot less than hard disk, and it does have the advantage of being considered "permanent" storage. However, access times for data seen by users are of the order of 1-10 minutes rather than 1-10 seconds.

3) In a recent professional book of 332 pages dedicated to the Atlas Experiment that hosts CASTOR, 'The CMS experiment at the CERN LHC', there is not a single mention of strangelets, when the main role of the  Centauro And Strangelets detectOR, as its name indicates, is to look for strangelets.

4) CERN constantly denial in public and its web the probability to make strangelets while in the professional reports about CASTOR that we have digged out of CERN's server, it affirms it will make them.

According to those internal CASTOR reports the probability given of Pb-Pb collisions creating such strangelets is of 1/1000$^{th}$ This, multiplied by the number of events scheduled will create a total of 500 strangelets every month at full luminosity; This contradicts LSAG assertion that probability for a strangelet emerging from LHC would be 'negligible':

## Cross Section Estimation for Strangelets

- The probability for a hadron-rich ‘Centauro-type’ event, estimated from statistics of Chacaltaya and Pamir experiments for cosmic ray families with visible energy greater than 100 TeV, is about 3%.
- In about 10% of these hadron-rich events, strongly penetrating cascades, clusters, or ”halo” were observed. We assume the total probability for “Long Flying Component” (Strangelet?) production in central nucleus-nucleus collisions to be approximately: 0.03 x 0.1 ~ $O(10^{-3})$.
- At LHC kinematics, the percent of Strangelets falling in CASTOR phase space is ~ 10% of total number of Strangelets produced in central Pb-Pb collisions. This quantity depends on the mass and energy of the Strangelet, as calculated by the “Centauro model” MC code CENGEN.
- A rough estimation of the total probability for Strangelet production and detection in CASTOR is:

$$P_{\text{CASTOR strangelet}} \approx 10^{-3} \times 0.1 \approx O(10^{-4})$$

- This number, even if it is uncertain by an order of magnitude down, is a very large number !

*(slides are from the CASTOR team 'CMS Week' presentation*).

Next document is taken from LHC public web on safety at
*http://public.web.cern.ch/public/en/lhc/Safety-en.html*

## Strangelets

Strangelet is the term given to a hypothetical microscopic lump of ‘strange matter’ containing almost equal numbers of particles called up, down and strange quarks. According to most theoretical work, strangelets should change to ordinary matter within a thousand-millionth of a second. But could strangelets coalesce with ordinary matter and change it to strange matter? This question was first raised before the start up of the Relativistic Heavy Ion Collider, RHIC, in 2000 in the United States. A study at the time showed that there was no cause for concern, and RHIC has now run for eight years, searching for strangelets without detecting any. At times, the LHC will run with beams of heavy nuclei, just as RHIC does. The LHC’s beams will have more energy than RHIC, but this makes it even less likely that strangelets could form. It is difficult for strange matter to stick together in the high temperatures produced by such colliders, rather as ice does not form in hot water. In addition, quarks will be more dilute at the LHC than at RHIC, making it more difficult to assemble strange matter. Strangelet production at the LHC is therefore less likely than at RHIC, and experience there has already validated the arguments that strangelets cannot be produced.

5) According to the Castor internal reports strangelet charge would be only negative or neutral, as it is generally agreed in professional literature and affirmed in the suits against CERN. This is relevant

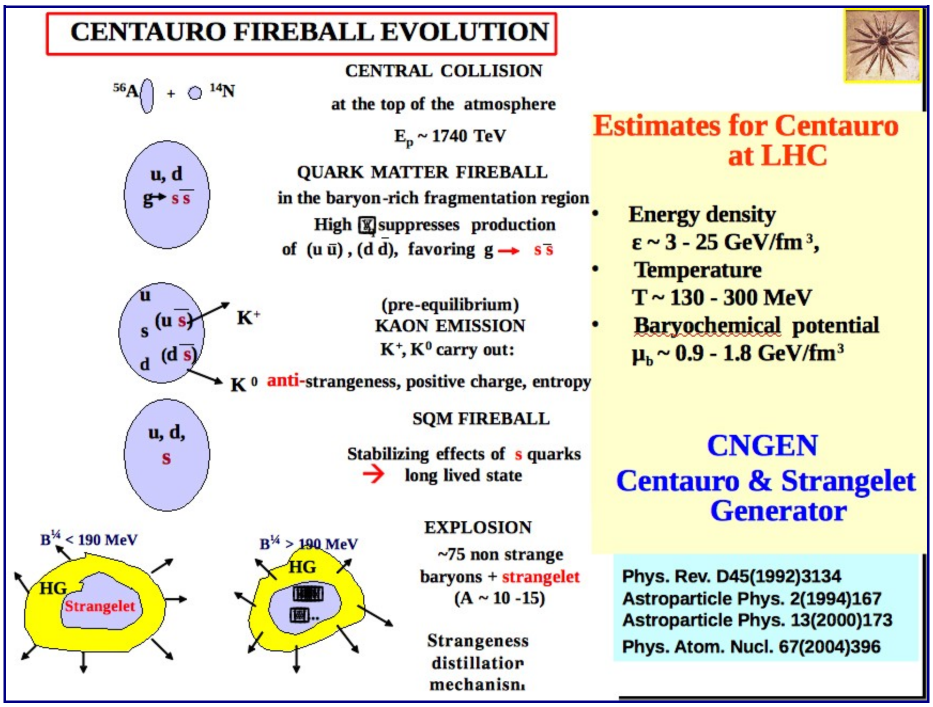
because neutral and negative strangelets will absorb the matter of the Earth much easier than positive strangelets.

Yet the Safety Report made public, the LSAG affirms they will be positive.

6) According to the CASTOR internal reports strangelets will be stable for enough time to produce an explosive reaction: 'Duration could be stable, or as long as 10^-4 seconds'.

Yet according to LSAG strangelets would be unstable.

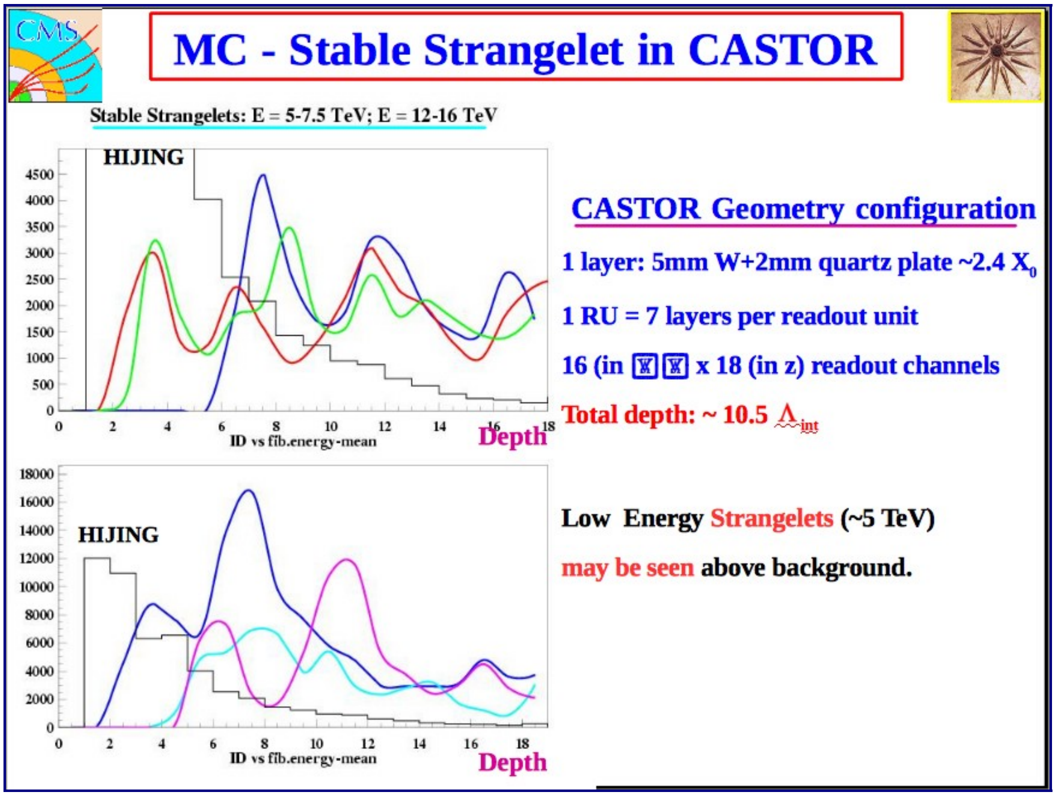
7) According to the CASTOR reports, a simple, easy to realize mechanism of strangelet production by 'strangelet distillation' could be possible, which is however dismissed in LSAG report:




8 ) According to standard literature and all the affidavits denouncing this Organization in different suits, strangelets will be created in higher number at higher energies (since Einstein postulated that mass and energy are equivalent, E=Mc2, hence with higher energy an accelerator produces more Strangelets). Yet the LSAG (point 4, second illustration) denied this obvious law.

However we find in the inner CASTOR reports for internal consumption that CERN actually gives reason to the Plaintiffs and standard literature on strangelets considering that it will produce them at the LHC at higher energies:

'Strangelets will be produced above RHIC's energy (200GeV nucl-nucl c,o.m) starting at 233 GeV nucl-nucl c.o.m.




9) According to CASTOR reports strangelets could realistically be produced with atomic mass number as low as 18 (met with a dozens of quarks). This means CERN will 'certainly' produce stable strangelets, since it will deconfine millions of quarks per second.

Again the CASTOR inner reports contradicts assertions on the public safety LSAG report of negligible creation on that range:

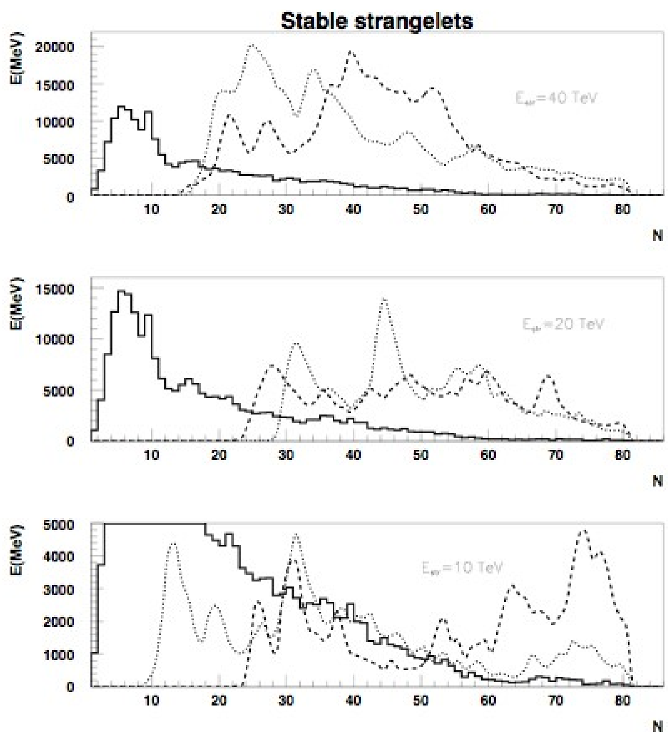


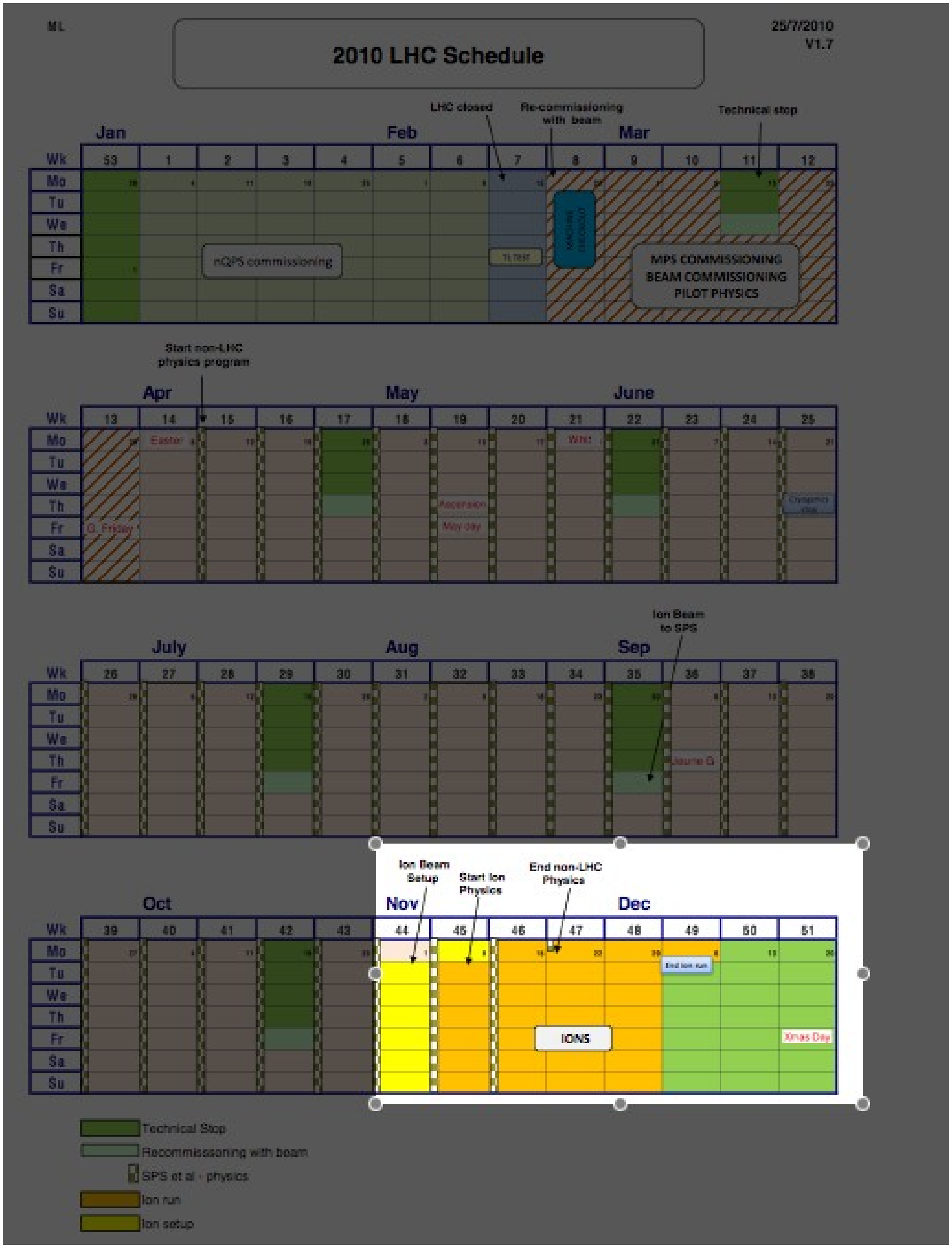

Figure 1: Energy-loss curves for stable strangelets with energies $E_{str}$ = 10-40 TeV and baryon number $A_{str}$ = 15-40 (dashed and dotted lines). Energy deposit (MeV) in each of the 80 calorimeter layers, in the octant containing a strangelet, is shown. Full line histograms show the HIJING estimated background for the full energy less the strangelet energy [13].

*(From CMS conference report, 5 april 2007)*

10) According to the CASTOR report Strangelets are thought likely to have been detected from cosmic ray data of collisions in the 70's. This contradicts LSAG assertion that no indications of Strangelets have been found.

We are now 70 days before the experiments that will collide in the Large Hadron Collider lead at light speed to produce strangelets, ( starting the 11/9, as the next picture shows).

And according to all those internal reports and CASTOR is prepared to observe them, perhaps for as brief as a few seconds, if an ice-9 reaction able to convert the planet in a giant strangelet takes place.




Since we have not found in the server of CERN is any machine, system or prevision to contain the exponential growth of those strangelets, if such 'ice-9 reaction'  starts the big-bang of planet Earth.

On the contrary, all what CERN gives to 'the public' is the reassurance that strangelets will not be formed, according to the LSAG Safety report, which the same Organization denies in its internal memorandums.

This contradiction might be further understood if we consider that in another page of the CASTOR project, CERN offers a course for its scientists on how to deal with the press '**maximizing opportunities and minimizing risk':**

*Media Training, 22nd November 2007*

**"How to deal with the media: maximising opportunity and minimising threat"**

A media training organised by the CERN press office will take place 22nd November 16:30 (tea and coffee from 16:00) in the Main Auditorium.

This session will cover how to work effectively with the media including print, radio and TV. You'll get an insight into how journalists and news rooms operate and what they would like from you. You'll learn to recognise both soft balls and traps - and develop the techniques for dealing with them. The challenges of explaining and positioning CERN to any media outlet whether local, national or international will be dealt with too.

This interactive presentation, given by Jessica Pryce-Jones, Managing Director of the consultancy iOpener Ltd and Nisha Pillai, news anchor for BBC World, will be illustrated with various case studies.

If you are interested in, you are welcome to attend this training. It is free and open to all.

Those documents were sent to us, the collective group of scientists that have denounced the Organization in those suits in Human right courts and Federal Courts to forward its publication in the mainstream press.

Yours Sincerely

Homo@europe.com
or whoever sends it

Endorsed by the plaintiffs of the suits against CERN in UNO, Strasbourg and the American Federal Court.