Background Documents for an Independent Assessment of the LHC's Safety

Compiled by LHCSafetyReview.org

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1 General Information about the LHC

LHC: The Large Hadron Collider
CERN (2010)
A brochure about the LHC.

en (2014)	http://cds.cern.ch/record/1965967/files/CERN-Brochure-2014-004-Eng.pdf
ca (2008)	http://cds.cern.ch/record/1107573/files/CERN-Brochure-2008-003-Cat.pdf
da (2010)	http://cds.cern.ch/record/1287869/files/CERN-Brochure-2010-006-Dan.pdf
de (2014)	http://cds.cern.ch/record/1965982/files/CERN-Brochure-2014-004-Ger.pdf
el (2006)	http://cds.cern.ch/record/1081526/files/CERN-Brochure-2006-002-Gre.pdf
es (2008)	http://cds.cern.ch/record/1106077/files/CERN-Brochure-2008-003-Spa.pdf
fr (2014)	http://cds.cern.ch/record/1965980/files/CERN-Brochure-2014-004-Fre.pdf
it (2010)	http://cds.cern.ch/record/1461240/files/CERN-Brochure-2010-006-Ita.pdf
no (2008)	http://cds.cern.ch/record/1160257/files/CERN-Brochure-2008-003-Nor.pdf
pl (2008)	http://cds.cern.ch/record/1136917/files/CERN-Brochure-2008-003-Pol.pdf
sv (2008)	http://cds.cern.ch/record/1136921/files/CERN-Brochure-2008-003-Swe.pdf

CERN FAQ – LHC the guide
CERN (2009)
A collection of basic facts about the LHC.

en (2009)	http://cds.cern.ch/record/1165534/files/CERN-Brochure-2009-003-Eng.pdf
cs (2008)	http://cds.cern.ch/record/1155902/files/CERN-Brochure-2008-001-Cze.pdf
de (2009)	http://cds.cern.ch/record/1214401/files/CERN-Brochure-2009-003-Ger.pdf
fr (2009)	http://cds.cern.ch/record/1164451/files/CERN-Brochure-2009-003-Fre.pdf
pl (2008)	http://cds.cern.ch/record/1156847/files/CERN-Brochure-2008-001-Pol.pdf

2 Documents Supporting the LHC's Safety

2a Information for the General Public about the LHC's Safety

The safety of the LHC
CERN (2011)
CERN's official public presentation about the safety of the LHC.
en http://press.web.cern.ch/backgrounders/safety-lhc
fr http://press.web.cern.ch/fr/backgrounders/surete-du-lhc

The safety of the LHC
CERN (2008)
A summary of the official safety report for the LHC.
en http://environmental-impact.web.cern.ch/environmental-impact/Objects/LHCSafety/LSAGSummaryReport2008-en.pdf
de http://environmental-impact.web.cern.ch/environmental-impact/Objects/LHCSafety/LSAGSummaryReport2008-de.pdf
el http://environmental-impact.web.cern.ch/environmental-impact/Objects/LHCSafety/LSAGSummaryReport2008-el.pdf
es http://environmental-impact.web.cern.ch/environmental-impact/Objects/LHCSafety/LSAGSummaryReport2008-es.pdf
fr http://environmental-impact.web.cern.ch/environmental-impact/Objects/LHCSafety/LSAGSummaryReport2008-fr.pdf
it http://environmental-impact.web.cern.ch/environmental-impact/Objects/LHCSafety/LSAGSummaryReport2008-it.pdf
jp http://environmental-impact.web.cern.ch/environmental-impact/Objects/LHCSafety/LSAGSummaryReport2008-jp.pdf
no http://environmental-impact.web.cern.ch/environmental-impact/Objects/LHCSafety/LSAGSummaryReport2008-no.pdf
pl http://environmental-impact.web.cern.ch/environmental-impact/Objects/LHCSafety/LSAGSummaryReport2008-pl.pdf
ru http://environmental-impact.web.cern.ch/environmental-impact/Objects/LHCSafety/LSAGSummaryReport2008-ru.pdf

The LHC is safe [video]
Prof. John R. Ellis (2008)
Prof. Ellis' presentation of the LSAG report to CERN staff members.
http://cds.cern.ch/record/1120625/

Debunking the Danger of the LHC [video]
Prof. Frank Wilczek (2008)
Prof. Wilczek's presentation of his basic arguments for the safety of the LHC and RHIC.
http://fora.tv/2008/09/25/Frank_Wilczek_The_LHC_and_Unified_Field_Theory#Frank_Wilczek_-_Debunking_the_Danger_of_the_LHC
* For a transcript, see:
http://www.achtphasen.net/index.php/plasmaether/2011/02/07/p1933

2b Current Official Reports Supporting the LHC's Safety

Review of the Safety of LHC Collisions
LHC Safety Assessment Group (LSAG - Prof. John Ellis, Dr. Gian Giudice, Dr. Michelangelo Mangano, Prof. Igor Tkachev, and Prof. Urs Wiedemann) (2008)
The current official safety report for the LHC.
en http://arxiv.org/abs/0806.3414v2
de http://lsag.web.cern.ch/lsag/LSAG-Report-German.pdf
fr http://lsag.web.cern.ch/lsag/LSAG-Report-French.pdf

Astrophysical implications of hypothetical stable TeV-scale black holes
Prof. Steven B. Giddings and Dr. Michelangelo L. Mangano (2008)
CERN's primary reference for the safety of possible black hole production at the LHC.
http://arxiv.org/abs/0806.3381v2

SPC Report on LSAG Documents
A panel of CERN's Scientific Policy Committee (Prof. Peter Braun-Munzinger, Prof. Metteo Cavalli-Sforze, Prof. Gerard 't Hooft, Prof. Bryan Webber, and Prof. Fabio Zwirner) (2008)
The formal endorsement of the LSAG documents by CERN's Scientific Policy Committee.
http://cds.cern.ch/record/1113558/files/cer-002766289.pdf

Implications of LHC heavy ion data for multi-strange baryon production
LHC Safety Assessment Group (2011)
A note from CERN claiming that the data from heavy ion collisions in 2010 have confirmed the key assumptions used in the LSAG report to set an upper limit on possible strangelet production.
http://press.web.cern.ch/sites/press.web.cern.ch/files/file/old/LHCaddALICE2011.pdf

2c Previous Official Reports Supporting the LHC's Safety

Review of Speculative "Disaster Scenarios" at RHIC
Prof. Robert L. Jaffe, Prof. Wit Busza, Prof. Jack Sandweiss, and Prof. Frank Wilczek (1999-2000)
The official safety report for the Relativistic Heavy Ion Collider (RHIC). (While this report only briefly mentions the LHC, it is cited on the LHC's safety page as the "specialist report published in the United States".)
http://arxiv.org/abs/hep-ph/9910333v3

Study of Potentially Dangerous Events During Heavy-Ion Collisions at the LHC: Report of the LHC Safety Study Group
LHC Safety Study Group (LSSG - Prof. Jean-Paul Blaizot, Prof. John Iliopoulos, Prof. Jes Madsen, Prof. Graham G. Ross, Prof. Peter Sonderegger, and Prof. Hans J. Specht) (2003)
The first official safety report for the LHC.
http://cds.cern.ch/record/613175/files/CERN-2003-001.pdf

2d Statements and Summaries Supporting the LHC's Overall Safety

Experten bestätigen: Der LHC ist sicher
Komitee für Elementarteilchenphysik (KET) (2008)
A statement by KET, citing independent experts such as Prof. Nicolai and the members of LSAG, which criticizes Prof. Rössler and argues that cosmic ray showers prove that the LHC is safe.
http://www.ketweb.de/pressemitteilungen/20080801_PM_Der_LHC_ist_sicher.pdf

Statement by the Executive Committee of the DPF on the Safety of Collisions at the Large Hadron Collider.
Executive Board of the Division of Particles and Fields of the American Physical Society (2008)
A very brief statement endorsing the findings of CERN's official safety report for the LHC.
http://www.aps.org/units/dpf/governance/reports/upload/lhc_saftey_statement.pdf

Das LHC-Projekt am CERN: Gefahr durch Schwarze Löcher? Mögliche Umweltauswirkungen des neuen Beschleuniger-Projekts am CERN
Dr. Daniel Lübbert (2008)
A review of the background to the LHC controversy and a summary of some of the basic arguments for the safety of the LHC.
http://www.bundestag.de/dokumente/analysen/2008/LHC-Projekt.pdf

2e Papers Supporting the Safety of Black Hole Production

Astrophysical implications of hypothetical stable TeV-scale black holes
Prof. Steven B. Giddings and Dr. Michelangelo L. Mangano (2008)
* See the listing above

The end of the world at the Large Hadron Collider?
Prof. Michael E. Peskin (2008)
A brief summary for the public of the key points from the Giddings/Mangano paper.
http://physics.aps.org/articles/v1/14

Exclusion of black hole disaster scenarios at the LHC
Dr. Benjamin Koch, Prof. Marcus Bleicher, and Prof. Horst Stöcker (2008)
A summary of different possible black hole scenarios and the presentation of arguments for why none of them pose any risk.
http://arxiv.org/abs/0807.3349

2f Papers Supporting the Safety of Previous Particle Colliders

Position Paper: Creation of Super-Dense Neutral Matter in the Bevalac
Prof. Luis Alvarez, Prof. Kinsey Anderson, Prof. Alfred S. Goldhaber, Dr. Miklos Gyulassy, Dr. Bernard G. Harvey, Prof. Arthur Kerman, and Prof. Tsung-Dao Lee (1979)
The conclusions of a one and a half day select committee meeting discussing whether super-dense, super-stable neutral matter could be formed in the Bevelac particle accelerator.
reprinted in:
Accelerator Disaster Scenarios, the Unabomber, and Scientific Risks
Prof. Joseph I. Kapusta (2008)
http://arxiv.org/pdf/0804.4806v1
(see pp. 21-22)

How stable is our vacuum?
Prof. Piet Hut and Dr. Martin J. Rees (1983)
A paper presenting the argument that the hypothetical collision of high-energy cosmic rays establishes an upper bound on the risk that particle collisions could trigger a vacuum transition.
http://dx.doi.org/10.1038/302508a0
(The full text of this article is not freely accessible.)

Is it safe to disturb the vacuum?
Prof. Piet Hut (1984)
A paper presenting more detailed calculations for the argument proposed above, while noting the need for further direct or indirect observations of cosmic rays of the required masses and energies.
http://dx.doi.org/10.1016/0375-9474(84)90555-4
(The full text of this article is not freely accessible.)

Will relativistic heavy-ion colliders destroy our planet?
Prof. Arnon Dar, Prof. Alvaro De Rújula, and Prof. Ulrich Heinz (1999)
A paper from CERN's Theory Division arguing why the Relativistic Heavy Ion Collider is safe. The paper notes that further arguments are needed for the safety of heavy ion collisions at the LHC.
http://arxiv.org/abs/hep-ph/9910471v1

Review of Speculative "Disaster Scenarios" at RHIC
Prof. Robert L. Jaffe, Prof. Wit Busza, Prof. Jack Sandweiss, and Prof. Frank Wilczek (1999/2000)
* See the listing above.

Taking Serious Risks Seriously
Prof. Sheldon L. Glashow and Prof. Richard Wilson (1999)
A letter to *Nature* summarizing the arguments of the papers by Jaffe et al. and Dar et al., and assuring the public that the risks associated with physics experiments are being responsibly managed.
http://www.physics.harvard.edu/~wilson/publications/ppaper746.pdf
http://www.nature.com/nature/journal/v402/n6762/full/402596a0.html

3 Documents Criticizing the LHC's Safety Arguments

3a Critique of CERN's Method of Risk Calculation

Probing the Improbable: Methodological Challenges for Risks with Low Probabilities and High Stakes
Dr. Toby Ord, Dr. Rafaela Hillerbrand, and Dr. Anders Sandberg (2008)
A paper describing methodological problems which arise when assessing global catastrophic risks, using the LHC as an example.
http://arxiv.org/abs/0810.5515

3b Critiques of CERN's Safety Arguments for Black Holes

On the potential catastrophic risk from metastable quantum-black holes produced at particle colliders
Dr. Rainer Plaga (2008-2009)
A paper identifying specific flaws in CERN's safety arguments for black holes.
Version 1 (2008) http://arxiv.org/abs/0808.1415v1
Version 2 (2008) http://arxiv.org/abs/0808.1415v2
Version 3 (2009) http://arxiv.org/abs/0808.1415v3

No risk no fun? Die Experimente am Large Hadron Collider bei Genf. Könnten kleine Schwarze Löcher für die Erde gefährlich werden?
Dipl.-Ing. Martin Faßbender and Dr. Georg Petera (2009)
A powerpoint presentation reviewing the safety arguments and counterarguments for black hole production at the LHC.
http://wissensnavigator.com/documents/Norisknofun.pdf

A Critical Review of Safety Papers Concerning Black Holes at the LHC
Eric Penrose (2009)
A paper identifying the flaws in CERN's black hole safety arguments based on the statements of other published scientific papers.
http://www.risk-evaluation-forum.org/LHC_safety.pdf

Metastable LHC black holes - Review of Safety
Eric Penrose (2010)
A critical review of the black hole safety paper by Giddings and Mangano, the safety paper by Koch *et al.*, and the response of Giddings and Mangano to the paper by Dr. Plaga.
http://www.achtphasen.net/miniblackhole/Eric/march2010/Metastable_LHC_black_holes-Review_of_Safety.pdf

Black Hole Production at the LHC: A Review of the Risks
Alam Rahman (2010)
A summary of the numerous flaws in CERN's safety arguments for possible black hole production.
http://www.risk-evaluation-forum.org/LHCrisk.pdf

Unzureichende Sicherheitsanalysen zum LHC-Experiment beim CERN
Dipl.-Ing. Rudolf Uebbing (2010)
A paper highlighting the limitations of CERN's safety analysis for possible black hole production.
http://www.achtphasen.net/miniblackhole/Rudolf/mai2010/Begruendete-Zweifel_LHC_V18.pdf

3c Critiques of the Theory of Hawking Radiation

Do black holes radiate?
Prof. Adam D. Helfer (2003)
A review article describing the known problems with the theory of Hawking radiation and highlighting the key unresolved challenges to the theory. (This paper was not written specifically for the LHC.)
http://arxiv.org/abs/grqc/0304042

On the Universality of the Hawking Effect
Prof. William G. Unruh and Prof. Ralf Schützhold
A paper describing how Hawking radiation is dependent on the laws of physics at the Planck scale and concluding that whether real black holes emit Hawking radiation or not remains an open question. (This paper was not written specifically for the LHC.)
http://arxiv.org/abs/gr-qc/0408009

Abraham-like return to constant c in general relativity: "R-theorem" demonstrated in Schwarzschild metric
Prof. Otto E. Rössler (2007-2009)
An interpretation of General Relativity which no longer gives rise to Hawking radiation.
http://www.wissensnavigator.com/documents/Chaos.pdf
see also:
http://www.wissensnavigator.com/documents/ottoroesslerminiblackhole.pdf
http://www.wissensnavigator.com/documents/GreatRisk.pdf
http://www2.hu-berlin.de/leibniz-sozietaet/journal/archive/08_10/roessler.pdf
http://www.achtphasen.net/index.php/plasmaether/2010/08/19/p1772

Black hole state evolution and Hawking radiation
Prof. Doyeol Ahn (2010)
A paper describing circumstances in which Hawking radiation could be suppressed.
http://arxiv.org/abs/1006.2198

3d Critique of CERN's Safety Arguments for Strangelets

How CERN's Documents Contradict its Safety Assurances: Plans for 'Strangelet' Detection at the LHC
Eric Penrose (2010)
A presentation of the contradictions between CERN's claims about possible strangelet production and the public statements of CERN-affiliated physicists.
http://www.heavyionalert.org/docs/CERNContradictions.pdf

3e Critique of the Safety of the LHC's Beam Dump and Collimators

Studies of Nuclear Hazards and Constitutional Law
Dr. Richard E. Webb (2010)
A description of how the LHC's beam striking carbon or helium materials could theoretically initiate a nuclear fusion chain reaction.
http://www.achtphasen.net/Webb/LHC-FederalCounsel-LetterPetition/March_30__3rd-Draft_6.doc
(see pp. 21-33)

3f Critique of a Hypothetical "Bosenova" Risk

Superfluids, BECs And Bosenovas: The Ultimate Experiment
Alan Gillis (2008)
A presentation of the theory that the LHC's beam could trigger a "Bosenova" event in the superfluid helium used to cool the LHC's magnets.
http://www.science20.com/big_science_gambles/superfluids_becs_and_bosenovas_the_ultimate_experiment

3g Critiques of Scientific, Ethical, or Legal Aspects of the LHC's Risk Management

A Rational and Moral and Spiritual Dilemma
Prof. Otto E. Rossler (2008)
A review of scientific and ethical aspects of possible black hole production at the LHC.
http://www.wissensnavigator.com/documents/spiritualottoeroessler.pdf
see also:
http://www.wissensnavigator.com/documents/CERNTRIGGER.pdf
http://www.heise.de/tp/r4/artikel/34/34033/1.html

Review of the risk assessment process used for the 2008 LHC safety study
Dr. Mark Leggett (2009)
A comparison of the LHC's safety approval process with best practices in risk management.
http://lhc-concern.info/wp-content/uploads/2009/09/leggett_review_of_lsag_process_sept_1__09.pdf

No Canary in the Quanta: Who Gets to Decide if the Large Hadron Collider is Worth Gambling Our Planet?
Harry V. Lehmann (2009)
A review of scientific, legal, and ethical aspects of the decision to proceed with the LHC.
http://www.lehmannlaw.com/pdf/no_canary_in_the_quanta.pdf
http://www.amazon.com/No-Canary-Quanta-Collider-ebook/dp/B002W5RAYA

The Black Hole Case: The Injunction Against the End of the World
Prof. Eric E. Johnson (2009)
A review of the legal aspects of the LHC's approval, along with comments on unresolved safety issues.
http://arxiv.org/abs/0912.5480

"**Honey I Blew Up the World!": One Small Step Towards Filling the Regulatory "Black Hole" at the Intersection of High-Energy Particle Colliders and International Law**
Samuel J. Adams (2009)
A review of the controversy surrounding the start up of the LHC and a presentation of possible approaches from improving the legal framework for such cases.
https://litigation-essentials.lexisnexis.com/webcd/app?action=DocumentDisplay&crawlid=1&doctype=cite&docid=38+Ga.+J.+Int'l+%26+Comp.+L.+131&srctype=smi&srcid=3B15&key=a9b5a587770fdc0eb9f5faf8e9b25c55
(The full text of this article is not freely accessible)

3h Critiques of the Safety Arguments for Earlier Particle Colliders

Review of the RHIC Safety Review
Dr. Richard J. Wagner (2000)
A critique of the safety arguments given for possible strangelet production at the Relativistic Heavy Ion Collider (RHIC).
http://rjwagner49.com/Science/Physics/LHC/ReviewOfReview03.pdf

Problems with empirical bounds for strangelet production at RHIC
Prof. Adrian Kent (2000)
A critique of the official safety report for RHIC and the paper from CERN's Theory Division in support of RHIC.
http://arxiv.org/abs/hep-ph/0009130v2

A critical look at risk assessments for global catastrophes
Prof. Adrian Kent (2000-2003)
A paper critiquing the previous safety arguments for RHIC and asking the question, "What risk of catastrophe could be acceptable?"
http://arxiv.org/abs/hep-ph/0009204v6

Might a laboratory experiment destroy planet earth?
Prof. Francesco Calogero (2000)
A brief review of the scientific, ethical, political and sociological issues associated with the approval of potentially catastrophic scientific experiments.
http://www.nettime.org/Lists-Archives/nettime-bold-0103/msg00090.html
http://www.ingentaconnect.com/content/maney/isr/2000/00000025/00000003/art00006

How Unlikely is a Doomsday Catastrophe?
Prof. Max Tegmark and Prof. Nick Bostrom (2005)
A paper describing how "selection bias" should be incorporated into catastrophic risk calculations.
http://arxiv.org/abs/astro-ph/0512204

4 Responses to Critiques of the LHC's Safety Arguments

4a Responses to Prof. Otto E. Rössler's R-Theorem

Comments from Prof. Dr. Hermann Nicolai, Director, Max Planck-Institut für Gravitationsphysik (Albert-Einstein-Institut) Potsdam, Germany on speculations raised by Professor Otto Roessler about the production of black holes at the LHC.
Prof. Hermann Nicolai (2008)
A one-page collection of comments criticizing Prof. Rössler's R-Theorem.
http://environmental-impact.web.cern.ch/environmental-impact/Objects/LHCSafety/NicolaiComment-en.pdf

On the arguments of O.E. Rössler
Prof. Domenico Giulini and Prof. Hermann Nicolai (2008)
A more detailed paper criticizing Prof. Rössler's R-Theorem.
en http://environmental-impact.web.cern.ch/environmental-impact/Objects/LHCSafety/NicolaiFurtherComment-en.pdf
de http://www.ketweb.de/stellungnahmen/20080730_Antwort_von_Prof_Dr_Hermann_Nicolai_und_Prof_Dr_Domenico_Giulini.pdf
fr http://environmental-impact.web.cern.ch/environmental-impact/Objects/LHCSafety/NicolaiFurtherComment-fr.pdf

Experten bestätigen: Der LHC ist sicher
Komitee für Elementarteilchenphysik (KET) (2008)
* See the listing above.

Commentary on two papers by O.E. Roessler on black holes
Prof. Gerhard W. Bruhn (2008)
A critique by Prof. Bruhn of Prof. Rössler's R-Theorem.
http://www.mathematik.tu-darmstadt.de/~bruhn/CommRoesslerPaper.html

4b Response to Dr. Plaga's Critique of the LHC's Black Hole Safety Arguments

Comments on claimed risk from metastable black holes
Prof. Steven B. Giddings and Dr. Michelangelo L. Mangano (2008)
A response by Prof. Giddings and Dr. Mangano to some of the criticisms raised in version 1 of Dr. Plaga's paper.
http://arxiv.org/abs/0808.4087

Possibility of Catastrophic Black Hole Growth in the Warped Brane-World Scenario at the LHC
Prof. Roberto Casadio, Dr. Sergio Fabi, and Prof. Benjamin Harms (2009)
A paper calculating the black hole accretion and evaporation rates for certain parameters and concluding that the catastrophic growth of black holes produced at the LHC is not possible.
http://arxiv.org/abs/0901.2948v3

4c Response to Concerns about the LHC's Beam Dump

Memorandum: Interaction of the CERN Large Hadron Collider (LHC) Beam with the Beam Dump Block
Dr. Ralph W. Aßmann, Dr. Alfredo Ferrari, Dr. Brennan Goddard, Dr. Rüdiger Schmidt, and Dr. Naeem A.Tahir (2008)
A response from CERN to concerns that the LHC's beam dump could undergo a fusion reaction.
http://lsag.web.cern.ch/lsag/BeamdumpInteraction.pdf

4d Response to Concerns about a Hypothetical "Bosenova" Event

There is no explosion risk associated with superfluid Helium in the LHC cooling system
Prof. Malcolm Fairbairn and Dr. Bob McElrath (2008)
A response from CERN to concerns that the LHC's beam could ignite the superfluid helium used to cool the LHC magnets.
http://arxiv.org/abs/0809.4004

5 Other Relevant Documents

5ai Documents Related to Black Hole Growth

Can black holes and naked singularities be detected in accelerators?
Dr. Roberto Casadio and Prof. Benjamin Harms (2001-2002)
A paper presenting a more careful calculation of the radiation from microscopic black holes and reporting that such black holes would live much longer than previously expected.
http://arxiv.org/abs/hepth/0110255v2

On the Stability of Black Holes at the LHC
Prof. Marcos D. Maia and Prof. Edmundo M. Monte
A paper arguing that in 5-dimensional scenarios based on the ADS/CFT correspondence any black hole produced at the LHC would have an unstable horizon which would grow in proportion to the square of the distance from the collision point. The paper notes that in scenarios with more than 5 dimensions it is possible that black holes do not grow in this way.
http://arxiv.org/abs/0808.2631v1

5aii Documents Related to Black Hole Remnants

Schwarze Löcher im Labor?
Prof. Marcus Bleicher and Prof. Horst Stöcker
A background article on black holes, their possible production at the LHC, and the use of black hole remnants as a possible energy source.
http://www.forschung-frankfurt.uni-frankfurt.de/dok/2006/2006-4/14-18-Schwarze-Loecher-im-Labor.pdf

Mini Black Holes in the first year of the LHC: Discovery Through Di-Jet Suppression, Mono-Jet Emission and ionising tracks in ALICE
Prof. Horst Stöcker (2006)
A research paper discussing the detection of stable black hole remnants at the LHC and describing their possible use as an energy source.
http://arxiv.org/abs/hep-ph/0607165v3

Deutsches Patent- und Markenamt DE 10 2006 007 824 A1
Prof. Horst Stöcker (2006-2007)
A German patent for the use of black hole remnants to convert ordinary matter into energy.
http://publikationen.dpma.de/DPMApublikationen/pdf_any_all.do?docId=DE102006007824A1&id=8903446

(WO/2007/093434) Method for Production of Energy by Conversion of Mass into Energy
Prof. Horst Stöcker (2007)
An international patent application for the use of black hole remnants to convert ordinary matter into energy.
http://www.wipo.int/patentscope/search/en/detail.jsf?docId=WO2007093434

5b Documents Related to Strangelets

New solutions for the color-flavor locked strangelets
Prof. Guang Xiong Peng, Xin Jian Wen and Yuede Chen (2005)
A paper reporting that the charge of color-flavor locked strangelets can be positive, negative, or nearly neutral.
http://arxiv.org/abs/hep-ph/0512112
see also:
http://arxiv.org/abs/hep-ph/0612253

Year-1 (Heavy-Ion) Physics with CMS at the LHC
Prof. Edwin Norbeck and Prof. Yasar Onel (for the CMS collaboration) (2010)
A paper reviewing the plans and expectations for heavy ion physics at CMS. The final section describes how strangelets could be produced by strange quarks infiltrating spectator nuclei.
http://iopscience.iop.org/1742-6596/230/1/012044/pdf/1742-6596_230_1_012044.pdf

The strangelet saga
Prof. Edwin Norbeck and Prof. Yasar Onel (2011)
A paper claiming that there is no longer any reason to be concerned that strangelet production at an accelerator could destroy the Earth.
http://iopscience.iop.org/1742-6596/316/1/012034/pdf/1742-6596_316_1_012034.pdf

6 Documents from Court Cases

6a Sancho v. U.S. Department of Energy

6ai Documents Submitted for the Plaintiffs

Complaint for Temporary Restraining Order, Preliminary Injunction, and Permanent Injunction
Luis Sancho and Walter Wagner (2008)
http://lhcdefense.com/pdf/Sancho%20v%20Doe%20-%20Complaint.pdf

Affidavit of James R. Blodgett in Support of TRO and Preliminary Injunction
James R. Blodgett (2008)
http://lhcdefense.com/pdf/Sancho%20v%20Doe%20-%20Affidavit%20of%20James%20Blodgett%20in%20Support%20of%20TRO.pdf

Affidavit of Paul W. Dixon in Support of TRO and Preliminary Injunction
Prof. Paul W. Dixon (2008)
http://lhcdefense.com/pdf/Sancho%20v%20Doe%20-%20Affidavit%20of%20Paul%20W.Dixon.pdf

Affidavit of Mark Leggett in Support of TRO and Preliminary Injunction
Dr. Mark Leggett (2008)
http://lhcdefense.com/pdf/Sancho%20v%20Doe%20-%20Affidavit%20of%20Mark%20Leggett.pdf

Affidavit of Luis Sancho in Support of TRO and Preliminary Injunction
Luis Sancho (2008)
http://lhcdefense.com/pdf/Sancho%20v%20Doe%20-%20Affidavit%20of%20Luis%20Sancho.pdf

Affidavit of Rodney J. Skinner in Support of TRO and Preliminary Injunction
Rodney J. Skinner (2008)
http://lhcdefense.com/pdf/Sancho%20v%20Doe%20-%20Affidavit%20of%20Rod%20Skinner%20in%20Support%20of%20TRO.pdf

Affidavit of Richard J. Wagner in Support of TRO and Preliminary Injunction
Dr. Richard J. Wagner (2008)
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