# MONTEREY BAY PERPETUAL

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Dr. Rolf-Dieter Heuer, Director General
Administration Headquarters
ORGANISATION EUROPÉENNE POUR LA RECHERCHE NUCLÉAIRE
CERN - EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH
Geneva, Switzerland

Re: LHC Safety Assessment Group (LSAG) Report by Red-Team (Beta)

Sehr geehrter Herr Doktor Heuer:

Entschuldigung dass Ich schreibe viel besser auf Englisch als auf Deutsch.

I apologize that my German writing ability is not good compared to my English writing ability.

We continue to review the LHC operations, and note that the cooldown has finished, and that beam has been reintroduced into the ring.

We have continued to review our analysis, and still find the same conclusions:

1) The prospect that near-relativistic micro-black-holes could have a near-zero cross-section for interaction, while slow (less than earth's escape velocity) micro-black-holes would have measureable cross-sections, has not been refuted. That prospect negates the Mangano safety argument, which relies upon micro-black-holes having measurable cross-sections at relativistic speeds.

2) The prospect that a large quark-gluon-stew would form from Lead-Lead collisions which might give rise to a strangelet, whereas the proton-Lead collisions in nature of comparable COM energy would not give rise to a sufficiently large quark-gluon-plasma. The small size of the protons striking a Lead nucleus in nature might simply drill through the nucleus, forming too small of a quark-gluon-stew to create the conditions ripe for strangelet formation. Conversely, the Lead-Lead collisions at the LHC might be able to obtain what nature cannot.

We particularly note that the first prospect, which on first impression might seem unusual, is actually the way physics works with respect to neutrons.

When the Englishman Chadwick first discovered neutrons, they were perplexing. Subsequent study revealed that if they were slowed, they would interact with Uranium, forming a Barium precipitate. That odd result, of course, is now at the heart of every nuclear reactor (which are considerable in number, and include several small Russian reactors in space, dozens of ocean-floating naval reactors, and hundreds of land-based reactors), most of which are operating on a daily basis. Slow neutrons have a very large cross-section for interaction, and with Uranium, for fission-interaction with the U-235 nucleus (and to a lesser degree with the U-234 and U-238 also present). Conversely, fast neutrons have a greatly reduced cross-section for interaction (for fission, or for elastic and inelastic collisions). Different nuclei present different target cross-sections for neutrons of the same energy. And, to date, the data we have obtained for the cross-section versus speed for various nuclei is obtained entirely empirically, and we have only the crudest models to explain the great variations in cross-section with speed.

Consequently, we can have no faith in a naked assertion such as that made by Michaelangelo Mangano that he knows that the cross-section for interactions for the theoretical micro-black-hole, travelling at near-relativistic speed, is sufficiently large that it would be stopped by a neutron star, collapsing that target and causing the neutron star to disappear from view. We simply cannot know what that cross-section for interaction is at near-relativistic speed, and some theory suggests it is very near to zero.

The prior blue-team report did not even attempt to address the difference between Lead-Lead collisions at the LHC at comparable COM energies to the proton-Lead collisions in nature. I suspect that was not addressed because they recognized that the two are NOT the same, and that the LHC Lead-Lead collisions will be entirely different than the cosmic ray collisions of nature. Instead, it simply relied upon theoretical 'arguments' which argued that it was "unlikely" to be different. Again, this is simply a naked assertion not supported by empirical evidence, and very preliminary theoretical argument without any explanation of how it was determined to be "unlikely", whatever that means. Some theory suggests that the lifetime of the quark-gluon-stew would be even longer at the LHC than at the RHIC (which was surprisingly longer than had been predicted), allowing for formation of dangerous strangelets.

Consequently, we are in a precarious situation, and it is strongly urged that you and your office show the moral courage to further analyze this situation as we suggest, before you give the OK to trigger LHC collisions at energies greater than Fermilab's Tevatron for the proton-proton collisions, and at energies greater than Brookhaven's RHIC for the Lead-Lead collisions

Yours very truly,

Walter L. Wagner
Captain, Red Team (Beta)