Black Holes in Collider? Not really.

Dmitri Martila (eestidima@gmail.com)

Estonian Physical Society

Lääne 9-51, Tartu 50605, Estonia

(Dated: April 9, 2015)

Abstract

Presented strong arguments against Black Hole production via two particle collision.

PACS numbers:

I. CURRENT POLITICAL CLIMATE

It is not secret, that there is movement against the CERN's collider [1, 2]. There was process in court [1, 2], and new processes will come as the power of machines progresses. The aim of the present paper is to calm the worrying humankind with simple and clear argument. The argument can be called "proof of LHC safety", see also [2].

II. THE PROOF

Two particles are on the head to head collision course. The observer on the first particle A observes how the second particle B is flying with high velocity towards him. Because there is Relativity Principle, there is no event horizon (i.e. no black hole structure) in the spacetime. Now the small variation of spacetime due to observer's particle A can not change dramatically the spacetime: the particle A has small mass and zero velocity. This contribution is too small to produce the event horizon. Therefore up to the very collision, there is no event horizon. No Black Hole!

In another reference frame the particles have the same velocity $|v|$ and are colliding. Now they are in contact, and there is no event horizon yet. Will it be formed later? Because the mass of system conserves, the horizon will not continuously grow from zero to $r_g = 4m$, where m is a particle mass. What does the collision mean? The new high speed particles will be created. This mean, that particles will fly apart out of the collision point. If there would be horizon, then the particles can not move outwards (a body can not increase his r inside the event horizon: otherwise it could hold stationary position). But they are moving. In conclusion: there is no event horizon and, thus, no Micro Black Hole.

III. DISCUSSION

Why then there are papers [3] on Black Holes in Collider? Evidently authors apply the Birkhoff's theorem (at least intuitively). But this theorem can not be applied – the collision is the non-spherical process.

You might argue, that there is nothing special about the event horizon. So the horizon can be easily seen, if you would solve the non-spherical spacetime evolution. I argue back! Look here:

How much has been said in the media, that Earth-man never sees the body B fall into a black hole. Reason: time dilation. But researcher A with rocket has full control of the situation, he can come close to Black Hole, almost to contact and observe everything. Therefore, the distance between A and B may be zero. It does not depend on when in the past the body B was shut into a black hole. Therefore, the black hole horizon has one big collision of bodies. Conclusion: The falling body is flattened on the horizon like by a concrete wall. Reason: on the horizon is singularity. Therefore, near the horizon even the most powerful engine can not operate and will fall into a black hole, reaching relativistic velocities of the fall. However, the space outside the ship becomes shorten through the Lorentz contraction of lengths. And therefore it is more likely to catch B than when A was in safety. A vector and a tensor consist not only of the components, but of the basis vectors. Therefore, multiplying basis vectors on the tensor itself, I get a scalar. Singular scalar, to conclude that even when the singularity were removed from the components, it is moved to the base of the curvature tensor. Therefore "removable" "coordinate singularity" of the curvature tensor is actually real and is not removable by coordinate transformations!

See also my preprint "Moving Into Black Hole: is there a Wall?" in viXra, http://viXra.org/abs/1412.0151.

---

[1] Quote: "Nuclear physicist Walter L. Wagner established Citizens Against The Large Hadron Collider to utilize legal action to require that CERN engage in extensive safety testing of the Large Hadron Collider before it is allowed to operate. Catastrophic outcomes resulting from the LHC could include theoretical miniature black holes, theoretical strangelets and deSitter Space transitions. The initial complaint for a temporary restraining order and injunction was filed on March 21, 2008 by Luis Sancho and Walter Wagner against the U.S. Department of Energy, National Science Foundation and others. Below are all the documents pertaining to this case, Civil No. 08-00136-HG-KSC (D. Haw.)." http://www.lhcdefence.org/

[2] The CERN official response one can find in paper "Safety of high-energy particle collision experiments" (Wikipedia). Quote: "On 5 September 2008, the LSAG's "Review of the safety of LHC collisions" was published in the Journal of Physics G: Nuclear and Particle Physics by the UK Institute of Physics... this report explains why there is nothing to fear from particles

created at the LHC".

[3] The review you can find in "Micro black hole" (Wikipedia). Quote: "Giddings, S. B. & Thomas, S. D. (2002). "High-energy colliders as black hole factories: The End of short distance physics". Phys. Rev. D 65 (5): 056010. arXiv:hep-ph/0106219... Dimopoulos, S.; Landsberg, G. L. (2001). "Black Holes at the Large Hadron Collider". Phys. Rev. Lett. 87 (16): 161602. arXiv:hep-ph/0106295".