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Short Communication
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Space-time Disintegration beyond Event Horizon and its Consequences

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Abstract

It is postulated that forces beyond event horizon are enormous. With such intensity of interplay of forces, space-time distortion is a possible phenomenon. This paper attempts to interpret disintegration of space-time beyond event horizon and predicts its consequences.

Keywords: Disintegration; Black holes; Space-time; Horizon

Disintegration of Space-time

Black holes are the most fascinating astrophysical objects. The physics beyond event horizon is unknown, we are only allowed to dream about what all could happen there. If we try predicting forces beyond event horizon we will encounter that their intensity is quite high. With such intensity space-time disintegration is a predictable phenomenon.

We understand space-time as a physical entity, considered as the playground of all physical phenomenon. When talking about disintegration of space-time we assume it to follow laws of quantum mechanics and a quantized entity having a lowest possible value should exist in whose integral multiples should multiply forming different dimensional structures.

We consider a black hole system [1] in whose vicinity space-time collapses form event horizon to singularity. So if X^N be an N dimensional space-time matrix in the vicinity of event horizon then,

$$X^N = \alpha(h.m_t)^w$$

Where α is arrangement logic, h is Planck's constant, mt is the quantized value of space-time and ω is dimensional factor. Here, ω varies in proportion with N. And if, time exists out of the space-time matrix such that it is not a constant entity, rather a variable one then, α will become αt which is arrangement matrix with time logic.

If ψ is space-time disintegration factor then,

$$\langle \Psi_0 | \Psi_T \rangle \alpha X^N F^{\alpha}_{\mu\nu}$$

Where is a multidimensional force convergence factor which is characteristic for X^N. The Convergence from instant 0 to instant *T* will be in proportion with the space-time matrix interacting with multiple forces interacting (internally as well as externally) with that particular matrix which is denoted by the latter term in the equation.

Beyond event horizon disintegration will take place where space-time will change its nature sharply with respect to the changing forces inside a black hole. The space will start disintegrating towards absolute minimum drawing sharply down.

Whenever such space-time disintegration is taking place, an interacting particle should play mediation between quantum space-time entities. To model this we can say that space-time is made up of quantum values bound together by an interacting particle. Whenever there is a move up in the space-time ladder or move down a particle (say ***J***) should be consumed or released respectively.

Space-time disintegration may not be an easily occurring phenomenon, it may require enormous amount of energy to pull out quantum space-time entities from their structures. Such phenomenon is predicted to be possible beyond event horizon taking in account the enormity of Forces. It is also possible that fundamental forces converge to make one large force resulting into space-time disintegration.

Consequences of Space-time Disintegration

Anomalies in speed of light

With the understanding of space-time disintegration beyond event horizon, we come to examine the anomalies in speed of light due to such phenomenon.

From Maxwell's Electromagnetic Theory [2], we know that;

$$c = \sqrt{\frac{1}{\mu_0 \varepsilon_0}}$$

μ_0 and ε_0 lose their usual meaning of "free space" under such convergence conditions. In space-time disintegration conditions, the value of permeability and permittivity will rapidly change henceforth changing the speed of light beyond event horizon.

Although it is difficult to predict the path of such change in the values of μ_0 and ε_0, but with such spontaneity of changing values, there must exist some time lag (from instant 0 to instant T, 0 marking the initial point of an event), a miniscule value maybe but some value should exist. Here, *c* must change as a function of space-time disintegration. Lorentz transformations will therefore have totally different outcomes beyond event horizon.

Pair production as a consequence of space-time disintegration

It is widely accepted that due to quantum effects, black holes tend to produce particle-anti particle pair at extremely high temperatures which eventually results in Hawking Radiation [3].

With space-time disintegration happening beyond event horizon, the interacting particle ***J*** in the system of converging forces may produce a virtual particle-anti particle pair while interacting with its

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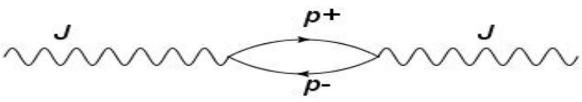

Figure 1: Feynman diagram.

surroundings. The following Feynman diagram represents such virtual pair production (Figure 1).

It can also be predicted that with such pair productions some particles at surface may fall out resulting into Hawking radiation. This can also imply to systems other than black holes.

Thermal anomalies near event horizon

Space-time disintegration is an extremely powerful phenomenon. Every time to pull out a quantum entity from its structure enormous amount of energy is required, which result in thermal anomalies near event horizon. The thermal radiations should be quite high near event horizon.

Conclusion

The forces beyond event horizon are enormous which result in space-time disintegration to much simpler quantum entities giving out an interacting particle which results in virtual pair production and thermal glitches. Due to such disintegration, the permeability and permittivity of such space-time structure are affected resulting into anomalies in the speed of light beyond event horizon.

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