

Tired Light : How it is The Missing Stone in the Infinite Universe with no Beginning

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Photons have a rest mass and this means they are submitted to gravity. This is the missing stone in the « tired light » theory that leads to the explanation of the red shift without having to consider an expansion of the universe, that observations disprove more and more every day. A Dyson sphere process is shown and explained not by infrared emissions but by radio waves emitted from it. Light emitted from black holes is redefined with quantum criticities. The half-lives of Bi209 and Te128 are reminded as more proof that the universe has no beginning. Black hole spin is discussed in relation to their activity, elements reminded on star formation and the ripening of space time by gravitational waves explained in detail.

The tired light describes the idea of light as photon particles subject to all forces including gravity. This is consistent with the nature of black holes, their ability to attract photons and keep them within is the definitive indicator that light is subject to gravity. Its rest mass [1] is a preliminary indicator of that. Observations that gamma photons can be deformed by Bose-Einstein condensation to enter the visible spectrum are another indication of its structure [2]. Indeed if light cannot escape rules of pressure, it cannot escape as well rules of gravity. It is not a rest mass but a permanent one. The law $E=mc^2$ means that to any energy is associated a mass together with the speed of light squared. Since photons carry energy, it means that m for the energy of a single photon cannot be equal to 0.

The idea of a Doppler effect for light is contradictory with the idea of light as photons obeying to compression, except if the Doppler effect is in fact a gravitational pull from behind. This means that the universe is in fact still, with no limits defined, no beginning or end in time. It corresponds with the thesis first elaborated in [3] on black hole eruptions and black holes as the great recyclers forming actinides out of their compression forces. It is also partly understood by the authors of [4] who suggest a “bouncing” cosmology, in particular if they are understood as describing from another angle black hole eruptions. Indeed they indicate that “enhanced curvature perturbations, collapsing to primordial black holes, can induce as well a stochastic gravitational-wave background”. This describes the phenomena of black hole eruptions very well since these are curvature perturbations (in the black hole opening under the effect of the supercriticality within) leading to gravitational wave emissions. Black holes in stars and planets form during black hole eruptions out of the material erupted by black holes, that includes some antigravitons. The concept of primordial black hole seem to adapt well to black holes where

eruptions happen. Quasars are typical examples. Quasars such as BL Lacertae undergo regular chains of black hole eruptions, that allow a Dyson Sphere process around, with asteroids emitted from these eruptions captured by an intelligent civilization that musters its alpha emitters in fission within the Dyson sphere. Dyson spheres should be expected to be of that small size, able to phagocyte such objects as the satellite of Dinkenesch, and not large structures surrounding stars or planets, that are impossible to capture. Dyson spheres cannot be detected with infrared emissions because it is based on a predicate of energy loss that is contradictory with the advanced technology involved. On the contrary radio emissions [5] are a good signal because they are related to extraterrestrial activity signifying successful capture of an asteroid. The quasar is very highly active thanks to its high mass and relative proximity to other objects, allowing extraterrestrials to seize erupted asteroids of a small mass that it tends to erupt, in comparison with other quasars that emit less frequently objects of a higher mass.

Space cannot be expanding with Andromeda Galaxy and the Milky Way already colliding with each other. It is an indicator that they are submitted to gravitational forces stronger than the suggested expansion forces. But gravity applies everywhere, as indicated by the traveling nature of gravitational waves. They never dissipate wholly indeed, although they can lose power when crossing matter. So light is subjected to these forces of gravity as well and cannot travel afar without losing some speed. This explains the “tired light” model that Albert Einstein rejected. Einstein did not see that light as particles subjected to strengths was not contradictory with the emission by fission of light photons, for instance, and the idea that its speed can be taken as scale for energy (in the famous $E=mc^2$ equation) is simply related to the fact that the basic energy source is

fission. Fission is the basic source of energy and it is source of life, as well, since the organism is directly made to withstand fission gamma rays in its DNA [6]. Stars are fission and fusion engines. Black holes erupt alpha emitters, especially actinides, as bunches together with tiny amounts of antigravitons, around which they swing and close around, forming stars and planets depending on the mass of actinides involved. The eruption of the black hole is explained by a chain of fission within, leading to the large elimination of fissile actinides and to the fine structure constant. In the dynamism of stars however, the hot plasma allows very fast neutrons to achieve fission chains with U238 and similar fertile atoms. This is why spherical atoms such as U235 collapse progressively to form a clog around the core black hole, until the final collapse of the neutrons into that jam that triggers the nova or supernova - as the neutrons have slowed down due to disappearance of the plasma, they can fission the clog of U235 atoms and similar fissile isotopes. This sphericity explains the $g \approx 1$ observed in [7]. It indeed explains the roundness of the remaining atoms, fissile matter left by the very fast neutrons, that will fission with the collapse of the slowed down neutrons into a supernova.

Is there an external trigger of chain reactions in black holes? The clear answer is that it is a true possibility, in particular with neutrons associated to e.g. supernovas and neutron star collisions, that allows to predict a relative risk of black hole eruption, the best example being quasars with a defined rhythm of eruption, related certainly to a dense environment that allows them as well to feed continuously. Indeed they need to feed continuously on the gases and other matters related to e.g. planetary destruction and stars' coronal ejections, to form uranium, thorium... and re-emit it in batches forming new stars and planets. This is why star "nurseries" appear to astronomers in areas of high gas density such as nebulae, where black holes are usually detected as well. Primordial black holes have been recently suggested by a team of researchers as crossing the Solar System [8], confirming observations made in [9] and [10] on black holes that should not be primordial. Primordial black holes are black holes able to erupt and to emit batches of actinides as stars and planets in these eruptions. They are eternal, as opposed to the principle of evaporation (proposed by Hawking) that is more adequate for small black holes (sometimes simple antigraviton couples) that can dissociate in certain conditions. Primordial black holes are the dark matter of the Universe and they explain the ripening of space-time, in Einsteinian terms, just after black hole eruptions. Indeed they interact with each other and when one erupts, it has kinetic effects on other black holes nearby. They are moved by the waves, attracted slightly as they are in the direction of the black hole eruption, or repulsed slightly if they are in the opposite direction of the ejectate. The concept of spacetime is explained by the ripening, in that time is a fabricate (to which Einstein agreed, saying "time is an illusion"). This voids the theorem of the universe's expansion, in a way consistent with the truth of black hole eruptions and quasars. The half-life of Bi209 is 2.01×10^{19} years, a number vastly above the estimated

life of the "universe"¹, in a way consistent with the absence of beginning linked to permanent regeneration of actinides within black holes and black hole eruptions. The half life of Te128 is even longer : $(3,49 \pm 1,99) \times 10^{24}$ years. Since Te128 can be considered a rare fission product, this leads to simple considerations on the Universe's stability and the "Big Bang" as an internal point of view on a black hole eruption [11].

A perspective similar to the one presented in this article is presented in [12]. While the idea of a curvature of spacetime might be related to the sphericity of the universe around its originative black hole, the idea of a flat event horizon related to a black hole resonates with this origin strongly. It is a correct approach of the black hole eruption nature of the "Big Bang" which explains the findings of cosmogeny of a single point of origin of the "Universe".

Low redshift quasars and inactive galaxies are found to have similar neighbors [13] because quasars of a low redshift have a low mass (so their light is submitted to a lesser gravity pull from themselves and is less "exhausted") and hence do not capture much gases and have a low star formation activity (eruptivity). The number of neighbors and star formation history are related to that low eruptivity itself related to that low mass.

The theme of black hole "formation" should be forgotten. Black holes with an eruptive history are intrinsically primordial. They cannot be formed because while energy collapse can temporarily form antigraviton clusters (in implosion nuclear weapons and in some nuclear reactors, including subcritical devices), these evaporate rapidly (the antigravitons do not disappear but go to reach the central black hole of the Earth). Supernovas simply reveal the black hole that was already there in the core of a star, explaining its gravity. All stars are "black hole stars", and all planets as well as moons with a gravity, with tiny black holes in their core that explain plume magmatism through its eruptions. Changes in the Earth's inner core oscillations [14] indicate that it is not an iron nucleus, the "dynamic interactions between the major layers of the Earth" are explained by the eruptive cycles of that black hole, that turns elements not into iron but into uranium, thorium... thanks to its compression forces and releases them periodically in mantle plumes. A slow down in spin [15] seems to indicate more compression, and more production of actinides as preliminary to a mantle plume release. Black hole spin is indeed fast when there is nothing to compress and fuse within. The extraction of energy (Penrose process) has to be opposed to mass extraction in a black hole eruption (because of the equation $E=mc^2$). Energy extraction reduces the kinetic energy of spin of a black hole. A black hole eruption does the opposite. Black hole "hair" (antigravitons [16]) extend to reach and capture more material and gases when it is spinning fast, compensating for its loss of weight and allowing an equilibrium to exist. This is why primordial black holes cannot evaporate. They cannot as well be formed, they are intemporal, they are the great recyclers of the Universe. They can change matter into uranium,

¹An idea with which Astronaut Michael Collins of Apollo 11 expressed his agreement on the first author's Instagram account when it was presented in 2019. RIP.

thorium... breaking the Aston curve's limit because of their inner weight and compression ability linked to that weight. Fusion processes are possible because the atoms resulting are unstable, radioactive, sometimes with very long half lives as stated above. Stars consume that fuel to emit their light but also let sink in their core black hole matter regularly, except at the end of their life when a jam of U235 and similar fissile atoms clogs it all around because they have coldened. So the core black hole of the stars contribute to their dynamism (and variability) by reinjecting uranium, thorium... in the ratio of the fine structure constant, into the star. The absence of clog is why black spots are visible, they are windows to the core black hole of the star.

Light emission during material absorption by a black hole is explained altogether by fission within the "spaghetti" of accelerated material and quantum criticities of that material together with superficial layers of the black hole's resulting actinides, thanks to neutrons of the fission within the accelerated "spaghetti" hitting the superficial layer of the black hole. The energy resulting explains why the spaghettified material takes time to be absorbed within the black hole and is not "eaten" straightforwardly.

Tired light has seen an astrophysical confirmation through galaxy movement [17]. Galaxies of a low redshift linked with quasars of a high redshift [18] are consequential with the fact that the gravity of the quasar is simply much bigger than the galaxy's and the galaxy is obviously being eaten progressively by the quasar. It is clear that tired light is related to gravity and not solely to obstacles on the way. This has allowed a large re-examination of redshift variations inbetween quasars and galaxies. The gravitational redshift of the Sun was already examined in 1962 [19]. It was a « work in progress » in Einstein's work, « not without inconsistencies » [20]. This paper is an attempt at adressing these inconsistencies. The gravitational redshift has now been evaluated at the millimetric scale [21]. The fact that the motion of the Sun's surface is of a similar magnitude as its gravitational effect on light [22] confirms that gravity magnitude is directly related to light redshift. This general link confirms that triggers in redshift are not the Universe's expansion but star and black hole gravity (mainly), in a static universe with no beginning or end (see also [23]).

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