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CATASTROP[HIC IMPLAUSIBILITIES OF UNIVERSE EXPANSION, BIG BANG, DARK MATTER, DARK EBNERFGY, AND ALL THAT

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Abstract

In this paper, we recall that the expansion of the universe, the big bang, dark matter, dark energy and other conjectures were all studiously conceived to maintain the validity of Einstein special relativity under conditions it was not conceived for by Einstein and never tested. We then show that each of the indicate conjectures, while being perhaps geometrically appealing and politically rewarding, is afflicted by catastrophic implausibilities. We point out the vast mathematical, physical, chemical, experimental and industrial research conducted by R. M. Santilli and his group for over half a century that confirms the exact validity of special relativity under the conditions stated by Einstein (in vacuum), but establishes the "inapplicability" (rather than the violation) of special relativity within physical media, such as planetary atmospheres, astrophysical chromosomes, and the interior of hadrons, stars, quasars, and black holes. Since the universe is a physical medium with a high energy density at both galactic and intergalactic levels, Santilli has then provided experimental evidence on the absence of universe expansion, big bang, dark matter, dark energy and all that, because all these conjectures are reducible to deviations from special relativity within physical media. It is hoped governmental officers will exercise restrain in granting public funds for excessively implausible cosmological conjectures, now experimentally disproved in any case, when aligned with Einsteinian theories for conditions they were not intended for and never verified.

1. The Dark History of Astronomy, Astrophysics and Cosmology

As stated by R. M. Santilli in his works (see, e.g., monographs [1] and review [2]), *The 20th century astronomy, astrophysics and cosmology will likely enter in history as being dominated by a plethora of conjectures all formulated for the specific intent of maintaining the validity of Einstein special relativity for all possible conditions existing in the universe, expectedly until the end of time.*

To resolve this manifestly a-scientific condition, Santilli has conducted vast studies for over fifty years confirming that Einstein special relativity is indeed exactly valid for the conditions conceived by Albert Einstein and experimentally verified, namely, for point-like particles and electromagnetic waves propagating in vacuum as empty space.

Jointly, Santilli has amassed mathematical,. physical, chemical, experimental and industrial evidence [1, 3,4,5,6] establishing beyond scientific doubt that *Einstein special relativity is "inapplicable" within physical media such as planetary atmospheres, astrophysical atmospheres, the interior of hadrons, nuclei, stars, quasars and black holes, with the understanding that special relativity cannot be claimed as being "violated" within physical media because not conceived or ever verified for these conditions.*

This author adopted the above views since he was initially exposed to them in the early 1990s for numerous reasons without any need for experimental verifications. As an example, the main relativity principle is the identity of physical laws for all inertial reference frames. But the author cannot put inertial reference frames within a physical medium such as water or a planetary atmosphere due to the evident resistance. Consequently, the author cannot even formulate the basic relativiity principle in water, let alone think at its experimental verification.

Numerous additional unresolvable inconsistencies emergence for any insistence on, or manipulation in maintaining special relativity within physical media, such as: the sole reference frame physically meaningful within water is the privileged frame at rest with water, in direct violation of relativity principles; we have massive particles traveling in water faster then the local speed of light (Cerenkov light); the sum of two light speeds in water cannot yield the speed of light in water; the reduction to photons of light propagating in water prohibits a numerical representation of the angle of refraction, the large local reduction of speeds and other basic data; the re-

duction to photond has no physical sense for electromagnetic waves with large wavelength experiencing the same phenpomenology as light in water; and numerous other inconsistencies [1].

The discovery and experimental verification of the *isoredshift* [3] and numerpous other deviations from special relativity within physical media [4-6], have sealed the above scientific scene, by returning astronomy, astrophysics and cosmologist to the original conception by Galileo Galileo, the experimental verification on Earth prior to proffering astronomical conjectures.

As per one experimental evidence, Santilli [3] has established experimentally *the existence of a shift of the frequency toward the red for light propagating within a physical medium without any relative motion between the source, the medium and the observer.* Consequently, the cosmological redshift is readily in interpreted as Santilli isoredshift without any need for the expansion of the universe, since intergalactic space is a physical medium with high energy density, in which light merely loses energy $E = h\nu$ due to evident interactions, thus decreasing its frequency, while providing a continuous source for the background radiation.

As it is well known to informed scientists, the big bang conjecture was specifically and intentionally formulated as a backing for the preceding conjecture on the expansion of the universe. Once the latter is experimentally shown as being nonexistent, all rational grounds for the big bang ceases to exist, independently from catastrophic implausibilities indicated in Section 3.

As it is equally well known to experts, the conjectures of dark matter and dark energy were studiously formulated to maintain the validity of special relativity for the dynamics of galaxies and the universe, respectively. However, the interior of galaxies as well as the universe at large are well defined physical media with high energy density. The use of *Santilli covering isoelativity* [1-7] for physical media then readily eliminates dark matter and dark energy via deviations from the validity of special relativity in vacuum.

This paper has been written particularly for governmental officers who, under possible influence by academia, have recently and are now in the process of providing large public funds for the study of dark matter, dark energy, and other conjectures while numerous additional conjectures are already under already under study, such as the that on the hypothetical "dark particles" intended to be added to the known long list of hypothetical

particles.

It is hoped that governmental officers exercise at least some restrain in granting public funds to such hyperbolic conjectures so as to prevent inevitable issues pertaining to scientific ethics and accountability. To illustrate these issues, we should recall the similar scenario on the hypothetical neutrinos in which, following the advent of the "standard model":

1) The original conjecture by Enrico Fermi of one massless neutrino and one massless antineutrino was first replaced with the conjecture of three separate neutrinos and three antineutrinos without any experimentally verifiable physical distinction;

2) Then, due to the insufficiency of the above conjecture, another conjecture intended to salvage the preceding unverified conjecture, was formulated, that neutrinos have mass, a conjecture proffered even though it would cause the impossibility that very large numbers of massive neutrinos can possibly traverse entire planets and stars without any appreciable collision;

3) And then, since the conjecture of massive neutrinos was insufficient to maintain preceding unverified conjectures, another conjecture intended to support preceding unverified conjectures was proffered, that neutrinos "oscillate" between one state and the others, the author's expectation being that we shall soon see yet additional unverifiable conjectures intended to support a chain of preceding experimentally unverifiable conjectures.

Issues pertaining to scientific ethics and accountability are easily predictable in the event governmental officers grant significant public funds for the repetition of the above scenario, this time in astronomy, astrophysics and cosmology, such as the use of public funds in support of venturing the experimentally unverifiable conjecture of "dark particles" clearly intended in support of the preceding experimentally disproved conjecture of dank matter, all conjectures aimed at maintaining the validity of Einstein special relativity under conditions it was not conceived for, and now experimentally proved as being inapplicable.

2. Catastrophic Implausibilities of the Universe Expansion.

Santilli taught the author that the weakness of the conjecture on the expansion of the universe rests on its very basic law, Hubble's law. In fact, such a law necessarily puts Earth at the center of the universe (because Hub-

ble's law establishes that the cosmological redshift is radially proportional to the distance of galaxies from Earth in all space directions), thus causing a return to the Middle Ages condition of science. Moreover, the conjecture implies that billions and billions of galaxies have moved radially away from Earth for billions and billions of years without plausible foundations, the catastrophic implausibilities of the big bang conjecture being identified in the next section.

Moreover, Hubble's law implies a progressively increasing acceleration of galaxies also proportional to the radial distance from Earth. Besides an evident return to the Middle Age conception of Earth at the center of the universe, the conjecture requires an astronomical amount of energy for the continuous acceleration of billions and billions of galaxies over billions and billions of years, which energy is positively not explained by the big bang (see below) or any other conjecture.

Such a view is geometrically appealing on pure mathematical grounds, as shown by the widespread interest among geometers, as well as politically rewarding, evidently because the conjecture is aimed at maintaining the validity of Einstein special relativity throughout the universe. However, the expansion of the universe and its acceleration are physically implausible to such an extent that, until the origin of the needed astronomical amount of energy is clearly and plausibly identified, the conjecture of the expansion of the universe has no credible foundation on serious scientific grounds, e.g., those used in refereeing of contemporary papers.

The situation of astronomy, astrophysics and cosmology becomes "unreassuring" (in Santilli's words) if one compares the far fetched need of immense energy of totally unknown origin with the very plausible historical alternative hypotheses of the "tired light" (properly review in Ref. [3]). Yet the former conjecture was preferred to the latter because alignbed with Einsteinian interests rather then for intrinsic physical values.

Additionally, we should not forget that Hubble died without ever accepting the expansion of the universe for much of the same reasons as those used by Santilli, and we had a similar case for renounced scientists such as Zwicky, de Broglie, Virgie, and many others, whose qualified dissident views were suppressed in favor of maintaining Einsteinian doctrines.

It is hoped that Santilli's [3] experiment on the isoredshift has eliminated this "hyperbolic conjecture" via the experimental evidence that light loses

energy $E = h\nu$ to the intergalactic medium primarily composed of light energy. This experiment eliminates not only the expansion of the universe, but also its acceleration, since the cosmological redshift becomes proportional to the radial distance of travel of light from Earth within the intergalactic medium in full verification of Hubble law, but without the rather arrogant conception of our tiny Earth as being at the center of the universe.

Additionally, the isoredshift experiment provides an excellent quantitative representation of the background radiation, since the energy loss by light to the intergalactic medium cannot disappear and it is converted precisely to the cosmological background radiation.

In summary, Santilli's isoredshift eliminates the paradoxical conception of Earth at the center of the universe, eliminates the implausible expansion away from Earth of billions and billions of galaxies for billions and billions of years without any pl;ausible explanations, and eliminates the catastrophically implausible acceleration of the expansion of the universe due to the need for astronomical amounts of energies to accelerate billions and billions of galaxies over billions and billions of years without any hope of achieving a plausible exp;lanation.

3. Catastrophic Implausibilities of the Big Bang.

Santilli taught the author that the additional conjecture of the big bang is also appealing on geometric grounds, and politically rewarding, because it consists of an unverifiable conjecture formulated to support the original unverifiable conjecture of the expansion of the universe, both conjectures being voiced to maintain Einstein's theories throughout the universe. The author was also taught that the big bang conjecture is catastrophically implausible because:

1) The big bang conjecture is based on the same return to the Middle Ages conception of our Earth at the center of the universe as a necessary condition to represent Hubble's law and the expansion of the universe;

2) According to all known laws on explosions, following a primordial explosion some 15 billions years ago, our galaxy, let alone our solar system, could not possibly exist, trivially, because explosions create empty space at their origin;

3) Also according to known laws on explosions, all visible galaxies should

be at the ultimate edge of the visible universe, thus violating vbisible evdience and Hubble's law;

4) The big bang is additionally in disagreement with gravitational attraction because, following the hypothetical primordial explosion, the expansion of the universe should decrease due to gravitational attraction, rather than increase according to the current interpretation of Hubble's law;

5) The background radiation cannot possibly be a "proof" of the big bang because a graduate student can show the complete absorption of the radiation by galaxies over 15 billions years; etc.

The physical implausibility of the big bang is also established by the facts that: to represent the current distribution of galaxies in the universe, one must assume some form of absurd "resistance" in empty space that has somehow slowed down the expansion of selected chunks of primordial energy; the existence of our galaxy at the center of the explosion should be explained as some "chunk of matter" that was somewhat mysteriously left over by the primordial explosion; the time for light to travel diagonally through the measured universe is nowadays much bigger than the presumed age of the boig bang; etc.

It is astonishing how "hyperbolic hyperbolas" (in Santilli's words) can acquire a large number of followers just because they are aligned with interests wishing to maintains the validity of Einstein's special relativity. Also, Samtilli's "irreconcilable disagreements" with Steven Weinberg on related matters (when both of them were at Harvard University) are known to the scientific community and should not be forgotten, because serious science is not done via a "capillary international organization of academic power," but solely via physical truth.

4. Catastrophic Implausibilities of Dark Matter.

The physical implausibility of the additional conjecture of the dark matter is also beyond scientific doubt because, as clearly stated in refs. [1,3]:

1) In the event uniformly distributed, dark matter cannot possible have any measurable effect in galactic star dynamics;

2) Dark matter has to be capriciously placed, say, in front of a given star to get the desired dynamical anomaly, but them

3) The dynamics of a nearby star is way off experimental data.

By comparison, Santilli isoredshift [3] eliminates any need for the conjecture of dark matter because the interior of galaxies is made up of a gaseous medium even visible with our telescopes. Such a medium is also visibly decreasing with the radial distance from the galactic center, thus causing a progressively decreasing redshift in galactic dynamics that represent numerically and invariantly redshift data. the plausibility of this experimentally verified setting should then be compared with the catastrophic implausibilities of the dark matter conjecture.

It should be noted that the situation facing organized academic interests on pre-established doctrines was rather serious because the measured redshift from galactic dynamics, prima facie, violate Newton and inevitably Einstein's laws. Hence, high level organized interests conceived the conjecture of dark matter that deviated attention from the real meaning of the evidence, deviations from known basic laws.

The dark matter hyperbola is clearly appealing to mathematicians, and politically rewarding for its transparent aim at salvaging Newton's and Einstein's theories. Nevertheless, it is astonishing to see so many physicists embracing such a far fetched conjecture just because voiced by high ranking academic interests without any scrutiny of the physical plausibility.

The author understands that experiments to look for dark matter are either under way or under public funding, jointly with the public funding of the search for the hypothetical "dark particles" conceived in support of the unverifiable and disproved conjecture of dark energy. it is hoped governmental officers will show some restrains in providing public funds in support of catastrophically implausible conjectures, already experimentally dismissed in any case, just because they are aligned with Einsteinian theories.

5. Catastrophic Implausibilities of Dark Energy.

As it is well known, the conjecture of dark energy has also been formulated for the intent of imposing the validity of special relativity everywhere throughout the universe, including in the interior of stars, quasars and lack holes.

In fact, the conjecture of dark energy became necessary to maintain the universal validity of Einstein equivalence p[principle $E = mc^2$ everywhere throughoyrt the unmiverse, thus ioncluding the interior of stars, quasars

and black holes.

The implausibility of such a posturing can be easily seen by all since it is today known even by high schools students that all conventional physical laws, thus including Einsteinian laws, cannot possibly be exact in the extreme conditions in the interior of black holes. The applicable *generalization* of Einsteinian laws should indeed be debates, but their denial for the indicated onditions is unethical.

It should be noted that, as indicate by Santilli [3], in this case the originators of the conjecture had serious technical motivations, because the elimination of dark energy would require superluminal speeds that, prior to Santilli isorelativity, violate causality.

The advent of the covering isorelativity, and its numerous experimental verifications for interior problems in various sciences [1-7], have established the causal character of arbitrary speeds within the interior of stars, quasars and black holes, thus characterizing an energy equivalence of the universe as needed to eliminate dark energy.

As shown in Ref. [3], a rather modest average maximal causal speed in the interior of black holes and other astrophysical objects $C = 10c$ eliminates dark energy because $E = mC^2$ is close to 100 times $E = mc^2$ (we assume readers remember that, according to Einstein-Hilbert field equations, the source of the gravitational field is characterized by energy and not by mass).

It is hoped this paper contributes toward the nowadays unstoppable trend of returning astronomy, astrophysics and cosmology to its origination by Galileo Galilei, that is, *the establishing of models via experiments on Earth* prior to their proffering as being valid under unverifiable conditions in the universe. It is rewardinbg to know that systematics experiments to confiorm the inapplicability of Einstein special relativity within physical media are well under way to signal the transition from the unverifiable hyperbolas of the 20trhg century, to the desirable, 21st century, serious conduction of science.

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the original presentation as a message in the *Forum to debate open problems in special relativity, general relativity and cosmology*
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