Physical Reality and Einstein's "Principles of Relativity".

Author: W.Berckmans.

Abstract: There seems to be a fundamental conflict between a PhR model, proposing a cosmos on a double layered grid, and Einstein's Special relativity Theory.

1. **A physical reality model.**

- Unlike physics, a method aimed at describing Physical Reality (**PhR**) does not necessarily start from observations of cosmic behavior. Rather, it will examine how a hypothetical and simple **initial state,** through an evolutionary process, can give rise to the kind of universe science observes. This approach implies an extreme form of reductionism, positing the most basic initial set of events, objects, properties and behavioral rules. It may be especially helpful whenever scientists, intrinsically biased by being part of our local and present cosmic state, are unable to measure or observe physical reality at its lowest scale or to its full cosmic or diachronic extent.
- In a former viXra article (see Ref1), and in accordance with this methodology, an attempt has thus been made to describe the evolution of our cosmos in terms of what really exists, starting from a few straightforward assumptions, an empty initial state (cosmos(0)), a unique, singular creation event that changed cosmos(0) into a non-empty cosmos(1) state (creating a single **point** object, carrying in regime a "**charge**" quantum : charge is the only discriminating property between something and nothing) and 6 "elementary" or "base" laws.
- The correct recursive application of these laws on cosmos(1) will generate, after 13 billion years, a still PhR-compliant version cosmos(X) that must be reconcilable with the outcome of well conceived physical experiments. This also goes for established mathematical representations of behavior and properties, although in this case equivalency does not necessarily imply full conformity with PhR. Their underlying physical theories, although widely accepted, might indeed be at odds with a valid physical reality model. In that perspective, the aim of this article is to use the PhR model to hold Einstein's Special Relativity Theory (**SR**) up to scrutiny.

2. **Spacetime materialized by a double grid.**

- The outcome of the application of the base laws on the initially created single point object, is the emergence in emptiness of a growing volume around the creation location, filled with a dense (or compact) set of points with positive or negative unit charges. Existing points in their non-transition state are reset by **charge info** packages emitted by other growing or shrinking points, while other charge info quanta will fill empty location with new points that are identical with the creation point (see base laws). Their regime charge property will have the same value and carry an identical or opposite charge type as the initial point. The number of dynamic point-like objects that surround a central point, acting as an antenna of charge info, and having the same probability to successfully interact with it, is defined as its **dim** number. This generic definition of dimensionality applies to other classes of patterns appearing fractions of a second later in the cosmos. A local equilibrium in a virtual M-dim volume is reached when the probability of resetting an existing point equals the probability that a new point will be induced in an empty location.

- The outcome of this dynamic process is the appearance of a growing hyper-spherical point set around the creation location (there are still infinite minus M dimensions left for expansion outside a virtual border volume in an equilibrium state), called the **CPS**.
- This set acts as a base **grid,** materializing the most detailed level of what is called "spacetime" in physics. On average, any representative abstract and dynamic volume of spacetime contains a net charge density equal to zero and has a fixed ratio between point-like and empty locations (**holes**).
- In this M-dim grid, and through a purely stochastic process, pairs of adjacent points in special states are able to enter into point **replication** processes along a linear (1D), abstract symmetry direction connecting both points. The term "special states" means that one of both points is twice in a row in the same charge state (a form of local energy). Little by little, particularly well synchronized CPS points will be selected and connected by fastest point info exchanges and go on to form complex, coherent point patterns called **zerons**.
- Zerons are dynamic standardized objects with a reduced dimensionality N<M<infinity. The maximum number of bidirectional growth steps of the initial, simple and at one point disrupted 2-point antenna (and in fact the reduction factor of dimensionality) is **137**, which equals the reciprocal fine structure constant in physics. In a local time reference frame the unit step index acts as the smallest phase angle shift between cyclic correlated replication processes (in fact their phase angle resolution). This reduction factor in dimensionality between zeron and point patterns has to be fixed and prime, for otherwise several different subclasses of zerons with distinct dimensionalities could emerge spontaneously within the CPS, prohibiting the emergence of a stable cosmos like the one physics observes.
- The zeron subset forms a compact (or dense) and dynamic higher level grid called the **UZS**. A single UZS zeron pattern maintains a free excess unit charge throughout the course of its life cycle, while for half of this life cycle carrying a small persistent point-hole ratio excess or shortage – the PhR basis for what is called positive (or negative) mass. A 137-steps zeron growth cycle will come to an end in an interaction state **i-max**, as a consequence of a peripheral charge info

exchange process between two adjacent zerons in compliant states. This stochastic event inverts the mass sign in both zerons, while conserving the overall local mass density.

- After a full life cycle (a growth and a shrink cycle), a zeron in its **contracted state** transforms into a next version, with opposite free excess charge and mass types. Apart from their charge and mass signs, leading to a small correction factor in the i-max state and contraction state, all UZS zerons are identical, precisely because in a primitive cosmos, those new discriminating properties between zeron point subsets that would make them different do not exist.
- Both superposed and correlated grids materialize the basic content of spacetime where the subsequent evolutionary steps of our cosmos will take place. However, the presence of a double layer filled spacetime (points and zerons) explains some of the difficulties physics has in order to handle correctly the results of some observations in QM and SR. The presence of a lowest point level (as an underlying dynamic fine structure) is indirectly taken into account (e.g. in SR it will lead to a maximum value of c for accelerated particles) but is not correctly integrated into all the physical models (e.g. processes at point level are hard to observe and do not have to respect the maximum speed limit c, explaining QM phenomena like EPR – effects or cubits in quantum computers – see also Ref3). Trying to explain PhR by assuming implicitly a vacuum filled with a single field component (like zerons) is like measuring time by a watch, equipped with a minute-hand only, where nature is using a high precision, minute- and seconds-hand instrument to dictate its behavior. As an example: a statement in QM saying that a particle might exist simultaneously in multiple superposed versions in several locations is wrong if one takes the fine-structure spacetime coordinates at point level between these versions into account.

3. "Life" (i.e. "zeron patterns and replication") on a double CPS-UZS grid.

- Although a summary of the next steps in the evolution of the cosmic states, emerging spontaneously and stochastically on the expanding double grid, can be found in the main viXra-article (Ref1), a few key processes useful to understand the main topic of this article, are summarized below.
- As the outcome of a stochastic process, zeron patterns emerge spontaneously in the UZS. In general **persistency of any grid pattern** through mutual binding of its correlated components is guaranteed when a bilateral cyclic exchange of anti-symmetric charge info packages along fastest paths and at point level takes place in special states.
- As a first class of UZS patterns, pairs of adjacent, properly synchronized zerons (the simplest and most probable case that might lead to a persistent object) are able to maintain an **EZP pattern** that, on average over local time, has a null

charge amount, but is able to sustain, in the combined contracted states, a hole with a "long-lived" type – i.e., in fact, a minimal, fixed time lapse between two phase shifted interactions at point level, when both zerons pass successively through their contracted states. In terms of physics, EZP densities of a fixed hole type materialize positive and negative mass density distributions.

- As a second class and similarly to what happens between two adjacent points in the CPS that are involved in a point replication process, 4 synchronized, 90° phase shifted adjacent zerons (i.e., two elementary and properly phase shifted zeron pairs or EZPs in a spatial tetrahedral configuration, a **pattern** called an **EZK**) are able to implement and sustain a 3D **zeron replication process**. In order to take off, however, this process will need the emergence of a "one-off" anomalous pair (a charge density excess and a hole) in the "ideal" EZK state, as a consequence of a stochastic interaction with another compliant adjacent EZK pattern (in fact a rarely occurring pair of dual EZK's, being together a complex eightfold **EZO** pattern, around a common symmetry location) .
- Once replication started, and on a stochastic basis, spacetime compliant UZS zerons are selected and added to the pattern. They are dynamically interconnected by periodic fastest point charge info exchanges with each other and with the central EZK- antenna. This antenna has itself an intrinsic spatial 3D symmetry with an emission pattern that is about 90° phase shifted on a local UZS time scale. As a consequence replication takes place along 3 perpendicular virtual symmetry directions (**strings** in PhR**,** quarks in physics). Through a progressive, alternating process, each string integrates copies of the initial central anomalies, shifting net charge and hole quanta along both sides of each string. The dynamic, phase shifted charge and hole configurations, stored in the 6 dynamic **connectors** of each pattern, are the basis for observation in special states (mass, charge and spin properties in physics). The bulk of the content of a replicating pattern compensates at point-level and is transparent to observers. The term "special states" means that these are the only states in which a pattern is able to interact with other patterns and will be, as such, directly visible. It is a measure for a particle's **energy** content. In a PhR concept the term energy is a measure for the capability of an ordered charge pattern to change the state of the cosmos through the impact of unique or periodic non-random charge info emissions. Energy times the tenor of the impact of an emission leads to the concept of **action** (h/2 for a point charge).
- Replicating zeron string based patterns will stop growing (in I-max) due to an internal interaction after reaching a critical phase shift between connector components. In the I-max- or **return state**, a replicating pattern is temporarily eligible for accidental external interactions (and for one shot **external binding**): during the replication cycle itself, however, only **internal binding** by charge info exchanges **along fastest paths** with other pattern components, is feasible. In I-

max the pattern shrinks again along its growth paths until contraction (a pure charge info state set) takes place: bound zerons are again released as free UZS zerons. Nevertheless, its basic net connector properties are maintained, even after double reflection versus a central virtual hole that acts as a dynamic symmetry location, a process that transforms the pattern into a next version. It takes 4 life cycles for a spin ½ pattern to return to its initial layout (as virtually observed in an abstract local reference frame).

- All the potential, more or less stable, zeron patterns of the second class (single baryons and leptons, or double mesons and fotinos) are the PhR behind what physics calls "**particles**". An initially free particle in the contracted state on a weak polarized grid owns a limited rotational degree of freedom which means that subsequent particle versions growing and shrinking at an high frequency will satisfy QM concepts like uncertainty, superposition rules, propagation amplitudes, collapse of the wave function once successful interactions (measurements) determine its location.
- Polarized released EZP connector densities (see further) are non-particles but materialize dark matter; their charge info emissions represent dark energy. Polarized EZPs are dropped as gravitons in spacetime by accelerated particles, materializing gravity fields (physics).
- Next to UZS zerons, short-lived unbiased EZPs, statistically (as stated before) very likely to emerge spontaneously and randomly in the UZS, act as elementary building blocks for constructing replicating particles. The densities of unbiased UZS zerons and EZPs are the underlying PhR of what physics perceives as the ε and μ parameters or properties of "empty" spacetime. Their values are important, as they are setting the maximum speed c at which successive particle-like pattern versions can be rebuilt and, as such, are able to "move" over the double grid.

4. Particle motion on a double grid.

- Successive versions of simple "first class" patterns like EZPs have a rotational degree of freedom around their symmetry center, but are unable to shift their central position over the grid. As stated before, polarized variable densities of these quantum patterns are implementing particular field distributions (like gravity fields in physics). However, their quasi-static density distribution in spacetime can be changed by the impact of steadily moving or accelerated (decelerated) EZK based patterns or by their spontaneous or artificial emergence or mutual binding.
- Second class zeron patterns with an EZK-like central antenna are able to shift their symmetry center occasionally or periodically over the zeron grid. Such a

position shift can only occur when a particle's replication cycle is in the contracted state.

- So, as it turns out, in PhR there is no need for some kind of "force" (as proposed in classical physics - Newton) to make a particle move. Why is this?
- In any EZK nucleus, one of the 4 zerons is not tightly coupled with the other three (only 3 out of 4 cyclic bindings are needed to interconnect four zerons, but their roles are interchangeable). The internal point replication cycle of a loosely coupled zeron can be dynamically phase shifted (as described in a local reference frame) versus the other three. A net change in phase angle will take place through the charge info impact of an anomaly, initially stored at the time a pattern is in the contracted state and carried forward in some of the 6 dynamic connector zerons and holes of the 3 in two directions replicating strings.
- But this phase property equally permits a non-accelerated nucleus to store a persistent phase angle as an offset value, corresponding with a reduced I-max value stored in a particle's layout, and implicitly with its periodic capability to shift over the grid. These parameters do not change in a particle, moving along an inertial path in spacetime, setting in this manner a conserved amount of momentum. Copies (versions in N-dim) of the central free zeron, in combination with the role rotation of the other 3 zerons of an EZK, implement the I-max values of the replication cycles of the other two orthogonal strings (so the 3 strings grow and shrink together, though slightly phase shifted and determining the particle spin orientation along their tri-sector – in fact a residual charge info effect).
- In the hypothetical **null state** of a particle, its nucleus oscillates over small unit distances over the grid with a periodicity set by to 2 growth-shrink cycles. In this state I-max reaches an absolute maximum, the internal phase shift of the free nucleus zeron, a minimum. The initial anomaly leading to a replication process itself has a small net cyclic impact on the free zeron phase angle, but the internal symmetry of the pattern (for spin1/2 particles) makes it impossible to shift the position of the pattern over a net grid distance after the 4 growth-shrink cycles needed to put the pattern back into exactly the same format.
- **In the constant momentum state,** a single excess EZP of a string, dropped in the I-max return state of one connector along the displacement path, will be picked up again by one of the next inversed versions when the particle's EZK actually moves one step over the grid. Hence, the overall spacetime distribution of EZP densities is not disturbed (except over local distances smaller than or equal to twice the total replication length) and the particle maintains its momentum along this string direction (Newton's momentum conservation law and Einstein's tensor equation in GR along an inertial path). This EZP driven, recursive disequilibrium mechanism is always the same, but the I-max value determines the frequency of an actual position shift.

- In order **to change the momentum of a particle**, a connector in the I-max state with a temporary local EZP-like layout has to interact asymmetrically with an external source (or drain) of EZP-like charge info (a nearby particle connector of a collinear string in its return state, or a correctly positioned field particle), adding a "one-off" phase increment/decrement to one of the string connectors. This time quantum (an internal phase shift of a double zeron pattern) will be transported over subsequent shrinking replication steps along the string that has been hit at one end by the interaction. In the successive contracted states, it will be accumulated replication cycle by cycle in the loosely coupled zeron of the central EZK, and through internal role rotation, copied (with a small delay) in/to the free zerons of the other two string nucleus versions (a mechanism that presupposes the presence of an N/M dim raster/grid).
- The perturbation is maintained over subsequent reflected versions of the pattern (until its final position shift). Any periodic asymmetric change in the nucleus lay-out is balanced by the synchronous emission of charge info (as a difference pattern between the two branch connectors of a string), packaged as a fotino, i.e. the most elementary building block of a photon (this lowest point level pattern is hard to detect in physical experiments). The emission of multiple fotinos takes place in a plane perpendicular to the direction of the string that carries the asymmetry needed for a momentum increase/decrease and has itself a double phase shifted tetrahedron format.
- This process continues over a number of replication cycles until the cumulative phase shift of the semi-free central zeron reaches a critical limit that activates or completes several processes simultaneously:
  - Along with the change in the regime state (in 3D) of a pattern, carrying momentum, the symmetry center of the accelerated particle shifts over one standard UZS distance unit along the string that was initially hit by the external interaction (in fact, the loosely coupled, phase shifted zeron is substituted by an adjacent free UZS zeron). So the left-right orientation of this propagation step hinges on aspects like: which of both left-right connector positions, observed in a local reference frame, has been hit, what was the orientation of the particle spin (a function of the relative phase shifts between the 3 string connectors), the sign of the time quantum stored in the external EZP (a phase increment or decrement) and the charge and point spin properties of the interacting EZP (CPT conservation rule in physics).
  - The I-max value is adjusted and the symmetry of the particle is restored. In this process an EZP is absorbed or dropped in spacetime in order to balance the length of the branches of the strings in the new particle state.
  - The new I-max value reflects a change in internal energy and momentum of the particle and its equivalent wavelength increase or decrease

(particle-wave duality in QM - Physics). The two-levels contraction cycle needed to exceed a critical free zeron phase shift, thus forcing a small position shift of the nucleus, explains the quadratic form of c or v in formulas like $E=mc^2$ and $E=mv^2/2$ (c is supposed to be the effective growth speed of a replicating string). The parameter m is a measure for the complexity and duration of the replication schema, determining the net amount of persistent hole quanta in the connectors over a full replication cycle. The real mass takes the number of cycles into account, required to shift effectively the position of the nucleus.

  - The fotino emission sequence comes to an end, which corresponds with a full period of a single emitted/absorbed photon, carrying a net amount of energy δE over a frequency $f = h/\delta E$ and a corresponding wavelength $\lambda=c/f$. This energy quantum is equal to the difference between the energy states of the particle before and after the transition process that was needed to properly absorb the imported time quantum stored in an EZP and to bring the replication pattern into a new equilibrium state.

- In electromagnetism (physics) photon energy is materialized by the pointing vector of the corresponding EM-wave. The wave format of a sequence of fotinos, each with a content that is a copy of the EZK-nucleus transition state (just before and after contraction) is determined by the subsequent content of connectors, carrying, alternatively a net charge and a hole density. These time-varying densities are perceived by physics as sinusoidal E and B fields. The wavelength of a photon depends on the replication frequency (thus I-max) of the particle nucleus antenna and on the number of growth-shrink cycles needed to reach the position shift limit of the nucleus (de Broglie). A fotino sequence moving over the double grid, is able to consistently shift position in the same direction (contrary to a zigzag growth and shrink process in the replicating strings that has produced the fotino sequence in a plane perpendicular to the emitting string) at a maximum speed c. A fotino position shifting mechanism is conceptually similar to that of an EZK particle itself, but with an absolute lowest limit of the I-max property (<=1).
- At particle velocities close to the value c, relativistic effects (physics) have to be taken into account, which in PhR terms amounts to a replication process where, for very small I-max values, point level effects in the nucleus (due to the asymmetry between the two branches of contracting strings) become more and more important. They impact in the opposite sense the effective phase shift of the free zeron in the nucleus. In physics the γ parameter (in Lorentz adjusted formulas like $p= \gamma.m.v$ with p = relativistic momentum) becomes more important.
- This fairly complex standard process fully explains physical reality behind several laws and observations of particle motion in physics (why spatial 3D to describe nature's behavior, de Broglie, quantization of momentum, spin, the maximum

value c of propagating particles, double slit, Newton's laws etc ….). So the traditional picture of a particle moving in spacetime does not correspond with PhR: what physics observes are paths (or loci) of spacetime grid locations, occupied by successive versions of replicating patterns, asymmetrically impacted by the exchange of EZP-like phase shifts with other patterns. Further insight into these processes and the confirmation of their correctness would require computer simulations and animations on a properly reduced scale.

5. Physical Reality and Special Relativity.

- If the model proposed in Ref1 is correct, a number of fundamental principles and assumptions of Special Relativity are at odds with physical reality:
  - The principle of relativity of a particle's motion, the cornerstone of Einstein's theory, is inconsistent with the presence in spacetime of a preferred reference frame, connected to the point-zeron raster. When observed and described in such a frame, the velocity of a particle, which Is itself a dynamic pattern of raster points, is not just a relative but an absolute property.
  - Contrary to what physics assumes, there is a fundamental difference between any two particles with non-identical velocities relative to the double raster, namely their I-max value and/or the offset phase shift of the free zeron in the nucleus, which both act as hidden variables. The latter is particularly important in case of very high "relativistic" velocities. The faster a particle is moving over the grids, the shorter its maximum string length (and the more frequently these particles' connectors are available for external interaction in an I-max state). In fact, an adequate, albeit abstract hidden variable theory has already been proposed about 100 years ago (e.g. by Lorentz); but, although capable of properly describing a particle's behavior even at speeds close to c and without need for SR's theory, the idea was abandoned.
  - The speed of light, a photon being itself a fotino particle sequence in PhR terms, is constant and limited to a value c on an unbiased grid (homogeneous EZP and UZS-zeron densities and average type-neutral hole and charge values), as is reflected by standard μ and ε values of what physics erroneously calls "empty" spacetime. Nevertheless, any particle's speed limit c is much lower than the maximum speed of (charge) information propagation in real emptiness, a rule that is usually not withheld in physics due to a lack of knowledge of the PhR content of spacetime and the true nature of particles. Indeed, the simple fact that any particle itself is a pattern of raster elements, bound by cyclic charge info exchanges, justifies this statement.

- Light is a sequence of subsequently emitted particle-like difference patterns between two branches of a common string, that each have a phase shifted double (thus spin 1) EZK symmetry and a minimal replication length (fotinos). Each fotino version is able to shift position in its contracted state at speed c. One could argue that the global format of the subsequent particle and charge info states and the propagation of each micro-pattern justify the statement that the whole pattern behaves as a wave as well as a particle. The observed form and velocity of the global pattern is dictated by the maximum rate at which subsequent fotinos go through their contracted states and shift positions over the grid, just like any ordinary particle motion process described in the previous chapter. The wavelength depends on the frequency of emission of a fotino and, indirectly, on I-max and the free zeron phase angle in the nucleus. The observed E and B fields correspond with the small fluctuating net charge (E) and charge info (B) densities produced by the subsequent replicating fotino versions in their I-max and contracted states. Their internal zeron component states are time shifted over distances of the order of magnitude of point periods, determining the local magnitude of E and B fields observed as charge or charge info densities. The overall periodicity and amplitudes of classical EM waves are loci, materialized by the fotino wave top **densities**. These wave properties could be modulated by an electric signal generator, with the frequency and the acceleration/deceleration of charged particles acting as a source of an underlying fotino emission at a rate dependent on the varying I-max value.
- Whenever an accelerated contracting particle string emits a fotino, it stands still **in absolute terms** versus the double grid. This means that any light wave component in the cosmos is emitted at the same absolute initial speed null, independent of the observed antenna velocity and without any drag effect. It also means that, although Michelson's and Morley's famous interferometer experiment did confirm the constancy of the speed c in an "erroneously called empty" spacetime medium, their results neither prove nor contradict the possibility of light propagation in perfect emptiness. In other words, the generally accepted conclusion, to abandon the idea of a medium (an "ether") as being necessary for light propagation, was based on an irrelevant experiment. According to this PhR model, light requires the presence of the double grid in order to propagate, if only because a photon and its fotino's are themselves patterns made of internally correlated spacetime grid components.

- The statements above have important consequences when integrating relativity with quantum mechanics; but they will also urge cosmologists to reconsider some of their large scale cosmological models. For instance, if the light particles emitted by a star were to reach the border of a still expanding double grid, they could be bended (or reflected). In that case, we would observe the same light source several times at distinct moments (as the path lengths of rays reaching an observer on the earth would be different) and in distinct virtual locations on the sky. Obviously, this statement is unproven because we do not know what the actual effective growth speed of the cosmic border shell could be, compared to c.

- In the same context, we have to re-estimate the size and the age of our cosmos, at least if we allow for the possibility that interactions between subsequent shells of matter and contramatter could ultimately lead to a cosmic state in which the double grid were still growing (in line with Hubble expansion) but the absolute velocities of matter particles in the border shell were to reach the extreme value c. As a consequence, no matter-like objects could enter into the outer (depletion) layer anymore. With this possibility in mind, our cosmos could well be reaching (or has already reached) a maximum size, “expressed” as a 3D distance from the creation location (in PhR terms) or estimated as the age (**137***10exp(8) years ?) since the big-bang (in cosmology).
- Apart from SR related issues, other, even more serious discrepancies between cosmology and this PhR model will crop up (see Ref2) – e.g., when it comes to the presence in the cosmos of contramatter-based objects (contra-stars and -galaxies) and the content of black holes and dark matter**.**
- Although this article expresses some doubts about the validity of Einstein’s special relativity, one could argue that the use of Einstein’s theory in numerous technical applications (e.g. GPS systems …) and in physical experiments (e.g. decay of muons emerging in cosmic ray bursts) has proven its validity. But due to a lack of a PhR compliant particle models in physics, empirical laws or laws logically deduced from observation, can be right even if the underlying theory is fundamentally wrong:
    - Muons that arose from proton collisions between cosmic rays and air molecules and were accelerated by the earth’s gravity field, effectively live longer than muons emerging in local experiments on earth. This statement has nothing to do with the choice of reference frames with different relative speeds: it is just physical reality. To understand this, one has to take the replication schema of a muon into account, combined with charge info superposition and destructive interference between string components in the contracted state of the particle, usually leading to decay after 2,2 µsec. A prolongation of this figure at extremely high velocities close to c and very short I-max values, requires a subtle change in the nucleus free zeron phase angle count under the two-sided impact of the EZP distribution of a gravity field, a process leading to a postponed decay.

- Although Einstein's principle of relativity is not PhR compliant, the Lorentz transformation formula remain applicable in most cases. The PhR character of these mathematical expressions can be reconciled with what happens in a replicating particle by writing the well known square root formula as an algebraic series, with the relevant number of terms varying with the speed. One must also take into account that the validity of Lorentz transformations has been proven by experiments that had at least one of its two reference frames linked to the earth. For several reasons (not mentioned here) we can argue that our planetary system has a modest absolute speed versus the cosmic double grid.
- Experiments in which two reference frames are linked to distinct objects with a high absolute speed to the grid, moving in opposite directions with a hypothetical relative speed higher than c to each other, and observed by a third instrument somewhere in the middle, are difficult to achieve. It is, however, precisely this type of experiments that could help to prove the validity of this PhR model. But as things stand, Physics would probably not even consider setting up such an experiment – if only because the idea of an absolute speed contradicts SR.

- Finally, General Relativity (**GR**) laws will usually be applied to express more precisely the motional behavior of macro-objects (galaxies, stars, etc.). On top of the issues presented at high velocities in SR, contradictions between GR and PhR are mostly related to the absence of contramatter and negative mass in its equivalent mathematical models (See also Ref2).

6. Conclusion.

- This article shows that a consistent physical reality model is able to explain and confirm, in those domains where SR applies, scientific observations and their often empirically deduced laws, even if the underlying, generally accepted but unproven physical theories are at odds with this model.

7. References.

- Ref1:**About Physical Reality. –**
viXra.org/abs/1604.0230
- Ref2:**Is Production of Energy "For Free" Feasible in a PhR Perspective?-**
viXra.org/abs/1701.0287
- Ref3:**EPR (Einstein-Podolsky-Rosen) Experiments and Physical Reality.-**
viXra.org/abs/1710.0046