2- DUO5 law: The expanding Universe is derived from the permanent Omniverse justified by the existential paradox

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1/ Abstract :

Regarding fundamental physics, this study replaces the "old moons" such as: uniqueness by duality; absolute inertial zero by symmetrical dipole zero; the notions of "principle", "model" or hypothesis, by the logico-deductive approach; the notion of "creation" by the notion of state transformation. This study denounces the amalgams between "describing or explaining, and cause or effect. Symmetry, consubstantial with Nature, is never broken, because it only changes scale. The common name "Universe" is ambiguous because it denies its duality of state:

1) the eternal Omniverse state justified by the inertial paradox and characterized by its informational entropy which tends towards infinity. 2) the BUE state (Expanding Universe Bubble), declined from the Omniverse by a partial and random synchronization, forming BEC (Bose Einstein Condensate). From the rigorous study of the inertial paradox, arises multiple mutual occurrences and with observations. It lifts the more than 60 enigmas of the standard model. Each piece of evidence will be compared to observation, justified by an explanation of the causes (other than describing the effects) and some confirmed by a numerical occurrence equal to 7σ. All of this lifts the more than 80 enigmas of the standard model.

2/ Introduction

To understand this article, it is advisable to read the article [2], published on viXra. Contrary to the usual status of "model" which is limited to creating mathematical beings to replace physical beings, this study is based on the 5 profound laws of the physics of the universe, which are: 1) the inertial paradox; 2) the intangible universal symmetry; 3) probability ; 4)

the duality of locality; 5) the entropic duality. The DUO5 law rejects all approaches based on "principles" or "hypotheses", which are only speculations. The trend towards modern ultra-specialization, very beneficial for applied sciences, is sterile for the understanding of the physics of the universe. This is why modern observations generate more enigmas than solutions. Each specialty has its share of enigmas, but ignores those of others. As a result, there is no study that lists the dozens of puzzles solved below. The ultimate goal of the scientist, which would be to solve these puzzles, is forgotten. The mathematical approach of the ΛCDM model admits, among 3 scenarios, an infinite expansion. The DUO5 law demonstrates that absolute zero and infinity, specific to mathematical beings, is an almost impossible hope in fundamental physics. In addition, we must be aware that the phenomena observed at the quantum scale are strictly "effects". It is therefore not correct to transpose them upstream by giving them the status of "cause" or "explanation" to the pre-existence of these phenomena. With the notions of "absolute zero" and "infinity", mathematics is not the right tool to understand the paradox of the pre-existence of matter. Since the Copenhagen school, "principles" such as isotropy and homogeneity have been adopted. The obsession was then to reduce everything to the local by naively giving it a universal status. Only the correlations between mathematical theory and local experimentation were considered rigorous. It is true that this "rigor" was to usefully replace the old global, speculative and very approximate approaches that were rife at the time. But to do this, "principles" were arbitrarily enacted such as:

1) giving a unique status to the term "universe" by arbitrarily eliminating that it could be in the form of two fundamental states;

2) arbitrarily giving a universal status to local experimentation by wrongly asserting that "the universe" is homogeneous and isotropic;

3) wrongly considering that (human) mathematics pre-exists the physical nature of "the universe";

4) considering that the absolute zero of mathematics could be transposed to the physics of "the universe";

5) affirm the principle of equivalence between the inertial component and the gravitational component of masses;

6) transpose existing and measured quantum effects upstream as if they could be the cause of their pre-existence;

7) consider space-time as a geometric and mathematical being, while it is endowed with a physical structure.

In addition to the fact that the very notion of "principle" is of the speculative kind, it is shown here that these seven assertions are false. For example, point 2 is denied by recent observations, which show an anisotropy of the expansion rate. With the DUO5 law, the notion of "principle" is usefully replaced by the search for causes by logico-deductive reasoning. The "principle" of uniqueness and absoluteness is replaced by universal duality and symmetry which are consubstantial with the physical Nature of the Universe. The BUE (Expanding Universe Bubble) is not magically created but is the result of a logical, partial and random transformation of the Omniverse matrix.

3/ The permanent Omniverse state

How can we justify the existence of an Omniverse state, when it is not directly observable? The justification of the causes must be validated by the observed effects that are declined from it. But not only that! The justification of the causes must lift dozens of the most crucial, unresolved enigmas of the standard model. The logico-deductive thought experiment, explained below, does this from the laws of chance, symmetrical duality and the inertial paradox. The resolution of the causes will be guided by the declined and observable effects. The absolute nature of the zero of mathematics blocks any reasoning leading to the inertial paradox. To ensure good reasoning, the prefix "quasi" will be used in front of notions such as absolute zero and infinity. In this hazard, we must not neglect the statistical notion which avoids any absolute drift. The reasoning is as follows: in a continuous and random function, any numerical value of an inertial pole (as small as desired) will be far from absolute zero, by a quasi-infinity of quasi-infinitely small intervals. With this reasoning, any inertial pole will have a quasi-zero probability of having a state "absolute zero inertia". But paradoxically, it is unjustifiable to admit the pre-existence of a mass pole larger than absolute zero. This is the existential paradox. It answers Leibniz's question: "why something rather than nothing?". It is a truism to consider that if absolute inertial zero were possible and generalizable, we would not be here to talk about it. The only solution lies in dipolar oscillation, to obtain a perfect inertial zero of symmetric type. But even in the "zero point" of the "1 pole" frame of reference, there is a natural tendency to search indefinitely for absolute inertial zero. This is an almost impossible hope. Thus the Omniverse exists permanently in the form of an indeterminate number of dipolar, stochastic oscillators, each respecting a perfect symmetrical zero. The closer the mass M at the zero point of the poles approaches absolute zero, the greater the amplitude to follow L. This is the natural law: $M.L = Cte$. If the impossible $M = 0_A$ (absolute zero) were reached for a case, then the amplitude $L_A = \infty$. There would be no more

oscillation and therefore no more permanent search for absolute zero. However, statistical prudence implies that a tiny probability can reach absolute inertial zero. This allows us to affirm the variability of the number and therefore its indeterminacy. This reasoning is supported by the iterative approach between the causes and the observable effects.

Thus we can deduce the operation of the typical oscillator populating the Omniverse. It is the inertial intensity of a pole at the zero point, which determines its spatial potential. Such that: $\Delta M\, \Delta L = Cte$. Since there is no friction, the only element of variability is the statistical imprecision of the inertial intensity at the zero point. This makes each oscillator typically random. These 1D stochastic oscillators are called Bodys (Bosons, Oscillator, Dipolar, Yin Yang, Symmetric). These Bodys (like a body but with an "s") form a set, without limit, not connected and without mass-space-time continuum.

The Bodys is truly the elementary "bodies" of all matter to come.

The parameters of their operation being random, they generate an informational entropy which tends towards infinity. The relation (1) shows that the non-existence of an inertial pole in the state "absolute zero" (0_A), forces the existence of the symmetric zero (0_S).

$$\nexists\, Mo_A \rightarrow \exists\, 2\, Mos\,, \qquad (1)$$

Thus for each Bodys, the symmetry – which is consubstantial with nature – perfectly cancels the physical parameters of the two oscillating and opposite poles:

$$m\ell^- + m\ell^+ \equiv 0_s\,, \qquad (2)$$

The two inertial moments (ML) are not scalars and can therefore cancel each other algebraically. The conservation of the causal link between the two poles is imperative to obtain a perfect symmetrical zero in the oscillator frame of reference. This causal link is the key to the perfect symmetrical zero. This link, imposed by Nature, is the root cause of the Coulomb force. The classical relation (3) recalls that the elementary electric charge is defined by the inertial moment $m\ell$ of the electron:

$$e^2 = \frac{m_e\, \lambda\!\!\!^{-}_e}{10^{-7}\alpha}\,, \qquad (3)$$

The parameter 10^{-7} (originally unitary in cgs units) has been arbitrarily given the appropriate dimensions to create the convenient entity "electric charge". Apart from the additional constant α, we see that the square of the elementary electric charge is the reflection of the product $m\ell$ of the electron. This solves the puzzle that no one asks, namely the cause of the existence of the Coulomb force. Basically, it is the inseparability requirement of relation (2) that is the cause of the Coulomb force. The operation of the dipole oscillator (Bodys 1D), could be likened to the alternation between the attractive Coulomb force and the repulsive

Lorentz force. But a more fundamental law is given by M.L = Cte. At the zero point, the spatial potential ℓo of a mass mo is inversely proportional to it. As the spatial amplitude of a pole progresses, its spatial potential decreases, the mass of the pole increases up to the turning point. This explains (not described) the constancy of the elementary electric charge. The informational entropy (quasi-infinite) comes from the fact that each frequency and each phase are purely random. This eternal state of the Omniverse has neither energy nor mass-space-time continuum. Where would it come from? But such mixing opens the way to a probability of partial synchronization. Since time does not flow, the probability of obtaining it is unitary, according to:

$$P(\Omega) \equiv 1, \qquad (4)$$

Their synchronization depends on a self-influencing mutualization, of the phase, of the frequency and of the fusion of the zero points. The generalization of the synchronization, tends to form a BEC-fossil (Bose Einstein Condensate).

4/ Synchronization process in a BEC-fossil

The synchronization flow meets three requirements, for each stochastic Bodys:

1) merge into a common "zero point";

2) share a common phase;

3) share a common frequency.

This random process is first peppered with repeated failures, because the nascent BEC-fossil is surrounded by stochastic Bodys. Their influence tends to undo the first synchronizations. But since time does not flow, the potential for random tests tends towards infinity. Thus, the probability of creating a fossil BEC is inevitable. Synchronization can be seen as an antidote to the ineptitude of infinite informational entropy. Then, as the vagaries of events occur, the growing flow of synchronizations, the synchronized influence of the BEC, manages to balance the external stochastic influence. From a certain threshold, this level of influence accelerates the flow of synchronization which progresses exponentially according to the ratio {Nb synchronized / Nb nearby stochastic}. The time to form a fossil BEC is incalculable since time does not flow. But the following will show that this "time equivalent" is much greater than the time of the universe state, BUE. Thus speculations on multiverses are unfounded.

5/ How the BEC-fossil works

The iterative aspect of the reasoning indicates that the BEC-fossil is a sphere. Thus the oscillation of the poles is formed in spherical layers, they evolve between the common zero point and the cusp point. Overall the symmetry allows a perfect zero-symmetric. Its radius is determined by the (common) amplitude of the synchronized Bodies. Then the synchronization flow reaches saturation. This amounts to reducing the elementary tangential interval to a critical threshold. Indeed, during the furtive stop, at the cusp point, the Coulomb force, between neighboring poles, manages to merge them. We will see later how this causes an expansion mitosis. The iterative reasoning, makes a connection with a primitive living cell that takes the risk of feeding its internal synchronization by external entropy, only imitates the saturated fossil BEC. When this cell is saturated, it enters mitosis. Its behavior is not magical but just inherited from the BEC-fossil, like all existing observable things. In the volume of the BEC-fossil, it is the (tangential) Lorentz force, which guarantees the balance by mutually repelling the poles of neighboring oscillators, circulating in parallel at high speed. But during the very furtive stop, at the turning point, it is the Coulomb force that acts. By assuming that the elementary interval on the circumference of the Pzc (Common Zero Point) is the Planck length. To understand the rest, it is advisable to read article[2], published on viXra. It indicates (among other things), the ratio between the Coulomb force and the gravitational force exerted on an electron-positron pair.

$$\xi^4 = \frac{\left(\frac{-e^2\alpha}{4\pi\epsilon_o}\right)}{-G\ m_e^2} = 5{,}70838(15)\times 10^{44}, \qquad (5)$$

This article[2] confirms the existence of the ratio ξ^2 between each electron parameter and each Planck parameter. It shows that relation (5) corresponds to ξ^4 pairs of poles (now electron-positron pairs), arranged on the circumference of the fossil BEC. This corresponds to 4 ξ^8 poles arranged on the area of the fossil BEC. The article shows that this number is the same on the area of the common zero point. Therefore the radius of the zero point is given by:

$$R_{pz} = \ell_p \frac{\xi^4}{\pi} = 2{,}9319\times 10^9\ m, \qquad (6)$$

The article shows that the radius of the fossil BEC is equal to:

$$R_{BEC} = \pi\ R_{pz}\ \xi = \xi^3\ \lambda\!\!\!^{-}_e = 1{,}4264056\times 10^{21}\ m, \qquad (7)$$

Figure (1) below shows that the critical tangential interval on the circumference of the fossil BEC is given by:

$$\lambda\!\!\!^{-}_{o} = \ell_p \frac{R_{BEC}}{\pi\, R_{pz}} = \frac{\lambda\!\!\!^{-}_{e}}{\xi} = 2{,}4980872 \times 10^{-24}\ m, \qquad (8)$$

Figure (1) shows that the radial elementary interval between layers is the Compton length of the electron $\lambda\!\!\!^{-}_{e}$. Indeed, the temporal interval between layers remains constant with the speed variation ratio. The ratio between the cusp and the center of the BEC is ξ^3. The number of layers in the BEC volume is given by:

$$N_{rad} = \frac{R_{BEC}}{\lambda\!\!\!^{-}_{e}} = \xi^3, \qquad (9)$$

This means that the volume of the fossil BEC has Np = 4/3 π ξ^{11} oscillating poles. Among the ξ^3 layers, only the layer present on the area of the fossil BEC will become matter by causal separation. Thus the reduced interval of (8) will be critical when stopping at the cusp. Overall, the saturated fossil BEC is out of balance due to the anisotropy between the radial and tangential elementary interval. Table (1) shows that the momentum p of a pole is constant. During saturation, the tangential interval varies from the Planck length to $\lambda\!\!\!^{-}_{o}$ relative to the relation (8) while the mean of the radial interval is $\lambda\!\!\!^{-}_{e} = \xi\, \lambda\!\!\!^{-}_{0}$. This anisotropy makes the BEC-fossil unstable.

FIGURE 1

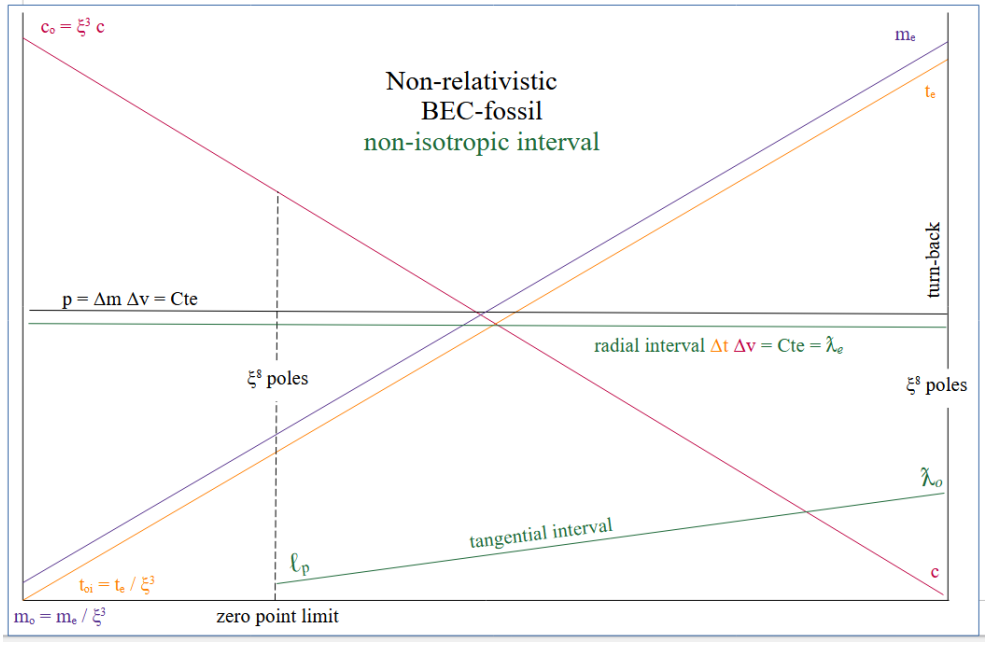

Figure (1) shows that the area of the common zero point must contain a complete layer of 4 ξ^8 poles. The Planck length is the elementary interval tangential to the zero point. The elementary interval tangential on the area of the saturated BEC is thus reduced to the factor ξ compared to the Compton length of the electron. It is this reduction of the elementary interval

that will trigger the mitosis-expansion of the fossil BEC, during the furtive stopping time, at the turning point. The anisotropy of its elementary intervals makes the fossil BEC unstable.

To be continued: 1) the proton is not a magical creation, but strictly determined by mitosis-expansion in 5 phases; 2) the numerical value of the factor ξ is specified at 7σ by several means.

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