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BRIEF SURVEY OF THE UNIVERSE EVOLUTION MODELS: INCOMPLETENESS, ENTANGLEMENT, AND SOME UNEXPECTED CONVERGENCE

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Abstract. *The main goal of the present study refers to the actualization of our previous similar study from 2008 [1], especially relative to the: a) aspects of: (i) incomplete-ness of the fundaments of the Cosmological theoretical models, (ii) entanglement of the main actual Physics theories, those of the Quantum Physics, and of the Einstein's gravitation theory, respectively, b) emphasis of some unexpected convergence of the most distant (extreme) basic models of the Universe evolution.*

Keywords: Incompleteness, Entanglement, Some Convergences of the extreme models of the Universe Evolution

1. Introduction

Our previous similar study of the theoretical models of the Universe evolution involved a lot of such models [1], but didn't examined carefully: a) the implications of the basic present physical theories, those of the Quantum Physics, and of the Einstein's theory of gravitation, and: b) the appearance of some unexpected convergence of the most distant models of the Universe evolution.

Given being the study of such a topic needs the examination of both the: a) materialistic approaches based on: (i) experiment and: (ii) rigorous theoretical models, as well as of: (iii) some intuitive approaches, and of the: b) theistic models, this study will present all viewpoints, with the emphasis of the elements presented in the American academic textbooks from this century (see e.g. [2]), involving also the scientific syntheses accomplished by high-level reviews of public information, as *Scientific American* (see e.g. [1], [3a], etc), *Discover* [3b], *Europhysics News* [4], *Science et Vie (France)* [5], etc.

2. Classical (already studied) Fundamental Interactions

It is rather strange that the basic features of the fundamental interactions were studied carefully only in the last 120 years. It was found that excepting the unimaginable short duration (after the appearance of the cosmological singularity that led to the formation of the known Universe), named *Planck's duration* (t_P),

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the gravitational interaction is completely separated relative to the other 3 (quantum) interactions. *The unification domain of all 4 « classical » fundamental interactions* is characterized by the so-called *Planck's parameters* [6], the most important such parameters being the Planck's duration, length (radius), mass and density.

One finds so that: $h\nu = \frac{kmM}{r} = \frac{k}{t}\cdot\frac{h\nu}{c^2}\cdot\frac{\Delta E}{c^2} = \frac{k}{c\cdot t_P}\cdot\frac{h\nu}{c^4}\cdot\frac{\hbar}{t_P}$, hence:

$$t_P = \sqrt{\frac{k\cdot\hbar}{c^5}} = \sqrt{\frac{6.67\times10^{-11}\times1.034\times10^{-34}}{234\times10^{40}}} \cong 0.533\times10^{-43}s \quad . \qquad (1)$$

The present classification of the already studied (classical) 4 fundamental interactions is reported by diagram 1.

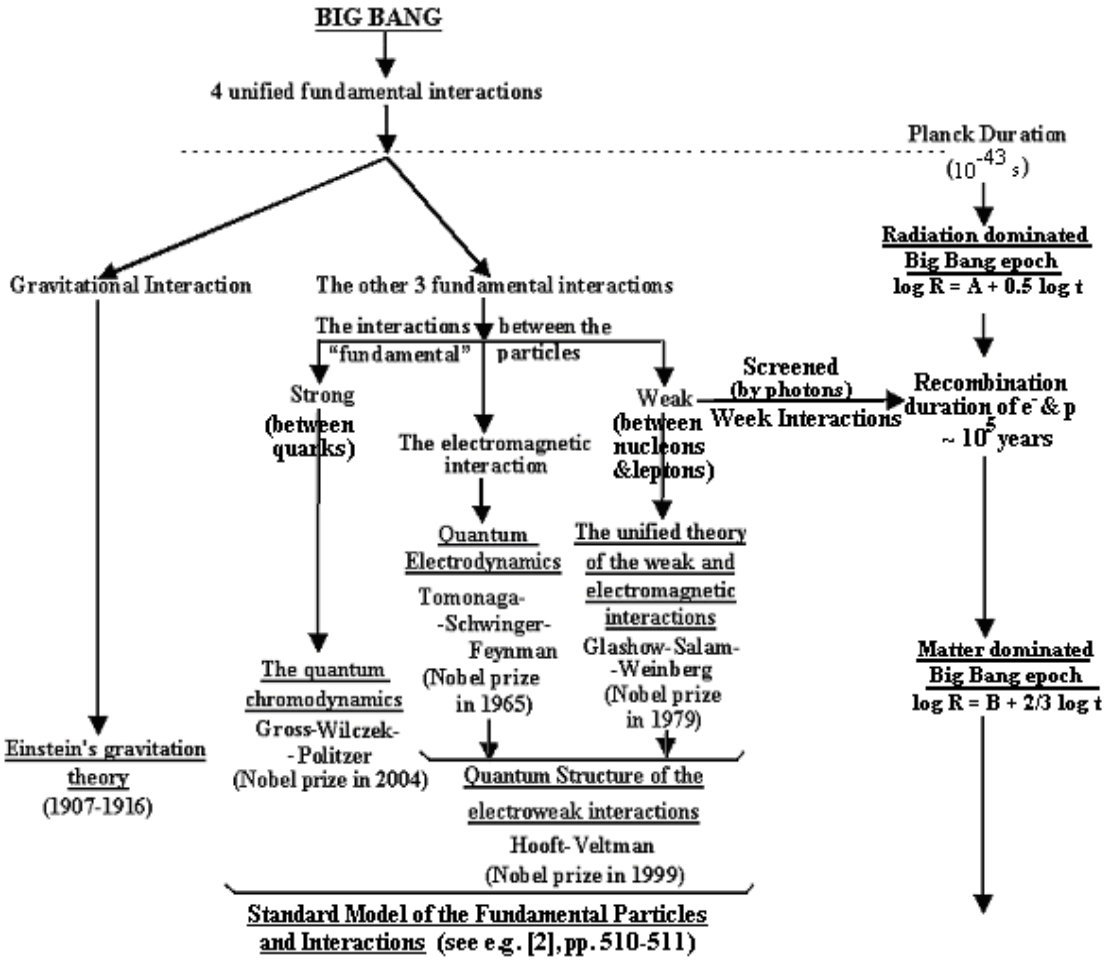

Diagram 1. Classification of the classical fundamental physical interactions.

The basic modern theory of the gravitational interaction was elaborated by Albert Einstein [7], during the period 1907-1917, but the Physics Nobel prize (PNP) was awarded to him in 1921 « especially for his discovery of the law of the photo-electric effect », reflecting so a certain (momentary) distrust in his gravitation theory, even after this was already confirmed experimentally by the results from 1919 of Arthur Eddington [8].

The modern (quantum) theory of the Electromagnetic interactions was elaborated between the years 1948 and 1966 by Richard Phillips Feynman, Julian Seymour Schwinger and Shinichiro Tomonaga [9], to whom there was awarded the corresponding Physics Nobel prize in 1965.

The unified theory of the weak (between nucleons and leptons) and electromagnetic interactions was established (between 1967 and 1980) mainly by Steven Weinberg and Sheldon Lee Glashow [10], in cooperation (see the corresponding Weinberg-Salam theory, 1967-1968) with Abdus Salam [11] (Physics Nobel prize in 1979), while the quantum structure of the electroweak interactions was pointed out by Hooft and Veltman [12] (PNP in 1999).

Finally, we have to mention that the basic theory of the strong interactions (between quarks) – *the Quantum chromodynamics* [corresponding to the quarks « colors » : *B* (blue), *R* (red) and *Y* (yellow)], was established firstly [13] by D. Gross, F. Wilczek, and H. D. Politzer in 1973 (awarded PNP in 2004), while the combination of the electroweak interaction and of the quantum chromodynamics is known as the *standard model* (of the fundamental particles and interactions) [11], [2] p. 508.

As an example of particular interactions presenting a special interest for the Universe evolution, we will cite the *screened fundamental interactions*, as that between protons and electrons, screened by photons for temperatures higher than the « combination » temperature $T_C \approx 3000\,K$.

The corresponding (re)*combination* duration of the electrons and protons ($t_C \approx 1000{,}000\ years \approx 3\times10^{12}$ s) delimitates the epochs of the Big Band dominated by radiation, and matter, respectively, with relations: Universe radius (*R*) – duration (*t*) after its appearance, given by the expressions (see e.g. [2], p. 560):

$$\log R = A + 0.5 \log t \text{ , and: } \log R = B + 2/3 \log t \text{ ,} \qquad (2)$$

respectively (see also the right column of diagram 1), while the time dependence of the Universe temperature is given by the expression:

$$T(t) = const. / R(t) \text{ .} \qquad (3)$$

3. Theoretical predictions and experimental proofs of the Universe expansion

A preliminary result leading to the later prediction of the Universe expansion was the Einstein's expression (derived from his gravitation theory) of the Universe acceleration a in terms of its radius R, average density ρ (corresponding to all its matter and radiation components) and total pressure (arising from all sources) p, and the usual gravitation constant G:

$$\frac{3a}{R} = -4\pi G\left(\rho + 3\,p/c^2\right) + \Lambda \,, \tag{4}$$

where Λ is the so-called *cosmological constant*, introduced by Einstein (1915-1916 [7d], [7e]) to compensate the previous algebraic term and avoid the Universe expansion!

The first theoretical prediction of the Universe expansion was achieved by the Russian meteorologist Alexander Friedmann [14], who achieved:

a) the correction of simple algebraic error made by Einstein [7d], [7e],

b) to point out the Universe's expansion for a density higher than a certain critical value ρ_c, and its implosion back on itself if $\rho > \rho_c$ [14b] (only a theoretical result, because for our Universe $\rho < \rho_c$).

In fact, the first theoretically justified model of the Big Bang[1] type of the Universe expansion was proposed (1927-1931) by the Belgian priest Georges Lemaître [15].

Starting from his astronomic observations (1929-1931) concerning the velocity – distance relation for some extra-galactic nebulae, the astronomer American Edwin Hubble obtained [17] the first experimental proof of the Universe expansion.

4. Still possible to be explored (studied). Incompleteness aspects of the Universe evolution models

The study of the far cosmic explosions (supernova) pointed out that *the Universe expansion accelerated in the last approximately 6 billion years* ([4], page 123), as a consequence of some cosmic energy densities [18]. These ones could be due to: (i) the vacuum energy contribution [19], concretized by the cosmological constant Λ intervening in the Einstein's equation of the Universe evolution (3), or to a: (ii) dark energy field, whose disintegration acts as cosmological constant (named also "quintessence" [20]). Independently on the cosmological constant nature, this one

[1] The somewhat amazing nickname "Big Bang" for the Universe expansion was coined in the 1950s by a hostile opponent – the British astronomer Sir Fred Hoyle [16] as an attempt to ridicule this Universe expansion model (in this intention, "Big Bang" meant *much noise for nothing!*).

has a weight Ω_Λ in the total energy of the Universe, while the total weight of the matter and known interaction fields is denoted by Ω_M (of course: $\Omega_M + \Omega_\Lambda = 1$).

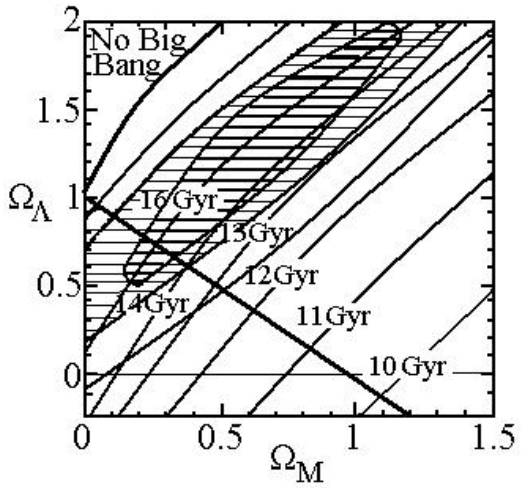

Fig. 1. The elliptical confidence domains, corresponding to a normal 2-dimensional distribution of the values of the weights Ω_Λ and Ω_M (here Gyr stands for 10^9 years) [4].

The graphical plot of the experimental data corresponding to the 1a type supernova (see [4], page 123 and figure 4.6) leads to the approximate values: $\Omega_M \approx 0,25$ and: $\Omega_\Lambda \approx 0,75$. We will mention also that presently one considers that ([4], p. 125) only 30% of the Universe matter has a gravitational character (approx. 5% baryons, other 5% - heavy neutrinos, about 20% - the "black holes"), while approx. 70% correspond to the dark energy fields, that produce the anti-gravitation forces described by the Einstein's cosmological constant Λ.

Fig. 1 presents the confidence domains (elliptical, corresponding to a normal 2-dimensional distribution of the values of the weights Ω_Λ and Ω_M) for the confidence levels L = 99.7% (the central ellipse, the most shaded), L = 95.4% (the intermediate ellipse, of somewhat lighter shade) and: L = 68.7% (the lightest tint confidence ellipse). The preference for the dark energy fields (dark energy), described by the weight Ω_Λ is obvious, the value $\Omega_\Lambda = 0$ being excluded, with a larger than 95% probability.

5. Inflation-less Universe evolution models

A detailed analysis of the main six inflation-less Universe evolution models (proposed in the interval 1755-2006) is presented by our study [1]. Given being the extent of this study, we will present below in the frame of diagram 2 (synthesized by means of the Universe radius – expansion duration plot) - the most important features of these models.

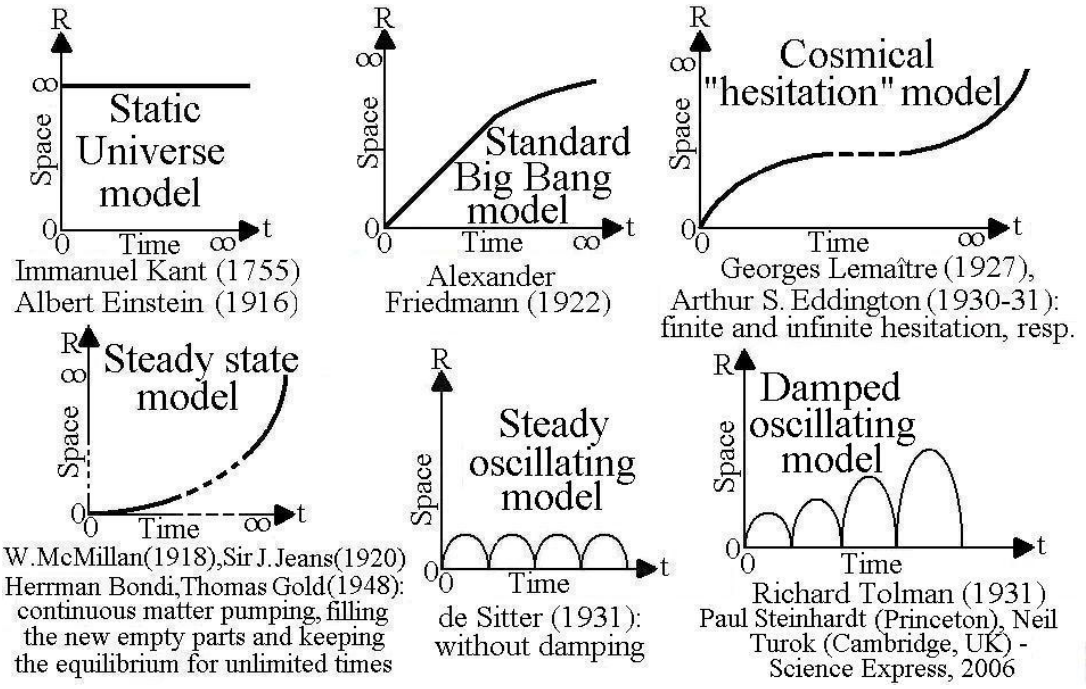

Diagram 2. Main inflation-less models of the Universe evolution.

6. Has evolved our Universe through a direct transition from the Unified Interactions Phase to that of the Radiation dominated Big Bang?

Because the present duration of our Universe is evaluated as being:

$$t_u \cong 1.45\times10^{10}\,yrs \cong 5\cdot10^{17}\,s\,,$$

in the hypothesis of the direct transition between the above indicated phases:

(i) the present dimension of our Universe would be [see relations (2)]:

$$R \cong R_P\left(\frac{t_c}{t_P}\right)^{1/2}\left(\frac{t_u}{t_c}\right)^{2/3} \approx 1.5\times10^{-35}\sqrt{\frac{3\times10^{12}}{0.5\times10^{-43}}}\left(\frac{5\times10^{17}}{3\times10^{12}}\right)^{2/3} \approx 3.5\times10^{-4}\,m\,, \quad (5)$$

value that is obviously considerably smaller than our Universe radius,

(ii) because the curvature C of the space due to the gravitation action is given by the expression (see e.g. [21]):

$$C = \frac{G\cdot M}{c^2 R}\,, \quad (6)$$

taking into account the huge mass of our Universe, as well as the extremely small value of its Planck radius estimate:

$$R_P = \sqrt{\frac{G \cdot \hbar}{c^3}} \cong \sqrt{\frac{6.67 \cdot 10^{-11} \times 1.034 \cdot 10^{-34}}{27 \cdot 10^{24}}} \cong 1.6 \cdot 10^{-35} m,$$

it was expected an extremely high Riemannian curvature of our Universe (corresponding to a curvature radius of the Planck's radius), i.e. a non-confirmed prediction, because in fact *our Universe is approximately "flat" (subject to the Euclidean geometry)*, excepting the positions located in the immediate proximity of stars (see the deviations of the light rays passing in the neighborhood of the stars surfaces, etc. [21]);

(iii) starting from the observable radius of our Universe: $R_U \approx 1.5 \times 10^{10} \, light \, years \approx 1.5 \times 10^{26} m$, it results that at the "boarder" ($t \cong t_c$) between the radiation and substance dominated Big Bang phases, respectively, the Universe radius was:

$$R_U(t_c) = R_U \left(\frac{t_c}{t_u} \right)^{2/3} \approx 1.5 \times 10^{26} \left(\frac{10^5}{1.5 \times 10^{10}} \right)^{2/3} \approx 5 \times 10^{22} m.$$

Or, the maximum distance for information obtainment in the (re)combination duration t_c is (according to the special relativity theory):

$$d_{\max.inf.} = c \cdot t_c \cong 3 \cdot 10^8 \times 3 \cdot 10^{12} \cong 10^{21} m,$$

i.e. the classical Big Bang model cannot explain how it is possible to find the same measured temperature of the Universe (approx. 2.73 K) for all observable distances[1] [up to $R_U(t_c) \approx 5 \cdot 10^{22} m >> d_{\max.inf.} \cong 10^{21} m$].

(iv) the classical (standard) Big Bang theory predicts (together with the modern theory of the elementary particles) the generation – even from the primordial phase of the Universe generation – of some super-heavy particles: the "magnetic mono-poles" (each one with a mass of approximately 10^{16} times larger than that of proton), with an abundance of the same magnitude order as that of protons, that would lead to a mass approximately 10^{16} larger of our Universe than that known. Where are now these magnetic mono-poles? (even they exist, they are so rare, that even their existence in our Universe is not sure!).

7. Inflation and Heating Universe expansion phases – beyond our understanding (lasciate ogni speranza!)

We consider as useful to underline from beginning that the *inflation*[1] phase of our Universe generation is considered as absolutely necessary to explain our Universe

[1]This paradox is called (in the international literature): the *horizon* problem.

building both by the lay (laic) specialists (by the authors of the American academic textbooks from our century [1], particularly), as well as by the theist cosmologists [24][2].

The inflation phase is now accepted by all specialists because our Universe has to be:
(i) *cleared* of super-heavy particles (of the magnetic mono-poles, especially),

(ii) described (with some local exceptions, seldom met) by the Euclidean geometry,

(iii) rather homogeneous, even in conditions when some information (e.g. relative to its local temperatures) cannot be transmitted in the limits of the special relativity (the "horizon" problem, see above), etc.

As it was found above [see relation (4)], the classical (standard) Big Bang model ensures a multiplication factor (of the Universe) of approx. 10^{30} times, that is absolutely insufficient for our Universe description. For the obtainment of values corresponding to the observed distances (10^{26} m) it is necessary a multiplication factor considerably larger (of about 10^{60} times), but even this magnitude order cannot explain the manner of the magnetic mono-poles disappearance from our Universe!

In fact, the Guth – Linde's model of inflation [21], [22], [3] assumes an incredibly large multiplication factor (of about $10^{10^{12}} = 10^{1000,000,000,000}$!, see also figure 2), but that allows why – in the conditions of the additional action of some friction-like forces – the super-heavy particles (of the type of magnetic mono-poles) were "removed" at practically infinite distances from our Universe, while the considerably lighter particles (as the protons) remained at the "end", in the limits of the Universe known by us.

The "inflation" phase presents the following basic features:

(i) it is an auto-catalytic (exponential) growth phase of the Universe, essential element in order to explain its fractal properties,

(ii) it eliminates (as it was shown above) the super-heavy particles (the magnetic mono-poles) from our Universe,

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[1]The Big Bang models of the "inflation" type were introduced approximately concomitantly by the American cosmologists [22], and those of the Russian school [23], respectively [it seems that there existed some non-rigorous models of this kind even since 1972 (D.A. Kirznits and A. Linde), the first such model considered as realistic (but heavy) of the inflation being due to A.A. Starobinski (1979)].

[2]We consider as necessary to underline that the works of some theist cosmologists have an outstanding scientific documentation: e.g., the work [24a] involves 441 registered references, and the work [24b] contains 475 registered references, one of them – e.g. the reference 40 of chapter 16, involves in fact other 111 references – hence the references number (in large majority – purely scientific) of this book exceeds 1000 references!

(iii) it ensures (with local exceptions, relatively seldom met) a high homogeneity of our Universe, that explains its "flatness" [the validity – with the exceptions of local substance agglomerations (stars, black holes, etc.) – of its Euclidean geometry],

(iv) it assumes *the operation* of some considerably larger velocities than the light speed in vacuum, hypothesis that solves the *horizon* problem, by the transmission at very large distances of information (about the temperature, particularly) even from this phase.

Of course, the above findings show that the laws of the contemporary Physics did not act nor in the inflation phase of the Universe.

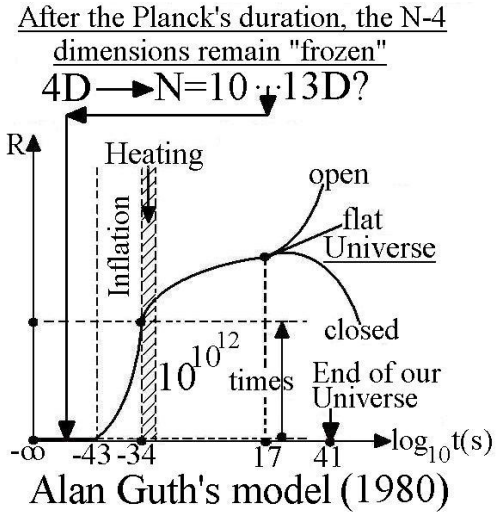

Fig. 2. The Alan Guth's model of the Universe evolution.

Taking into account that all "inflation" models assume the action – during this phase – of some dissipative force (similar to the friction ones, see e.g. [3], p. 53), it is obvious that in this process was dissipated a huge thermal energy. The values of the thermal energy dissipation became de tremendous (immensely) large in the infinitesimal interval between approx. 10^{-36} s and $t_{T\max} \approx 10^{-34}$ s, when:

(i) the Universe *growth* velocity reached its maximum values, towards the end of *the inflation* phase,

(ii) the Universe began to *brake* (*decelerate*), corresponding to the phase transition towards the radiation dominated (Big Bang) Universe stage.

Starting from relation (2), (3) that give the time dependence of the Universe temperature during the radiation dominated Big Bang phase, it results that at the end of its heating phase the Universe temperature had (with very large approximation) the magnitude order:

$$T_{\max}\left(t_{r\ \max}\right) \approx T_c \sqrt{\frac{t_c}{t_{r\ \max}}} \approx 3000 \sqrt{\frac{3 \cdot 10^{12}}{10^{-34}}} \approx 5 \cdot 10^{26} K \quad !$$

Of course, nor this Universe evolution phase cannot be described by the laws of the contemporary Physics.

8. From the physical Incompleteness to the mathematical Incompleteness

It is well-known that to each basic physical theory is associated a mathematical structure. E.g. to the Newtonian Mechanics and gravitation theory there are associated the vector and integro-differential structures, to the Maxwell electromagnetism theory is associated the theory of vector operators, to the Einstein's gravitation theory is associated the tensor structures, a. s. o.

Consequently, if in the Universe descriptions will miss some essential physical theories, the corresponding mathematical formalisms will be incomplete. That is exactly the amazing result obtained in 1930[s] years by the Austrian mathematician Kurt Gödel, and expressed by his renowned "incompleteness theorem" [24a], pp. 114; 219; [24b], p. 123; [25]: "no non-trivial set of arithmetic propositions can have its proof of consistency within itself', equivalent to the finding "with incomplete information about a system, it is impossible to prove a necessarily true theorem (i.e. a one and only one descriptive statement) about that system", leading to the finding that *a complete and consistent logical formalization of mathematics is impossible.* An elementary additional example: the 362 pages necessary to the logicians Bertrand Russell and Whitehead to derive the equality 1 + 1 = 2 [25], p. 116.

9. Quantum Entanglement and some of its implications

In the Spring of 1935, Albert Einstein and his PhD students Boris Podolsky and Nathan Rosen have found – after some months of calculations – that (according to the Quantum Physics) two particles could be bound so that for any distance (even very large) between them, any action on a particle would have a very fast (immediate) repercussion (transmission to the other) [the so-called Einstein-Podolsky-Rosen (EPR) bound].

Toward the end of the 1935 Summer, Einstein and Rosen published a new unexpected result: "the substance (matter) can deform the Universe frame to open a tunnel between 2 very far away (distant) space regions", phenomenon named the "worm hole (bridge)", or the ER bridge [26], pages 50-51. In the last decade of the previous century, the cosmologists Juan Maldacena [27] from Princeton and Leonard Susskind from Stanford University have found that the relations of the worm holes describe exactly the behavior of the entangled particles, hence the simplest entanglement is achieved by a worm hole (ER bridge), i.e. the EPR

bound and the ER bridge are irremediably connected [26], p. 54. It was found that even the (still) rather strange telepathy phenomena are strongly related to the quantum entanglement [28].

The connection of the ER bridges and of the EPR bounds (even through some black holes), deforming the Universe space-time frame is illustrated by Fig. 3 [26], p. 54.

Fig. 3. Imaginary connection of the Einstein-Podolsky-Rosen (EPR) bounds by means of the Einstein-Rosen (ER) "worm hole" bridges [26], p. 54.

10. Classical Entanglement and some of its implications

Given being both the Universe and its mesoscopic structures are obviously complex systems, with a huge number of entangled (even classically) entanglement parameters, we are practically prevented to know the parameters of some important terrestrial phenomena, even of usual size, as those of the (e.g.) earth-quakes [29].

We have to underline also despite its usual negative connotation, the entanglement is an essential beneficial process for the stability of any complex system. Particularly, when a living being loses its entanglement bonds, which ensure its resistance towards the external aggressive actions, it is practically dead.

11. Unexpected Convergence of the results of some Universe evolution models

The action of the incompleteness aspects (and even theorems), preventing a satisfactory knowledge of the Universe evolution strengthened the old tendency of people to search for inductive (theistic) explanations for all the events from Universe and even from their lives.

As it is well-known, there is a tremendous number of such inductive (theistic) hypotheses, generating even a huge number of different religions, but very few of them are self-consistent and agree in large measure with the life and scientific findings, the most important of them being related to the Bible [30].

We have to underline also the existence of some ancient writings (e.g. those from the Fertile Crescent [Akkad] area [31], see [30b]) involving inclusively some inductive elements concerning the Universe evolution. Given being these writings were considerably older than the Bible and they originate from the same Near East geographical area, it is possible to be connected somehow to the Genesis book of the Old Testament.

As it is well-known, the Bible is an extremely complex book, which is rarely completely well understood. Some misinterpretations of the Bible [as those affirming that: a) the Earth is the Universe (mass) center, b) the divine days coincide with the terrestrial ones, c) not only the living being species - but even their subdivisions – were designed and fixed from beginning, etc.], as well as the tendency of many priests to inter-pose themselves between the Bible and its interpretation, provoked the exaggerate reaction to consider that many of the Bible assertions are inexact or even wrong (even "dangerous") and only the deductive findings (hence the Science) are reliable. For this reason, many of the most illustrious men of science – as the German philosopher Emmanuel Kant (1724-1804), the brilliant (probably the most outstanding after Newton's life) physicist Albert Einstein, etc. – were absolutely convinced that (our) Universe has not a beginning or an end.

Or the present Big Bang theory seems to prove that the Universe: a) has a beginning, b) was designed and launched by an unimaginably powerful external force (we can name it God), hence the our days Science leads exactly to the first verse of Bible (Genesis): "In the beginning God created the heavens and the earth[1]".

Given being the large number of found results of unexpected convergence of the present Science predictions and of the Bible, we have synthesized some of these findings in the frame of Table 1.

[1]We consider that presently "heavens" means the space-time frame, while "earth" means the "condensed matter".

Table 1

Some Unexpected Findings of Convergence of the Present Sciences and of the Bible

No.	*The theoretical or experimental finding of present Sciences*	*Interpretation*	*Bible verse*
1	The existence of a huge number of "narrow" constraints for the appearance of the known Universe [20], [3a]	There was a design of our Universe	Genesis 1:1
2	In frame of the fields of Planck (of the unified interactions) and of inflation, the known Physics laws are not valid	The designer has infinitely higher knowledge than those of the humankind	Genesis 1:1
3	The Universe was created by inflation, when the expansion velocity was much larger than the light speed in vacuum, and the inconvenient particles were thrown at unimaginably large distances	The Designer has tools and a technology infinitely over-whelming those of the humankind	Genesis 1:1
4	The Universe Genesis started from a cosmical singularity, hence a "site" with an unimaginably large concentra-tion of matter, from which the time, space, matter & energy were "pumped"	The time, the space, the matter and the energy (hence the Universe) were injected by the designer	Hebrews 11:3
5	The red-wards Hubble's displacement of the spectral lines emitted by different galaxies (experimental result)	It proves the Universe expansion Isaiah 42:5, 44:24, 45:12, 48:13; Jeremiah 20:12, 51:15, Zechariah 12:1	Isaiah; Jeremiah; Zechariah
6	Recent experimental results of the study of the far cosmic explosions (supernova), proving the accelerated Universe expansion in the last 6 Gyr	They prove some rather new actions on the Universe space-frame, leading to an accelerated expansion	Job 9:8 Psalm 104:2 Isaiah 40:22
7	a) Extremely high value (of the order 10^{12}) of the ratio *r* of the Hubble age of the Universe and the 7 divine days of Genesis; b1) The extremely large value (of approx. 6.10^{30} J, hence a billion times the our World energy production predicted for 2060!) of the energy which has to be trans-mitted to a man, to be brought to the speed of the above ratio *r*; b2) The unimaginable difficulties to maintain the life of a man after the transfer of a energy equal to 10^{12} his rest-energy	The World of the Universe designer is moving with (almost) the light speed relative to us, hence "He lives in unapproachable light, whom no one has seen or can see" (1 Timothy 6:16)	1 Ti-mothy 6:16

8	(i) The duration in different reference systems are very much different (according to the relativity theory); (ii) for any reference system, the rest duration is considerably less than the duration in the reference systems with very fast motion ($v \approx< c$): symmetry at inversion of the reference systems	a) For a thousand years in your sight are like a day that has just gone by, or like a watch in the night; b) With the Lord a day is like a thousand years and a thousand years are like a day.	a) Verse 4 of Psalm 90 b) 2 Peter 3:8
9	The remarkable homogeneity of the electromagnetic (background) radiation, found experimentally	It proves the Universe expansion from a unique point (the cosmic singularity)	Hebrews 11:3
10	The experimental registrations of the Cosmic Background (radiation) Explorer (COBE) satellite, at time 100,000 years after Big Bang	a) The light appearance, and: b) the light separation from darkness	Genesis 1:3 and Genesis 1:4
11	Both theoretical (Standard Model) and experimental results pointing out the separation of the agglomerations of galaxies, and of themselves galaxies	The stars appearance ("lights in the expanse of the sky" (Genesis 1:14), after the appearance of the light (Genesis 1:3)	Genesis 1:14
12	Both theoretical and experimental results concerning the atoms condensation after the galaxies separation, with the stars appearance	The stars appearance ("lights in the expanse of the sky" (Genesis 1:14), after the appearance of the light (Genesis 1:3)	Genesis 1:14
13	The Genesis constraints ("intelligent design") allow the life existence on Earth	The appearance of the plants, of the Sea living beings, of the Earth ones, and finally of the man	Genesis 1: 11; 12, 20-22, and 24-28
14	Both theoretical and experimental results concerning the dependence of the light rays directions on gravitation	The designer (God) uses the light as a tool: "Every good and perfect gift is from above, coming down from the Father of the heavenly lights" (James 1:17)	James 1:17
15	At the "Big Bang" beginning, the dimensions (mass, energy, etc) of our Universe were unimaginably small (e.g. the "Planck radius": $r_P \approx 1.6 \cdot 10^{-35}$ m!)	Our Universe appeared through a controlled "injection" of time, space and energy [32]: "What is seen was not made out of what was visible" (Hebrews 11:3)	Hebrews 11:3
16	Unique non-trivial solution (N=153) of the equation in integers $N = \sum_{i=1}^{m} i = \sum_{i=1}^{p} i!$	Explains the strange number from John 21:11 "It was full of large fish, 153, but even with so many the met was not torn"	John 21:11
17	Unique non-trivial solution (N=276) of the equation in integers $N = \sum_{i=1}^{m} i = \sum_{i=1}^{p} i^5$	Explains the strange number from Acts 27:37 "Altogether there were 276 of us on board"	Acts 27:37
18	To fulfill the equality $N = \sum_{i=1}^{m} i$, the integer number N has to be equal to $2n^2 \pm n$ (n = integer)	The sign "-" corresponds to happy Biblical numbers, while "+" corresponds to ill-fated such numbers, as $666 = 2 \cdot 18^2 + 18$: "the number of the beast is 666" (Rev. 13:18)	Revelation 13:18

12. Conclusions

The accomplished study pointed out the:

a) theoretical and experimental incompleteness (inclusively of the mathematical and logical formalisms) of the models of the Universe evolution, strengthening an old tendency of the humankind to search also some inductive (deistic) models of the life evolution,

b) the entanglement of the main actual Physics theories, those of the Quantum Physics, and of the Einstein's gravitation theory, respectively, as well as some possible implications concerning the structure of the Universe space-time frame,

c) a considerable number of unexpected convergence of the some deductive models of the Universe evolution and of the predictions of the main inductive (inspired) corresponding model: the Bible.

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