

EVOLUTION OF COSMOS AND LIFE ON EARTH

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ABSTRACT

This work is a development of the kinetic theory of order in Cosmos- (KTOC) [10-13]. The KTOC is a complex work that I submit as a new comprehensive 21st century paradigm of the 4D space/time/matter Cosmos. The negative entropy concept of Erwin Schrodinger is the foundation upon which the KTOC is built.

The final goal of the KTOC is establishing congruence between the creation and evolution of inanimate 4D Cosmos, birth of life on Earth and conjunctive though independent advent of conscious Man. The KTOC submits that all three are stages teleologically predetermined at the Big Bang and inevitably arising subsequent to the 4D arrow of space/time.

Achieving this goal will surely take more than this manuscript and many more multidisciplinary scientists hopefully joining this preliminary modest effort.

The KTOC spans the whole 4D space/time Cosmos from the creation of 3D space in Big Bang, the KTOC post BB space inflation culminating in the birth of nonzero rest mass baryon/lepton matter and thus the 4D space/time/matter Cosmos. The KTOC follows the coherent evolution of baryon/lepton matter from the birth all the way up in coherent complexity to conscious life on Earth and probably elsewhere. This coherent evolution is continuous causing sudden breaks of orderly forms in explosions of chaos and advent of more complex coherent forms in their place. This revolutionary evolution will go on for trillions of years till the end of the finite lifespan 4D space/time/matter observable Cosmos and beyond in infinite cycles.

Therefore the KTOC quantitatively corroborates the puzzling "Cycles of Time" concept of Sir. Roger Penrose. The corroboration follows rigorously from the hidden selfsimilarity of the Einstein gravitational field equations (EGE) with the cosmological constant $\Lambda = \text{const} > 0$ interpreted as the active source of negative entropy 4D momentum creating the selfsimilar 4D space/time/matter Cosmos cycles. This axiomatic interpretation is a bridge explicitly uniting the EGE with quantum mechanics.

Subsequent to this unification the KTOC gains puzzling quantitative capabilities, e.g., elucidating the origin of dark matter and dark energy enigmas, discovering the true origin of the rest mass of quarks triplets, nucleons, electrons and thus the nature of controversial concept of mass in general. Subsequently the KTOC enables calculating the respective rest mass of these building blocks of matter in the noncontroversial manner with over $\leq 1\%$ accuracy compared with their empirical values. On another cosmological front the KTOC calculates the local Hubble constant in spectacular agreement with the most precise direct measurements and most probably puts to rest the raging controversy surrounding the local Hubble constant value. The KTOC furnishes the precise proton charge radius resolving the "proton charge puzzle", calculates the strong interaction force, calculates the Higgs boson rest mass and the Higgs field 4D ground state momentum and resolves many other "mysterious" phenomena in Cosmos.

The KTOC success is rooted in uniting the EGE and quantum mechanics into one coherent two components body bridged by the existence of the negative entropy source of the 4D space/time/matter creation. The united theory shows incontrovertibly that all three types of matter Cosmos,

baryon/lepton/ dark matter/dark energy and all four fundamental interactions in 4D Cosmos are reduced to the quantum/gravitational attributes of the 4D space/time itself.

Subsequently the KTOC quantitative results are all the combinations of the irreducible quartet (G, c, \hbar, Λ), their two dimensionless combinations and two other dimensionless constants, the numbers identified and proved time invariant by analyzing the contemporary astronomical data on the relative abundance of what is called visible matter, dark matter and dark energy.

The KTOC determines the primeval cause of coherent evolution of matter complexity in Cosmos and on Earth and shows that this evolution is teleologically inevitable. The subsequent KTOC crowning achievement is determination of the precise complexity threshold such that when passed by the union of most elemental inanimate building blocks of all matter, the quark triplets, nucleons and electrons, suddenly awakes as the most elemental one cell life. This paves way to the scientific definition of consciousness of Man and preliminary conjectures are advanced to this end [13].

In all of the above the KTOC is in a truly extraordinary agreement with a great wealth of available and diversified experimental and astronomical data. Therefore I submit the KTOC as a paradigm at once complementary to and far in advance of the contemporary paradigms of theoretical physics, cosmology and evolutionary theories.

MEDIUM FOR PROPAGATION OF ELECTROMAGNETIC WAVES AND TRANSMISSION GRAVITATION

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ABSTRACT

Analysing the shear wave propagation in solid bodies and propagation peculiarities of electromagnetic waves in the matter one can find that these processes are very similar. The mathematical description and practical observations of the following phenomena are also similar for the two types of waves, - electromagnetic and shear acoustic in anisotropic heterogeneous media in which the waves propagate: a birefringence phenomenon for electromagnetic and a similar phenomenon for acoustic waves; pleochroism phenomena for electromagnetic and linear acoustic anisotropic absorption for acoustic waves, etc. From these phenomena one can conclude that the visible space, where electromagnetic waves propagate, is filled with a specific medium. This is an ethereal medium. The ethereal medium has a certain electromagnetic density and elasticity. Establishing a gradient of the ether elastic pressure by a physical body in the vicinity of another physical body that creates a gradient of the ether elastic pressure in the vicinity of the first one, results in the rise of a force making these bodies approach each other. That is the reason for gravitation.