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Unified cosmology as the orientation theories

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Abstract
In the recent times, a discovery has been published just previously (Referenced in the respective section) abbreviated as the "Unified Cosmology as the Force Component Theories" that contained two fundamentally original theories entitled as "Dev Arastu's Force Component Theory" and another with its perturbative sort of distinction entitled as the "Dev Arastu's Alter-Force Component Theory"; dealing with an initial step towards the vision of Albert Einstein in order to Unify all the fundamental forces of nature and substantially concluded multiple possibilities. Now, this discovery is a further step towards the same approach of "Unified Cosmology" which has its own postulates and conclusions that will develop a bit extended foresight regarding the contribution of the idea to Unify General Theory of Relativity with Quantum Physics towards a distinctively native Unified Theory in the virtue of space-time fabric or will also determine certain peculiar facet to the Unified Field Theory despite of the fact that merely unifying them isn't the Einstein's completion of dream towards the unification. This work as "Unified Cosmology as the Orientation Theories" is also the same part of its complete version i.e. "Unified Cosmology" that got its Intellectual Property approval in February-2021. Here is iteratively an extracted version of that entire discovery is brought up to take a leap forward.

Keywords: Einstein's General Theory of Relativity, Quantum Physics, String Theory, Unified Field Theory, Quantum Gravity

Introduction

Considering the discussion regarding the "Unified Field Theory", then how can't be there a name of One of the Pioneers of Theoretical Physics and in some-sense the father of Quantum Field Theories; P.A.M. Dirac who around the year 1928 came up with an incredibly elegant mathematical framework which made out the yield of the unification of Einstein's Special Theory of Relativity & Quantum Physics that afterwards laid the foundations for the Relativistic Quantum Mechanics and also determined the existence of antimatter somehow and somewhat contributed a diversification of the theorization of "Particles' Spin". Its best known as the "Dirac Equation" which mathematically expressed as below:-

$$\left(\beta mc^2 + c\sum_{n=1}^{3}\alpha_n p_n\right)\psi(x,t) = i\hbar\frac{\partial\psi(x,t)}{\partial t}$$

Where;

1. m **:** Rest Mass
2. c **:** Speed of Light
3. p**:** Analogues to the Momentum Operator
4. $\psi(x,t)$: Wave-function as the space-time (x,t) coordinates for the electron of m**.**
5. α_n & β**:** Both are Hermitian and anti-commutative as discrete components.
6. $\hbar$**:** Reduced Planck Constant.
7. i: Imaginary Number.

As its already known that it's not yet possible to unify Quantum Physics & General Relativity and one of the primordial reasoning behind this is that both differs in defining the nature of space-time so if we can somehow connect a link between both the pillars of sciences then we must be having at least a visionary and productive inclination taking the quest of understanding on a higher dimension and we may figure out a path to walk on and have another prerequisites as the need to give ultimate touch to the "Unified Field Theory" although the mere coalition of General Relativity and Quantum Physics can't be the theory of Unification but it must produce something that may lead us forward not only in the picture of synthesizing reality but also to a order of some broad integration.

The Dirac Equation, when comes in the manifestation of space-time; there is a notion of Spinors concerning with the non-generalized conceptualization of the Orientation with a distinction of complex and real variant spaces respectively. Although, the orientation with some sort of 2-dimensional implication is relative to the spin due to its geometrical interpretation of clockwise or counterclockwise respectively. Oriented Mathematical exemplification of the Dirac's Equation as space-time is determined below.

$$(i\hbar\gamma^\mu\partial_\mu - mc)\psi = 0$$

Where;

8. γ^μ**:** Pauli Matrices.
9. ∂_μ**:** Derivative in 4-dimensions inclusive to the Einstein's Summation Notation.

However, over the covariance to the mathematical structure of space-time; the concept of orientation is generalized up to n-dimensions and are topologically makes sense on manifolds, even if they're restricted to a certain domain, then also spaces can vary smoothly due to the notion of orientability somehow.
So now, the description have systematically came up to the point where something is still there which is again identical to the "Quantum Physics and General Relativity" at a deeply rooted mathematical connection so then there can be a question here that if there is a deep mathematical relation between them then why the universal understanding isn't at the level to have the unification of Quantum & Large scaled realms respectively? So here's the motive of this paper comes to the account as a brief answer to this question that certain peculiarities of mathematics behind General Relativity deals with the generalizations of those identical frameworks which are quite specific or restricted domains into the Quantum regime, as an example; even it reflects with the most intrinsic explanation that Sir Dirac managed to integrate Quantum Realm with Special Relativity and observing from a distinctive view-point, it can be immediately realized that Special Relativity only works to special frames which are historically known and therefore the Great Einstein had to develop the Theory of Warps and Curves on the fabric of space-time.
Hereby, after coming so far in the understanding of everything up to now, there the understanding stretches out a bit and theorize that –

> "The Generalized conceptualization of Orientation to the theorization of the quest of Quantum Gravity or the Unified Field Theory in a peculiar regime which connects General Relativity and Quantum Physics in one more way to identically and elegantly deal within an specific terminology which mathematically determines intrinsic concerning over the space-time fabric and the entire 'Orientation' is responsible for every phenomena over or to the fabric of space-time or everything regarding the deepest nature of reality, even up to the higher dimensions (Relative to the String Theory)".

Below is the original Mathematical Framework that yields the Generalization of Orientation in such a way that it replicates & implies with no restricted domains i.e. from the largest to incredibly finest or tiny structure of the Universe:-

"Dev Arastu's Orientation Theory"

$$(\alpha_c \wedge \beta_c)\left(\sum_{i\neq j}^{\square}\mu^i{}_j\right)^{-1}\int \frac{-d^4x}{exp\left(\sqrt{|g_{ij}|}/_{\varepsilon_{ijkl}\,d\tau^2}\right)} = \frac{1}{i!\,j!}\sum(-1)^{\sigma(c)}\alpha\left(\mu^i{}_{\sigma(j)}\right)\prod_1(z)\beta(\mathcal{M}_{\sigma(i+1)}$$

Where

1. g_{ij}: Metric Tensor
2. d^4x: Component of Einstein-Hilbert Action.
3. $\alpha, \beta, \gamma, i, j, k, l$: All set of permutations i.e., discrete indices components compiled as orientation form in the geometry of space-time (e.g. in General Relativity or Einstein- Hilbert Action or Gauge transformations).
4. $\prod_1(z)$: Energy interaction in 1-dimensional space.
5. $d\tau^2$: Peres Metric.
6. $E^{ijk\ell}$: Contravariant Levi-Civita Tensor w.r.t. Minkowski Space.
7. ε_{ijkl}: Invariant transformation of $E^{ijk\ell}$.
8. $dim|\mathcal{M}\rangle$: Generalized dimensional array as transitive relation over $\mathcal{M}$.
9. $(\alpha_c \wedge \beta_c)$: Component peculiarities of $\alpha \wedge \beta$.
10. $(\alpha \wedge \beta)$: Multi-linear vector space generalizes dual forms of relative orientations i.e. also exhibits/give rise to isomorphism.
11. γ_{ij}: γ as discrete w.r.t. i & j.
12. $\sigma(c)$: Generalized Invariant Component of volume-orientation.
13. $\sigma(i)$: Generalized Invariant Component of volume-orientation in terms of peculiar orientation indices i.e. "i," in this case.
14. μ : Generalization of metric over orientation.
15. μ_{ij}: Metric over orientation of peculiar indices.
16. $\hat{e}^{\,i_1 \otimes \ldots\ldots i_k}$: Distinctive volume-orientation element of peculiar over space-time.
17. β_ρ: Indices of β as invariant w.r.t. $\hat{e}^{\,i_1 \otimes \ldots\ldots i_k}$.

Also, an alternative mathematical framework to diversify the understanding much better i.e. similarly, like the perturbative form in the Quantum Field Theories; although this isn't the exact perturbative analysis to the previous one which is due to multiple factors e.g. both theoretical and mathematical distinctions are one of them containing everything though which are mathematically compiled below as :-

"Dev Arastu's Alter-Orientation Theory"

$$-\left(\sum_{i\neq j}^{\square}\sum_{\alpha,\beta}\mu^i{}_j\left(\left(\frac{\alpha_c \wedge \beta_c}{\phi_{ij}(t)}\right)exp\left(\sqrt{|g_{ij}|}/_{\varepsilon_{ijkl}\,d\tau^2}\right)\right)\right)^{-1} = \frac{\phi_o(t)}{i!\,j!}\sum_{\mu^i{}_j}\sum(-1)^{\sigma(c)}\alpha\left(\mu^i{}_{\sigma(j)}\right)\prod_1(z)\beta(\mathcal{M}_{\sigma(i}$$

Where;

18. $\phi_{ij}(t)$: Compilation with indices of all other properties which have been diluted to the mathematics in Alteration of Field Equations.
19. $\phi_o(t)$: Same as $\phi_{ij}(t)$ where indices tend to zero.

Note :- Here, in these papers; merely some of the fundamental abstracts or a mathematical framework has been shown with a brief introduction because in an entire outlook; "Unified Cosmology" is quite a long framework which is in the original papers that has been approved/registered as the Intellectual Property in the WIPO (UNO) via DIPP (Govt. of India).

Conclusion

Although, considering the above theoretical & mathematical framework, i.e. into the regime of "Unified Cosmology as the

Orientation Theories"; multiple aspects seems to be reflecting out up to certainly evolving original conformities but all of them are little extensive and hence will prolong the theory but a few are relative to the discrete transformations of distinctively antediluvian facets to the Universe. Thus, certain peculiar goes like this; so regardless to the mere spin, the entire orientation of particles plays the vital role in order to determine the distinctive reality of nature at the deepest quest of understating and this conceptualization drives the identification of supersymmetry clearer on a much higher degree of precision both as the subatomic realm & up to the topological frames which both in the combination yields the aftermath with a prediction of much ideology behind Graviton playing its substantially resolved role in the Quantum Gravity. Also, it will somehow play a paramount role to define the notion of Quantum Entanglement in a much satisfactory mathematical regime that vindicates the capitulation to the proportion of both realism & determinism into it that will support the Einstein's persuasion regarding the universe. Apart from all these foundational predictions and theoretical or mathematical functionalities; it will also stimulate the supersede to multiple other conceptualizations in the account of expressing the primordial universe & one of them can be the interactive mirror images on the fabric of space-time at the quantum scaled phenomena e.g. Graviton & so on with a possible integration up to the large scale Universe.

References

1. Einstein A. On the Electrodynamics of Moving Bodies, Annalen der Physik, 1905, 891–921.
2. Einstein A, Kaufman B. A new form of the General Relativistic Field Equations, Annals of Mathematics, 1955:62:128-138.
3. Dirac PAM. The Quantum Theory of the Electron, Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 1928, 610-624.
4. Panchariya DA. Unified Cosmology as the Force Component Theories, Int. J. of Physics and Applications, 2021, 01-03.
5. Panchariya DA. Dev Arastu's Unified Cosmology, WIPO (DIPP, GOI),2021:175/2021-CO/L.