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Research Article

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PARTIAL [$\mathcal{L}$(/)i] DIVIDED TO NEARLY ZERO RENORMALIZATION CONCEPT IN APPLYING TO THE ASTROPHYSICS

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ABSTRACT

Renormalization is a fundamental concept in quantum field theory used to systematically remove infinities that arise in the calculation of physical quantities, thereby enabling the derivation of finite quantities that can be derived physically meaningful results from initially divergent expressions. However, applying renormalization techniques to cosmological models, particularly those describing an infinite or unbounded universe, will presents significant conceptual and mathematical challenges.This research paper proposes a novel approach involving a multidimensional partitioning of the universe into discrete hierarchical layers, utilizing tensor calculus and differential geometry to manage the complexity of the spacetime manifold. By employing covariant derivatives within this layered framework, the model aims to reconcile the assumption of an expanding universeconsistent with solutions to Einstein's field equations in General Relativityand achieve a form of successful renormalization. This process seeks to stabilize quantum fields embedded in a dynamic, expanding spacetime context.Furthermore, this research study introduces a segmentation of the universe along designated directions of scalar energy flux, including axial orientations corresponding to a hypothetical super-pole magnetic system. This super-pole system is hypothesized to act as an anchoring mechanism that maintains the structural integrity of the universe during cosmological expansion. The layered division, combined with directional derivatives aligned with energy flux vectors such as north, east, south, and west poles, provides a practical framework for applying renormalization procedures within a curved, expanding spacetime manifold.By integrating these multi-layered spatial divisions with tensorial derivatives, we aim to develop a divided first- and renormalization scheme compatible with the cosmological expansion paradigm, ultimately contributing to the formulation of a more stable quantum field theory that can be embedded within a stationary or quasi-stationary gravitational field. This approach could potentially bridge quantum field theory and cosmological models, advancing our understanding of the underlying structure of the universe.

Keywords: Renormalization, Stationary Field, Cosmological Expansion Paradigm, Quasi-Stationary Gravitational field.

INTRODUCTION

The renormalization approach has limitations and may not be suitable for few famous physics theories. It may not explain multi-dimensions and multi-universes as well. Feynman rules [1] provide a helpful alternative for direct reflection. In this context, a divided readjustment approach may be more applicable than sole renormalization approach. They exhibit inherent limitations, particularly when confronted with the prospect of a multiverse assumption. It is imperative to acknowledge that every theory, irrespective of its credibility, possesses the limitation for testable implications. Unfortunately, the current renormalization theory has limitations, failing to derive an unlimited array of potentialities.

Divided-first-then-Renormalized Approach

By way of spacetime corresponds to energy, and energy is in units, so it is divisible and can be divided,so we advocate that the divided-first-then-renormalized approach (dividing the line into point concepts and integrating points into the line) is more applicable than simply applying renormalization to the field theory. This is because we can first divide the universe into different layers. In each scalar direction, we can further divide it into sections: north, east, south, and west. This can be seen as a super pole magnet system within the entire universe's energy system. Using the derivative method, we can develop an approach that aligns with the assumption of the universe's accelerating expansion. This segment can be better interpreted as a spacetime concept, and within it, we can divide the line into points, then integrate them together. This may allow us to renormalize in a way that represents a more steady-state condition in an inert field.

Let: [$\mathcal{L}$(/) i],

Become: Partial [$\mathcal{L}$(/) i]

Then, applying Lagrangian $\mathcal{L}$, into $\mathcal{L}$ .i.e., which i.e. refer to imaginative spacetime exponential (Suppose the universe is accelerating in expansion). The divided-first-then-renormalize procedure formalizes as a two-stage operator sequence on a field theory, Lagrangian $\mathcal{L}$: first apply spatial division $\mathcal{D}$, then renormalization $\mathcal{R}$, yielding $\mathcal{RD}[\mathcal{L}.i.e]$ over direct $\mathcal{R}[\mathcal{L}.i.e]$.

In Division Stage $\mathcal{D}$: Partition the universe manifold M into hierarchical layers L_k & scalar sections S_{ij} (e.g., north-east-south-west), using divided line ratios. For a line segment along scalar direction $s \in [0, S]$, division points p_i satisfy $p_i = \frac{m_i s_A + n_i s_B}{m_i + n_i}$, with layers as $L.i.e_k = \bigcup_i S_{kij}$ .So, Derivative Coupling will become: Compute directional derivatives $\partial_s \rho$ across sections to encode expansion, forming super-pole magnet fields $\mathbf{B}_k = \lambda \nabla \times (\partial_s \mathbf{A})$, where $\mathbf{A}$ is vector potential.

So, in simplify:

$$\frac{dP}{dr_i} = -\frac{GM_i p_i}{r_i^2}$$

Triangular-multidimensional approach

This research paper also suggests using a triangular-multidimensional approach to divide the universe into layers and energy scalar directions for practical renormalization of the field theory. By aligning with the assumption of the universe's expansion, successful renormalization and the establishment of a more stable condition within an exponentially expanding stationary field can be achieved. This can benefit in a way that makes a switching in the field concept assumption become possible.

Assume the square of the universe is a triangular dimension in 3dimension cone= $1/3\pi r^2 h$,

Let∄, $\sqrt[3]{\ }$ root-triangular identity in energy conservative assumption of the universe expand in energy:

$$\sqrt[3]{\{\sin\alpha \pm \sin\beta = 2\sin\frac{1}{2}(\alpha \pm \beta)\cos\frac{1}{2}(\alpha \mp \beta)\}}$$

The above partial approach will divide the triangular into line

Then, the divide to nearly zero (+) approaches will make the line becoming a dot (strings). This partial triangular approach then renormalized, will make the strings side link up to any possible scalar lines field.The line dot approach especially allows the base side to be renormalized in any possible link-up, such as triangular sin linking up to rectangular form or sphere format.$v = 4/3\pi r^3$.

$$\sqrt[3+1]{\ }\ \cos\alpha + \cos\beta = 2\cos\frac{1}{2}(\alpha + \beta)\cos\frac{1}{2}(\alpha - \beta)$$

Actually, in the sphere cone side of the universe, when expanding in a big band, it will form a likewise sphere cone shape$V = 1/3\pi r^2 h$, similarly equal to triangular, so this may be a good fit in the sin, cos formula into the concept of identity equal assumption, which mean in line up process, first partial then divide to nearly zero approaches will be suitable for renormalization. We modify the renormalization concept in the assumption that matching up with any possibility will be much more suitable for the issue of Minkins's space and many universe theories in different domain dimensions.

This research paper proposes using a triangular-multidimensional approach to stratify the universe for practical renormalization of the field theory. In simple terms, changes in charge lead to changes in the field. Field theory is typically derived from alterations in thea_n magnetic and $b_n$electric fields. Transformation:

$$T = a_0 + \sum_{n=1}^{\infty}\left([a_n \cos\frac{n\pi[Xy]}{L} + b_n \sin\frac{n\pi[Xx]}{L}]\right)$$

In Yeng's Field Theory [2], we utilize and integrates U1, U2, and U3 [3]with new U4 as an transformation into the super electromagnetic field, with these new equation, highlighting a sequential process in which the field originates from magnetic attraction interaction (U1), undergoes a transformation from a magnetic field to a weak electrical interaction (U2), and transitions into a substantial electrical interaction (U3). These modern assumptions all require the presence of "charge" to develop. So, the divided adjustment renormalization approach is similar to the disintegration of the derivative integration. That allows the field of the wall to loop. As this research paper suggested.

As our research paper suggests, string theory on the field side can be applied to our study of the concept of divided adjustment in renormalization. When matter is renormalized, it may form a loop field. Therefore, our divided first and renormalization approach in quantum field theory can expand the limits of matter derivation with certain restrictions, specifically an approach that is limited as an infinity-limited approach, "Having no limitation as limitation." We reconfigure particle association and fix size freedom at a steady-state level. With parameters in the Lagrangian, such as position coupling constants known as "bare" parameters, which may not be directly measured but are assumed. So, this research paper suggested a divided piece of curvature concept in the energy system, forming a zero-to-sum concept of energy conservative in different layers in consideration. In our relaxation of renormalization approach, that means the field of the wall can be captured in the loop formation, which allows the infinity possible to happen. Which allow possible loop formation in exponential spaceextension:

$$e^x = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \cdots, -\infty < x < \infty$$

The physical equivalents are obtained through researches in an interaction process. When calculating the physical system of position, if we apply the relaxation into the cutting piece of energy moment integrals to a specific movement level in the derivative parallel of assumption, then the limit will go beyond infinity allowing unlimited of finite; this process will deregulation part of the renormalization. Make it more feasible to apply to the muti-universe concept. Our research paper concept idea will be more applicable in the values in position for the Lagrangian assumption, such as mass (m) and coupling constant (λ), which this new concept of idea can have more physical significance in the field termed essential.

In this research paper, we also contemporaneous a modified approach to the theory of Renormalization by incorporating the extra derivative in the exponential expansion assumption. In R^3 state modification. This modification is essential, as renormalization is only practical within the framework of the extra derivative exponential expansion. Our proposal suggests an accelerated expansion process, indicating the potential for achieving an infinite series in terms of perturbative expansion.

In the realm of Riemannian geometry, the universe is envisioned as a multi-dimensional space with potential curvature, evoking a triangular relationship. Amidst the expansion of space-time, this triangular function signifies a derivative. Detecting an echo in space denotes a closed space curve, and a non-reversing proton wave indicates the universe's expansion, resulting in the acceleration of red gravitational shift.In the domain of Riemannian geometry, the universe is conceptualized as a multidimensional space with potential curvature, thereby giving rise to a discernible triangular relationship. This triangular function consistently represents the derivative of space-time expansion. The detection of an echo within space alludes to a closed space curve, while the absence of wave proton reversal serves as an indicator of the universe's expansion and consequential acceleration of red gravitational shift. But in the case of the loop's idea of the field universe, it may imply there may be a multi-loop field in the universe. When focusing on Riemannian manifolds, we use differential geometry to resolve complex dimensions of curvature problems. Riemannian manifolds assume these manifolds are smooth manifolds that have a Riemannian metric, which is an inner product on the tangent space at each point and varies smoothly from point to point. This allows for the local measurement of angles, lengths of curves, surface area, and volume. By integrating local contributions, global quantities can be derived. Riemannian geometry represents a broad & conjectural generalization of differential geometry of surfaces in R^3. Its allow to the synthesis of various outcomes the behavior of geodesics on them, with techniques applicable to the study of differentiable manifolds of higher dimensions.

Integration pt into line& line into dimension:

In utilizing our divided renormalization concept and the pt, line integration approach, we can change the topology of a sphere into a rectangular shape with dimensions, under the condition that we can further develop an extra dimension, space within space, during the space-to-space transition.

New Operator renormalization equation (L.i.e. place transformation):

$$\mathcal{D}[\mathcal{L}] = \sum_{k=1}^{K} \int_{L_k} \mathcal{L}_k \, dV_k, \quad \mathcal{L}_k(s) = \rho_k(s) \exp\left(-\lambda \frac{\dot{a}}{a} \Delta s^{ij}\right)$$

So, by applying our new divided renormalization (pt to line) framework combined with the point-line integration methodology, we are able to fundamentally alter the topology of a spherical manifold, transforming it into a rectangular (or cuboid) topology with specified dimensions. This process relies on the assumption that an additional spatial dimension can be introduced, effectively creating a 'space within space' during the transition from the original space to the transformed topology. Such a transformation involves topological manipulations and the introduction of higher-dimensional constructs, which can be described using advanced concepts in differential topology and higher-dimensional geometry.

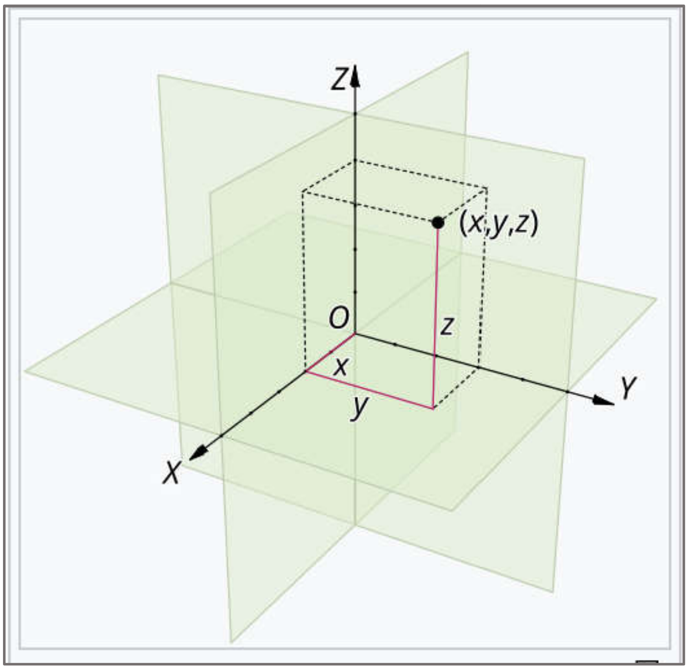

Figure 1: Space within space (Cc: Pic from wiki)

The Euclidean space is the foundational space in geometry, designed to represent physical space. Originally, Euclidean space referred to the three-dimensional space of Euclidean geometry as presented in Euclid's Elements. In a modern way, Euclidean spaces can be exist in any positive integer dimension n, known as Euclidean n-spaces when specifying their dimension. For n equal to one or two, they are commonly referred to as Euclidean lines and Euclidean planes, respectively. The term "Euclidean" is used to differentiate Euclidean spaces from other spaces later considered in physics and modern ways of concept.The deregulation of part of relaxation can help modify the dimension approach by division of domain as a state. These differentiable manifolds can allow us to search for higher dimensions of the field that can fit into the curvature in the loop Gravity. This loop field will play a crucial role in formulating Einstein's general theory of relativity, impacting group theory, representation theory, and analysis, and contributing to the development of algebraic and differential topology.

When in the field of differential geometry, a metric tensor or simply a metric is an extra structure on a manifold M (such as a surface) that grants for the definition of distances and angles, much like how the inner product on a Euclidean space allows for the definition of distances and angles. To be more precise, a metric tensor at a pt p of M is a twin form defined on the tangent space at p, which means it maps pairs of tangent vectors to real numbers. A metric field on M consists of a metric-tensor at respectively pt p of M that varies smoothly with p.

Metric tensor g is positive-definite if g(v1, v2) > 0 for every non-zero vector v. This property characterizes a manifold as a Riemannian manifold, defining infinitesimal distance. On a Riemannian manifold, the length of a smooth curve between two pts, p & q, can be expressed through integration, and the distance between p & q is the infinity of the lengths of all such curves. The metric tensor represents derivative of distance function. The metric tensor in a coordinate basis is a covariant symmetric tensor represented by a symmetric matrix. It is defined as a non-degenerate symmetric bilinear form on each tangent space, varying smoothly from pt to pt.That means when dealing with the relaxation in the renormalization, in applying to Riemannian geometry, we can distribute with varying metric properties, including non-Euclidean geometry. By solving problems in differential topology and serves with a foundation for pseudo-Riemannian manifolds in Finsler geometry. So, this analogy between this geometry and the way structure of defects in de-regular crystals can result in explaining the sequencesof replacement and curvature during the relaxation process. Which may unlock the potential by L.i.e. transformation.

The most main theorems in Riemannian geometry include the Gauss-Bonnet Theorem, which relates the integral of the Gauss curvature on a 2-dimensional Riemannian manifold to the Euler characteristic of the manifold, and the Nash Embedding Theorems, which municipal that every Riemannian manifold can be isometrically implanted in a Euclidean space. These theorems provide an essential view into the global structure of the space based on its local behavior. But in this research paper, we suggested a relaxation approach that can connect to the link between the string theory and the loop field theory. By our divided first and integrated approach.

By compactifying extra dimensions into a Riemannian manifold, that larger equals 2πχ(M) represents the Euler characteristic of M, χ(M^2) represents the Euler characteristic of M. This idea has a relaxation of generalization to any compact even-dimensional Riemannian manifold known as the relaxation to generalized. In connecting to the different strings domains in the Riemannian manifold, we can derive muti-isometrically, which are linked into a Euclidean space R_{n+1} that allows Geometry in Large (infinite).

Our new concept of idea can derive loops field information about the global structure of space based on muti loops field behaviors, usually using loops field curvature as an assumption. This includes multi-information on the loops topological type of the manifold or the behavior of points at "sufficiently large" distances."

CONCLUSION

This research paper introduces precise control assumptions for the physical positioning and coupling mechanisms within specific interaction processes by selectively relaxing certain aspects of the quantum state via a partial [$\mathcal{L}$(/) i]division method, thereby diverging from raw quantitative measurements. We demonstrate the second assumption of de-regularization, by constraining the parameter space of divergent momentum integrals using a divided parameter state and analyzing the asymptotic behavior as the state approaches infinity. Furthermore, we refine the renormalization procedure to systematically address the infinities and divergences pervasive in quantum field theory by incorporating entanglement in pt, line, and dimension renormalization, denoted as R (L.i.e.,). Spacetime renormalization, which functions as a natural regulator within this framework. This methodological advancement opens new avenues for probing the fundamental structure of spacetime and quantum interactions, ultimately contributing to our collective understanding of the universe. Finally, we aim for this work to make a meaningful impact on scientific progress and societal advancement.

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