

Evolution and Structure of Elementary Physical Particles

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ABSTRACT

This paper is presented in two parts. The first part provides a glimpse of the long-awaited unified theory, which explains the parallel activation of different levels of the universe: intellectual (humans), psychological (animals), biological (vegetation), physical (matter), and cosmological (energies) levels, whereas in the conventional approach, the physical and cosmological levels are grouped into the same category. This paper explains the evolution and structure of elementary physical particles (EPPs) based on the evolution and structure of elementary biological particles (cells). The second part of the paper explains the structure and ingredients of the PPE, which are responsible for the creation of the following four fields, as suggested by the author: visibility, forcibility (magnetism), the fullness field, and the hollowness field. All these fields comprise different unknown cosmological substances. These cosmological fields are present in all physical entities and are responsible for all kinds of physical activations. Finally, the paper explains the evolution of electromagnetic waves, electromagnetic fields, gravitation, and repulsion (repulsive gravitation). The theory is consistent with all previously conducted experiments and systematically unfolds several mysteries, thereby demonstrating the validity of the proposed theory.

1. INTRODUCTION

Elementary physical particles (EPPs) are known as the fundamental building blocks of the physical universe. They cannot be subdivided into smaller and simpler particles [1] and presumably lack an internal structure, so they are conventionally regarded as zero-dimensional points that consume zero space [2]. The standard model recognizes several elementary particles, such as leptons and quarks. Modern science relies on the standard model, because many of its predictions have been verified using experimental data. The paper propounds that the above particles can be treated as the smallest known particles; even then, we cannot treat them as elementary particles, because the possibilities of divisibility of them cannot be denied. For example, it is found that an electron that is treated as an elementary particle can be fractionated further [3]. However, the standard model does not explain the underlying causes of gravitational force, elec-

tromagnetic waves, and mass. The present paper elucidates that EPPs are not point particles, but possess positive mass and an internal cosmological structure. The paper presents a modified model of EPP, with the placement of different energy fields therein, and the placement of energy fields is responsible for all physical properties. During the journey of evolving the structure of the EPPs, the paper automatically solves several quantum mysteries, including the unitarity of “four fundamental forces” and “string theory”.

1.1. Meaning of EPP

The EPP is the smallest possible building block of the physical world. An EPP possesses all physical properties, but its internal structure consists of cosmological substances rather than physical substances. An EPP can be explained analogously to a biological cell, which is the smallest coherent entity in the biological world. When a cell is broken, it no longer exists as a living organism, but its physical “life” is retained. Similarly, if a physical particle is broken (or fused), it can no longer exist as a physical entity, but its cosmological life (energy or raw material of the particle) will remain the same.

1.2. Contributions of the Present Article

- 1) A multi-disciplinary approach is proposed that unifies the different levels of the universe (Section 3.0).
- 2) A cosmological particle is clearly distinguished from a physical particle (Section 4.0).
- 3) The evolution of EPPs is discussed analogously to the evolution of elementary biological particles (cells) (Section 5.0).
- 4) An EPP is reinterpreted as an entity with distinct structural characteristics (four memory chests as well as four fields and its activations) (Section 6.0).
- 5) The evolutions of electromagnetic waves, gravitation, and other natural phenomena are reinterpreted as different interactions among these four fields (Section 8.0).
- 6) The paper uses unified logic, which automatically resolves several mysteries that are still unanswered.

1.3. Introduction of Unconventional Words

We have introduced some new words like visibility, forcibility, fullness, and hollowness. These words are being used for their cosmological purposes. Therefore, an adjective “cosmological” should be assumed while reading these words. For the purpose of this article, these words do not denote any physical quantity. If we add the related adjective before these words, we can use them for the purposes of other levels too, for example, biological visibility (sensing the diversity), psychological visibility (feeling the diversity), and intellectual visibility (understanding the diversity). The words “attraction” and “electromagnetic waves” are physical “acts”, using cosmological fields as their means. The word “chest” is being used as it stores, receives, and delivers the cosmological substances, creating energy fields. The “space fabric” is a systematically arranged cosmological phenomenon which is used to create physical space.

2. METHODOLOGY

This paper suggests that our universe operates on different world levels [4]. In order of low to high, these levels are the cosmological world (energy fields), the physical world (matter), the biological world (plants), the psychological world (animals), and the intellectual world (humans). Modern science collects the physical and cosmological worlds into the same paradigm. In the present paper, these two worlds are distinguished similarly to the distinction between animals (with psychological awareness) and plants (with biological activity). This paper suggests that nature behaves unitarily at all levels. Different levels follow different scientific laws, but these laws are enacted in parallel, meaning that a known logic at one level can be applied to other levels. Exploiting this fact, the present author explains the evolution and structure of EPPs based on the evolution and structure of elementary biological particles (cells). Once we derive the

evolution of EPPs, their internal structures can easily be explained on the basis of a biological cell. While developing the model, the author considered many ancient ideas and the symmetries observed in nature. Several symmetries are found in the physical, biological, psychological, and intellectual worlds and can be used for cross-checking the logic of the proposed structure. When we use the appropriate words, the words themselves explain the complete hypothesis. For example, when we use the words “fullness” and “hollowness”, the interaction between the two automatically explains the “flow”. The analysis automatically solves several unanswered mysteries, further proving the correctness of the proposed model.

3. UNITARITY IN A MULTILEVEL UNIVERSE

It has been stated that “*matter is ultimately composed of energy*” [1]*. In other words, physical matter is composed of systematically arranged energy fields [4]*. Similarly, a biological plant is composed of systematically arranged physical molecules, such as DNA. Continuing to the analogy, an animal (a psychological life) is composed of systematically arranged biological neurons [5], and a human (an intellectual life) is composed of systematically arranged psychological emotions [6]. All higher entities are composed of the symmetrically arranged substance of successive lower worlds as raw material. Similarly, all higher worlds use their successive lower world as an interaction tool. The physical entity interacts through cosmological substances, the biological entity interacts through physical matter, the psychological entity interacts through biological sensing, and the intellectual entity interacts through psychological emotions. The word “entity” applies to any level of the universe. Although the rules of different levels are enacted in parallel, they differ in context. For instance, mass is defined as a “quantum” at the cosmological level, “mass” at the physical level, “livingness” at the biological level, “sentiments” at the psychological level, and “knowledge” at the intellectual level. At all levels, an entity can gain mass by digesting the substances of lower-level worlds. For instance, a physical entity gains mass by accepting the energy fields of the cosmological world [7], and a biological entity gains livingness (mass) by digesting physical nutrition.

4. DIFFERENCE BETWEEN PHYSICAL AND COSMOLOGICAL ENTITIES

Modern science treats cosmological and physical entities within the same paradigm. This viewpoint has stymied our understanding of cosmology. The present author argues that physical entities are the fundamentals of biological entities but do not follow the laws of biological sciences. Similarly, cosmological entities are the fundamentals of physical entities but do not follow the laws of physical science.

1) The electromagnetic wave is a quantum mechanical photon-transfer process from one physical entity (the emitter) to another physical entity (the receiver). The transmitted photons are cosmological entities that cannot play the role of an emitter or a receiver.

2) Cain stated that a photon experiences neither distance nor time between emission and re-absorption [8]. In other words, cosmological substances cannot be described by physical parameters such as physical distance and physical time.

3) Quantum mechanics posits that a photon exhibits both particle-like and wavelike behavior (the so-called wave-particle duality), but both behaviors cannot be observed simultaneously. Moreover, owing to the wavelike behavior, particles such as photons can exist in infinitely many places at the same time [9]. Redshift refers to the wavelength stretching of photons emitted by a source moving relative to the observer. The parameters of physical particles, namely, shape, placement, motion, reference frames, and distances, clearly differ from those of photons, so photons cannot be treated as physical particles. The “uncertainty principle” does not remain “uncertain” when we consider a photon as a cosmological substance, not a physical substance.

4) Tanedo claimed that “*It's sufficient for a particle to have energy to have a meaningful sense of existence*” [10]. In other words, a physical particle must possess energy to prove its existence. However, physical particles and energy are distinct entities.

5) This paper propounds that both electromagnetic waves and gravitational pulls are executed by physical entities that interact through cosmological entities (energy fields).

6) A plant has biological life; however, its constituents are physical molecules with physical (not biological) lives. Similarly, the matter has physical life, but its constituents are cosmological energy fields with cosmological (not physical) lives.

7) Physical mass is a property of matter that creates gravity (bends spacetime) and resists changes in velocity (enacts inertia), whereas energy is the raw material for doing work.

8) The reference frame of a physical entity can be specified with spatial coordinates, but energies cannot be described by spatial coordinates.

9) A physical mass can increase by acquiring energy, as described by the mass-energy conversion equation [7]*. However, a photon cannot gain mass by acquiring another photon.

10) When discussing quantum entanglement, we found that if a pair of entangled particles has zero total spin, then the two particles have opposite spins on the same axis. If these particles are separated (even by a wide distance), the data added to one particle are automatically acquired by the second particle in zero physical time [11]. The author suggests that in such cases, the information does not travel through physical spacetime but exists in cosmological spacetime, where physical distance has no meaning.

Our knowledge of cosmology is very limited [12]. The above views have emerged through experiments conducted by different philosophers. Consolidating their views, we can easily infer that physical and cosmological entities occupy different levels of the universe. A similar hierarchical difference exists between biological and physical entities.

5. EVOLUTION OF EPP

The aforementioned discussion is a basis for explaining that the relationship between the physical and cosmological entities is parallel to the relationship between the biological and physical entities. We will use this logic to understand the evolution of EPP.

5.1. Evolution of the Universe

This paper suggests that the universe developed serially from lower to higher worlds. It is from cosmological to physical, to biological, to psychological, and finally to intellectual. The emergence of each level from its immediately lower level must be a parallel process. The origination process of the biological level from the physical level is well understood and easily extendible to the origination of EPPs (see [Figure 1](#) and [Figure 2](#)).

5.2. Origination of Biological Bodies (Known Facts)

1) Before biological entities evolved, the world was composed only of physical mass; biological mass, biological space, and biological time did not exist. Physical compositions include O_2 , CO_2 , C_xH_y , and a vast number of other known and unknown molecules (substances).

2) Nature increases its entropy through multiplication and diversification. These processes lead to various types of molecules, including the specific symmetric DNA molecule, which resides in the cell nucleus and encodes organisms' biological and genetic information. DNA is thus known as the biological seed.

3) Biological germination occurs when the biological life field enters the seed.

4) Germination converts the seed into a biological existence, the nascent form of a biological entity.

5) A biological existence gains biological livingness when it acquires protein (biological matter) and creates its own primary biological life (a cell). This origination of biological life is accompanied by the origination of biological space and time and is called an elementary biological particle.

6) Growth is governed by biological entropy; specifically, the cells multiply and create a biological body (a vegetative body).

7) In this way, biological life (biologically something) arises from physical substances (biologically nothing).

8) A biological cell is composed of two distinct parts: a nucleus [13] containing the genetic code and

the cell body [14], which is responsible for the shape and activity of the cell. The genetic code dictates how the nuclei replicate and create new cell bodies that eventually form the biological body.

9) The human biological body is composed of blood cells, bone cells, muscle cells, and many other types of cells. Each cell contains the same nucleus with the same genetic code and the same mapping of the body.

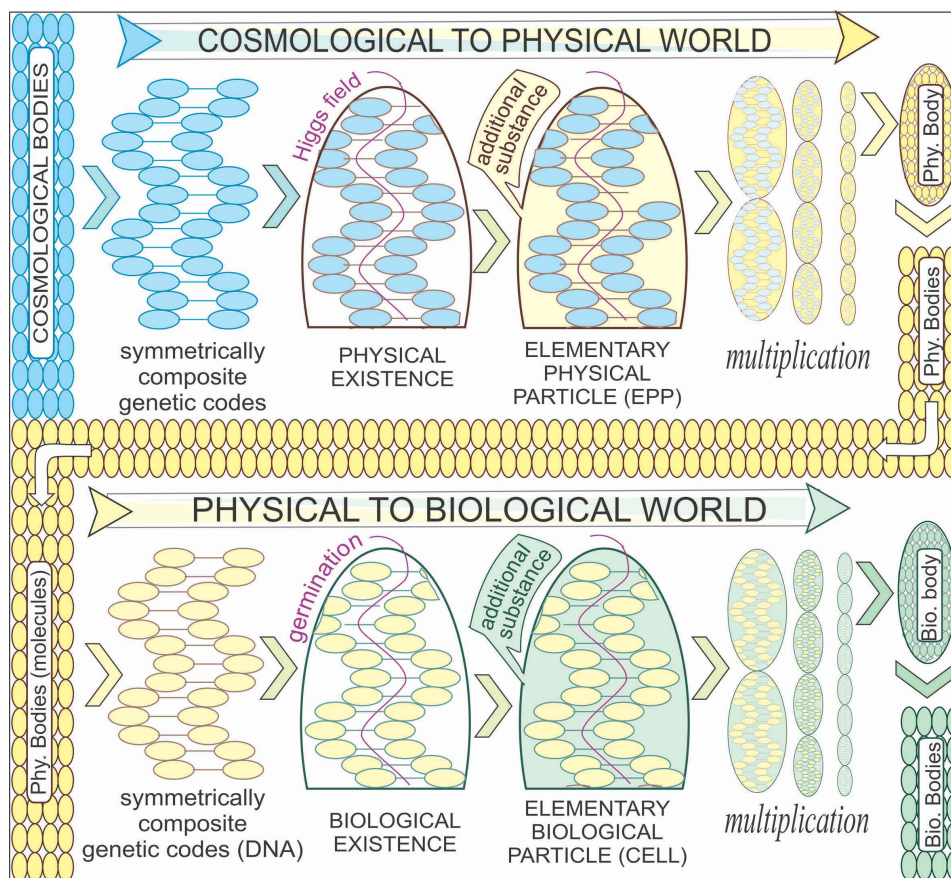


Figure 1. Evolution of elementary physical particle based on the evolution of elementary biological particle (cell).

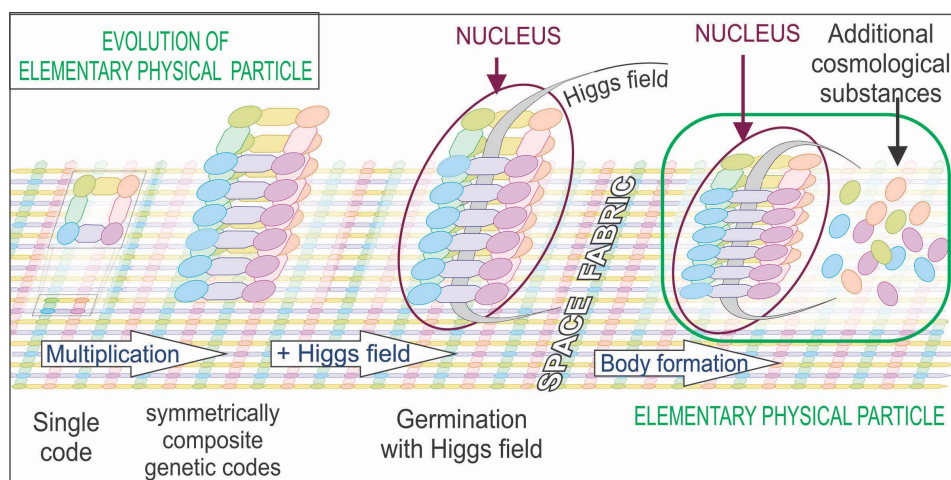


Figure 2. Evolution of elementary physical particles from the space fabric.

5.3. Origination of the Physical Body

We now change the above adjectives to describe the evolution of the physical body. All expressions are based on conceptual extrapolation and inference proof.

1) Initially, the world consisted of cosmological mass and was devoid of physical time, physical mass, physical space, and other physical properties. Cosmological compositions such as dark matter, dark energy, the cosmic microwave background (CMB), and photons were present.

2) Nature increases its entropy through multiplication and diversification. These processes lead to various types of energy fields, including a specific symmetric energy field (SSEF) that resides in the EPP nucleus and encodes the physical and genetic information of EPPs. The SSEF is thus called the physical seed.

3) Physical germination occurs when the Higgs life field enters the seed.

4) Germination converts the seed into physical existence, the nascent state of a physical entity. Physical existence has only inertial mass [15].

5) A physical existence acquires physical livingness by absorbing additional cosmological substances (physical matters) and creates its own physical entity called a PEE. Interaction with the Higgs field enlivens a self-operating EPP [16, 17] held together by binding energy [18, 19]. This origination of physical matter is accompanied by physical space, time [20], and gravitational mass.

6) Governed by physical entropy [21], PEEs multiply to create physical body organs, creating an alive physical body. For example, a proton comprises a swarm of quarks and gluons [22]. To enhance bodily mass, the “pair production phenomenon”, the mass can be gained by absorbing gamma rays equivalent to two photons made of an electron and a positron. This energy can be directly converted to mass by the mass-energy conversion law ($E = MC^2$) [23].

7) In this way, a physical life (physical something) is created from cosmological substances (physical nothingness).

8) As shown in **Figure 1**, a physical entity is composed of two main parts: a nucleus containing the entity’s genetic code and the body defining the shape and activity of the entity. The genetic code dictates how the nuclei replicate and create new entities that eventually form the physical body.

9) The above processes lead to physical bodies such as muons and electrons. For example, an electron is composed of many unknown primary physical particles, all different but having the same nucleus containing the same genetic code with the same mapping to the electron body.

As stated above, the origination of physical substances is inferred through parallel logic. However, the physical world is composed of entities from the cosmological world. When a physical particle originates or dies (nuclear fusion), the amount of cosmic matter does not change as dictated by the laws of conservation.

6. STRUCTURE OF ELEMENTARY PARTICLE

6.1. Elements of EPP

In the biological world, the elementary particle is a cell with a nucleus and cell body. Analogously, in the physical world, the elementary physical particle is an EPP with a nucleus and an EPP body.

1) Nucleus: An entity comprising several primary particles, whereas each primary particle consists of the same nucleus. The nucleus is the operator of the entity. It can be subdivided into two parts as follows:

a) The first part is a set of genetic codes disclosing the properties of the entity. The genetic codes of a biological entity are constructs of physical molecules (DNA); analogously, the genetic codes of an EEP are constructs of cosmological energy fields.

b) The second part concerns the structural phenomenon under which the genetic codes are arranged. This structural phenomenon is common to all entities of the same level and discloses the science behind the level. A biological entity has a four-based structure common to all biological cells, although differences among biological entities manifest through differences in genetic codes. We can imagine a similar four-chest structure with different physical genetic codes for physical entities. The structure or the physics

does not change from entity to entity, but the differences among physical entities manifest through differences in their genetic codes.

2) Cell body: The cell body of a biological entity is created by adding living substances or proteins, which are complex molecules of physical substances. The shape of the body is guided by the genetic code of the nucleus. For instance, blood and bone cells are formed differently, but their nuclei are identical. Analogously, an EPP body is created from complex cosmological substances, and the genetic code of its nucleus guides its creation. Different forms of physical entities have the same structure.

6.2. Four-Chest Structure of the Nucleus

The DNA of an elementary biological particle (cell) has four bases (adenine, guanine, cytosine, and thymine). Empedocles assumed instead that all matter consists of four essential elements: fire, air, water, and earth [24]. The philosophical system of Aristotle similarly maintains that these four elements constitute all prime matter and underlie the whole of physics [25]. The Indian philosophy recognizes air, fire, water, and earth plus another element, *Akasha*, as the primary constituents of matter [26]. One should consider the philosophical rather than the literal meanings of these words [27]. The author suggests that during the evolution of the physical world, nature arranges the cosmological substances in a systematic pattern and creates the space fabric [28] that facilitates the origination of EPPs. Therefore, the structure of EPPs must be the prototype of the space fabric. As the space fabric has four chests, the author suggests a four-chest genetic code. Such a four-chest structure can explain all possible activities of the entities at all levels of the universe. These four chests are operators of the entity, which are controlled by the consciousness.

7. INGREDIENTS OF STRUCTURE

The nucleus is structured from space fabric, four basic memory chests, and four basic energy fields, illustrated in **Figure 3**.

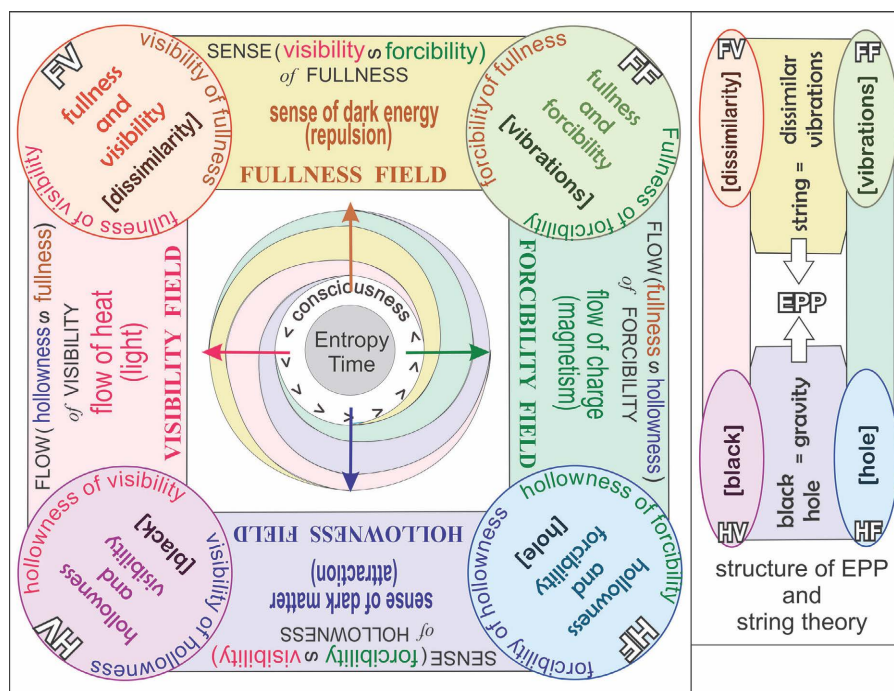


Figure 3. Four memory chests synchronize and create four basic energy fields which are responsible for all physical activations, including electromagnetic waves and gravitation. The string combines with gravity and creates EPP, hence can be called the basic ingredient.

7.1. Space Fabric

Early cosmologists believed that a medium known as the aether fills the emptiness of space. The Michelson–Morley experiment cast doubt on the aether in 1887. This suspicion remained until 1915, when Albert Einstein introduced his theory of relativity and coined the term “fabric of spacetime”. In 1917, Einstein introduced the cosmological constant to counterbalance the effect of gravity. This phenomenon is closely associated with the concept of dark energy. However, when the cosmological constant is measured from Type Ia supernovae and CMB radiation data, the observed value differs hugely (by 120 orders of magnitude) from the Planck mass-scale value. This mystery has never been solved [28].

In 2021 [27]*, Agrawal presented the concept of “space fabric” and defined the term “emptiness”. The physical emptiness itself is medium (also called space fabric) and is composed of symmetrically arranged cosmological substances that allow all physical activities, including electromagnetic waves and gravitation. It is woven in small squares (no mechanical value) connected in the form of fabric. The fabric is made of different cosmological fields, like visibility, fullness field etc., having corresponding cosmological quanta. When taking measurements, this medium (space fabric) is ignored. If the space fabric can be considered into quanta, the cosmological constant problem can be resolved. Davies believed that by understanding the vacuum, we could understand all natural phenomena [29], and we have not considered the vacuum (space fabric; emptiness).

7.2. Four Memory Chests

The space fabric has a four-corner (no mechanical value) structure. The word “chests” is used because they receive, store, and deliver specific types of energy. One structure of four corners multiplies and attaches in a sequential fashion, creating a huge number of structures in a group. This process creates the nucleus of an EPP (Figure 2). Each four-corner structure represents one individual property code. The codes of the whole group represent the properties of the entity to be created. For example, if the elementary particle to be created is a muon, all muon properties will be imprinted in the codes within the nucleus. These codes are written in these “chests” and remain invariant throughout the life of the entity. Analogously, the DNA in a biological entity remains unchanged throughout an organism’s lifetime. The imperceptible properties of these chests denote the capability of the physical entity to be created. These chests are as follows:

- 1) Chest of Fullness and Visibility (FV): It can be named “fullness of visibility” or “visibility of fullness” and is responsible for creating the “field of visibility” and “field of fullness”.
- 2) Chest of Hollowness and Visibility (HV): It can be named “hollowness of visibility” or “visibility of hollowness” and is responsible for creating the “field of visibility” and “field of hollowness”.
- 3) Chest of Fullness and Forcibility (FF): It can be named “fullness of forcibility” or “forcibility of fullness” and is responsible for creating the “field of forcibility” and “field of fullness”.
- 4) Chest of Hollowness and Forcibility (HF): It can be named “hollowness of forcibility” or “forcibility of hollowness” and is responsible for creating the “field of forcibility” and “field of hollowness”.

7.3. Four-Field Structure

The data at four corners (four chests) are four imperceptible aspects of fields. Each pair of chests interacts and creates a different perceptible field as described below.

1) Visibility Field (Ability of the space to carry a View): The interaction between “fullness of visibility” and “hollowness of visibility” creates a “visibility field,” meaning that the receiver can carry a viewable (shape) form of energy over space. This energy is conveyed from an emitter or a free cosmological field in the form of a CMB. Purdy stated that visibility is necessary for the very existence of shape [30].

2) Forcibility Field (Ability of Space to Carry Force): The interaction between “fullness of forcibility” and “hollowness of forcibility” creates a “forcibility field” or magnetic field, meaning that the receiver can carry a forcible (flutter/impulse) form of energy over space. This energy is offered by an emitter or a free

cosmological field in the form of a “hidden magnetic field” [31].

3) Hollowess Field (the ability of space to create attraction): The interaction between “visibility of hollowess” and “forcibility of hollowess” creates a “hollowess field.” A space density below the average density of the space fabric is called “hollowess,” and a “hollow” space has a sparse space fabric. Hollow space is dark matter that can be felt as an attraction field (curved space) by any physical receiver. The author’s perception of dark matter as a pure cosmological field is consistent with Arturo, who stated that dark matter has no physical parameters [32]. The physical mass of the dark matter can be imagined only by computing the energy conversion equation.

4) Fullness Field (the ability of space to create repulsion): The interaction between “visibility of fullness” and “forcibility of fullness” creates a “fullness field.” A space density above the average space density of the space fabric is called “fullness,” and a “full” space has a dense space fabric containing dark energy. A physical receiver easily feels dark energy as a repulsive field (repulsive gravity).

8. ACTIVATION OF EPP

All physical entities, *i.e.*, EPP, consist of four energy fields: visibility, forcibility, fullness, and hollowess. The interaction between fullness and hollowess creates a “flow”, which is perceived as a heat flow for electromagnetic waves and a charge flow for electromagnetic fields. Similarly, the visibility and forcibility fields interact to create a “sense of hollowess” and “sense of fullness” for attraction (gravitation) and repulsion, respectively. All the physical entities always remain involved within their own four fields, which is called intra-activation. When two different entities interact with each other by using different energy fields, it is called inter-activation. The electromagnetic wave and gravitation, both are examples of inter-activation. There are four types of interaction explained below and illustrated in Figure 4.

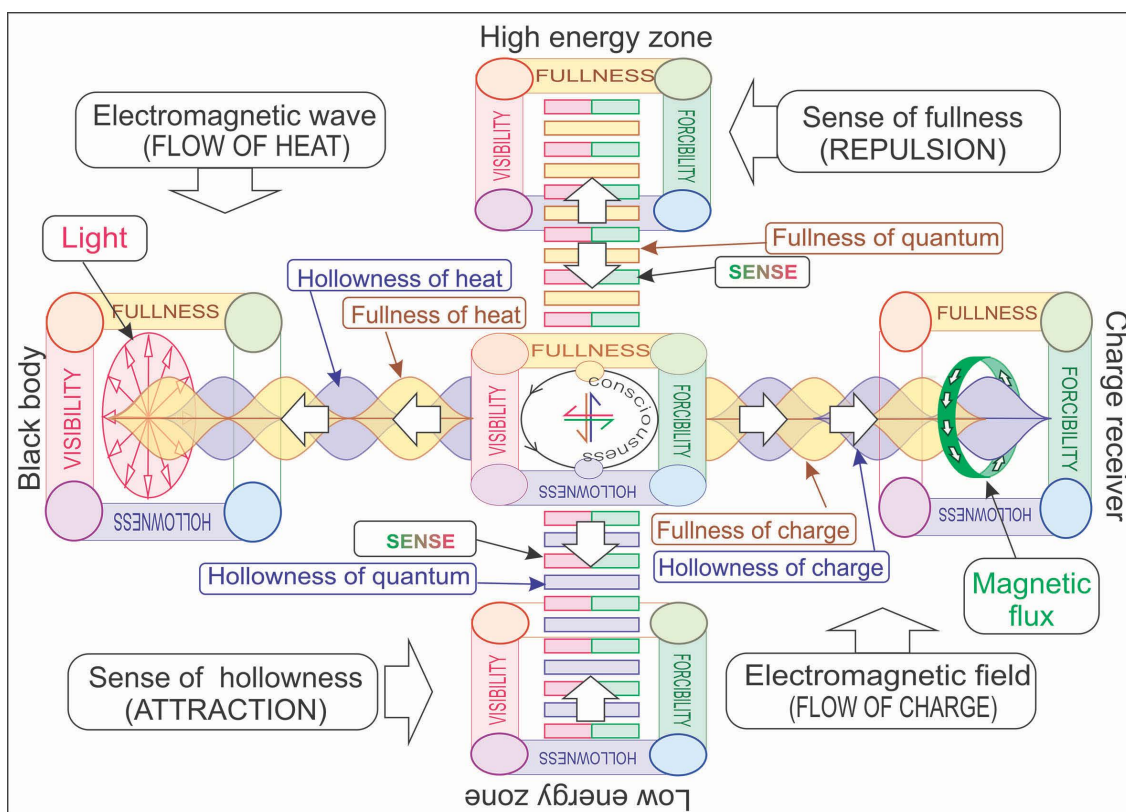


Figure 4. Activation of electromagnetic waves, electromagnetic fields, repulsion, and attraction from the same structure.

8.1. Flow of Visibility (Light)

The flow of visibility, generally known as electromagnetic waves, encompasses the fullness, hollowness, and visibility fields, but it excludes the forcibility field. The fullness and hollowness of quanta create a quantum wave (conventionally called an electric field) that moves toward the receiver. The quantum wave carries the visibility field in the form of heat. At the receiving end, the properties (only the property, not quantum) of hollowness and fullness are annihilated, and the quantum associated with the heat is converted into visible light. This idea is consistent with our perception of the CMB, which itself lacks an emitter [33]. The perceived light is stored as heat in the receiver's FV and HV. Variations in the flow of waves (modulation) carry information.

8.2. Flow of Forcibility (Magnetic Flux)

The flow of forcibility, generally known as the electromagnetic field, encompasses the fullness, hollowness, and forcibility fields but excludes the visibility field. The fullness and hollowness of quanta create a quantum wave (conventionally called an electric field), which moves towards the receiver. The quantum wave carries the forcibility field in the form of charge. At the receiving end, the properties (only the property, not quantum) of hollowness and fullness are annihilated, and the quantum associated with the charge is converted into magnetic flux. This idea is consistent with a "hidden magnetic field", which can be received when no emitter is available [31]*. The perceived magnetic flux is stored as a charge in the receiver's FF and HF. Analogously to the visibility field, variations in the flow of charge create motion.

An emitter can transmit both heat and charge, but the receiver can only receive either heat or charge [34]. It receives heat and charge in the form of light and magnetic flux, which can be reflected as light and magnetic flux or stored as heat and charge, respectively.

8.3. Sense of Hollowness (Attraction)

The sense of hollowness, generally known as attraction, encompasses the visibility, forcibility, and hollowness fields but excludes the fullness field. The visibility and forcibility fields create a stationary sense associated with the "sense of hollowness" in the space fabric. This hollowness field is conventionally called dark matter.

Within the space fabric, dark energy is balanced with dark matter. The massive physical entities consume the dark energy from the space fabric, creating an excess of dark matter in the vicinities of massive bodies and a consequent curve in the space fabric. Along this curve, gravity and light are directed toward the massive bodies. Moreover, gravity increases with decreasing temperature of the sensing entities [35] because the "hollowness of visibility" (coldness) increases the hollowness field and hence the gravitational pull.

8.4. Sense of Fullness (Repulsion)

The sense of fullness, generally known as repulsion, encompasses the visibility, forcibility, and fullness fields but excludes the hollowness field. The visibility and forcibility fields create a stationary sense associated with the "sense of fullness" in the space fabric. Fullness (crowded space; dark energy; densified space fabric) occurs when the space density exceeds the average space density of the space fabric and manifests as heat, repulsion, and dark energy [36, 37]. Mishra and others stated that dark energy exerts an anti-gravitational effect that accelerates the expansion of space [38].

Repulsive gravity is created by interactions between the "fullness of visibility (heat)" and "fullness of charge (ionization)". This idea is supported by the following examples:

1) The deflection of gaseous comet tails can be explained by repulsive gravitational forces acting on ionized molecules but not on non-ionized molecules [39].

2) The coronal mass ejection by the Sun depends on ionization and temperature, the basic causes of repulsive gravity [40]. It further explains that at Sun's surface, the resulting gravitation (gravitation minus

repulsion) becomes negative. It shows the intensity of repulsion against the massive surface-gravitation of the Sun.

3) The temperature of the solar corona far exceeds that of the Sun's core, which is possible only when the repulsion at the corona is higher due to temperature and ionization.

4) An atom is an assembly of electrons, protons, and neutrons within a vast empty space. When two atoms collide, they are expected to merge, but instead, they retreat like colliding solid balls. This phenomenon is possible only if the outer electrons of one atom are repelled by the charge and temperature of the electrons surrounding the colliding atom. This repulsion causes a huge empty space between the atoms, similar to the increased volume of gas molecules under repulsive pressure as dictated by Boyle's gas law.

All physical entities behave just like their smallest part, which is EPP. The consciousness, placed at the center of the square model, makes a circular motion around the time. While oscillating, it ignites each field one by one, placed at 90° apart, creating four types of activations. Now it depends on the receiver to which activation it wishes to receive. It can receive electromagnetic waves, electromagnetic fields, repulsion, or attraction. These four are basic activations; all others may be different combinations of these four activations (see [Figure 3](#)).

By these processes, each EPP obeys the laws of physical science. Other levels in the hierarchy (biological, psychological, and intellectual) can be analyzed by the same approach. For example, biological attraction [41], psychological attraction (fear to desire), and intellectual attraction (uncertainty to curiosity) follow the same basic principles.

9. EXPLANATION OF TWO IMPORTANT THEORIES ON THE BASIS OF THE PROPOSED MODEL

1) String Theory: It is comprised of two parts, namely, dissimilarity and vibration. A physical entity is created when the quanta of these dissimilar vibrations are accommodated or disciplined by gravity. Here, the gravitational field is called quantum gravity. The Higgs field introduces mass into the entity. The proposed model suggests that the string represents the "fullness field", made of the fullness of visibility (dissimilarity) (FV) and forcibility (vibrations) (FF). The gravity represents the "hollowness field", made of the hollowness of visibility (black) (HV) and hollowness of vibrations (hole) (HF). In this case, all four chests are used to create an entity. As the "fullness field" is the quantum part of the EPP [42] and the "hollowness field" (gravity) just approves the quantum, the string is said to be the fundamental of all EPPs, which is universally applicable ([Figure 3](#)).

2) Four Fundamental forces [43]: The entropy derives only a unitary force, which can be seen in different applications. The net gravitational force is always the difference between attraction due to the "hollowness field (HV – HF)" and repulsion due to the "fullness field (FV – FF)". The attraction depends on the square of the distance, while repulsion depends on the cubic of the distance (refer Boyle's gas law). Therefore, the repulsion is dominant at micro levels, whereas the attraction is dominant at macro levels. This explains the two fundamental forces: "gravity" and "strong nuclear force". In the case of the "weak force", the particle decay results in the overall increase in entropy. A pair of proton and electron has more entropy than that of neutron and neutrino. The "electromagnetic force" is an example of two entities having opposite energy levels, the hollowness and fullness, having an entropy difference in between. This creates a flow of quantum from fullness to hollowness. Thus, all four fundamental forces can be explained by the proposed model.

10. CONCLUSIONS

According to particle physics, leptons and quarks are considered the smallest known particles. They cannot be denoted as elementary particles, because their further divisibility is unknown; moreover, their cosmological structure has not been elucidated. The paper suggests that EPPs are the smallest possible building blocks of the physical universe. Their internal structures are attributed to the evolution of cosmological substances, which constitute their raw materials. The paper explains that the universe has a hie-

rarchy of levels: intellectual (human), psychological (animal), biological (vegetation), physical (matter), and cosmological (energy). In this view, physical substances are distinctly different from cosmological substances. The paper further explains that a unitary law is applicable to all entities in the universe. This law suggests that the same relationship holds between the biological and physical worlds and between the physical and cosmological worlds. The physical substances comprising the inner structures of an elementary biological entity (cell) are clearly understood and provide insights for understanding the EPP, whose inner structure is undoubtedly composed of cosmological substances. Once we reach the above inference, it becomes an easy job to understand the evolution of the EPP, analogous to the known facts about the evolution of the biological cell.

Like the nucleus of a biological cell, the nucleus of an EPP contains a structure where genetic codes are placed. The structure is a common aspect for all entities of the same level of the universe, which denotes the science behind the level. In our case, it is physics, which holds the physical properties in the shape of codes. It is just like biological science (structure, DNA) that holds the biological properties of a biological entity.

The paper suggests a square-shaped (no mechanical meaning) structure, where each code is made of four memory chests. Interactions between any two chests create one of the four energy fields: a visibility field (light), a forcibility field (magnetic flux), a fullness field (dark energy), and a hollowness field (dark matter). A set of these codes composes the nucleus of the EPP, which is responsible for all activations of the physical entity.

A physical entity activates through electromagnetic waves, electromagnetic fields, attraction, or repulsion. All four fields are common constituents of all activations. The paper propounds that if electromagnetic wave and gravitation are evolving from the same set of energy fields, we can have a path to correlate them.

In summary, an EPP has two parts: EPP nucleus and EPP body. Moreover, the nucleus is divided into the following two parts. 1) The structure of the nucleus denotes the science behind the entity; in our case, it is physics. 2) Codes placed inside the structure denoting the property of that particular entity. The structure has four corners as four chests, denoting the capability of the code. While interacting with the connected chest, they create four energy fields responsible for all physical activations. The chests and fields are placed in a way so that they create an autonomous body.

The proper use of unified logic helps us to resolve several mysteries that have blocked our way of understanding cosmology. Some of them are uncertainty principle {section 4.(3)}, quantum entanglement {Section 4.(12)}, pair production phenomenon {section 5.2(6)}, the cosmological constant problem {section 7.1}, the CMB {section 7.3(1).}, hidden magnetic fields {section 7.3.(2)}, dark matter {section 7.3.(3)}, dark energy {section 7.3.(4)}, gravitation {section 8.3}, repulsion {section 8.4}, deflection of gaseous comet tails {section 8.4.(1)}, mass ejection from the Sun's corona {section 8.4.(2)}, the temperature of the Sun's corona {section 8.4.(3)}, string theory {section 9(1)} and four fundamental forces {section 9(2)}.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest regarding the publication of this paper.

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