Global Journal of Science Frontier Research: a Physics and Space Science
Volume 25 Issue 6 Version 1.0 Year 2025
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4626 & Print ISSN: 0975-5896

The Principles of the Universe

By Changming Wang
Mountain View Growers

Abstract- This paper presents a unified framework—the Principles of Matter, Space, and Time – to explain the structure and behaviour of the universe through the concept of hierarchical unities. It proposes that all matter possesses mass and energy, organizing itself into nested unities through the interplay of potential-energy (Ep), sharing-energy (Es), and excess-energy (Ee). The paper introduces unity force (Fu = Es + Ee) as a generalization of inertia, encompassing both inertia-at-rest (as gravity or weight) through Es and inertia-in-motion (as motion or heat) through Ee. Within this framework, gravity emerges not as spacetime curvature but as matter's active pull toward its unity centre, and matter moves only relative to its unity centre, eliminating the need for external reference frames and relativity. The paper further proposes that space and time are not physical entities but properties of matter: space is not preexisting but emerges from matter's three-dimensional movements, eliminating the notion of vacuum, and time is a series of heat transfers rather than a physical dimension. Consequently, spacetime is only a mathematical construct without physical reality. The paper argues that these principles govern atomic structure, planetary motion, galactic organization, and black hole formation, that the universe comprises only matter and its movements in three dimensions, experiences heat transfers, resulting in its evolution and revolution.

Keywords: *matter, mass, energy, unity, unity force, gravity, inertia, space, time, universe.*

GJSFR-A Classification: *LCC Code: QB981, 523.1, 85A40*

The Principles of the Universe

Changming Wang

Abstract- This paper presents a unified framework—*the Principles of Matter, Space, and Time*—to explain the structure and behaviour of the universe through the concept of hierarchical unities. It proposes that all matter possesses mass and energy, organizing itself into nested *unities* through the interplay of potential-energy (Ep), sharing-energy (Es), and excess-energy (Ee). The paper introduces unity force (Fu = Es + Ee) as a generalization of inertia, encompassing both inertia-at-rest (as gravity or weight) through Es and inertia-in-motion (as motion or heat) through Ee. Within this framework, gravity emerges not as spacetime curvature but as matter's active pull toward its unity centre, and matter moves only relative to its unity centre, eliminating the need for external reference frames and relativity. The paper further proposes that space and time are not physical entities but properties of matter: space is not preexisting but emerges from matter's three-dimensional movements, eliminating the notion of vacuum, and time is a series of heat transfers rather than a physical dimension. Consequently, spacetime is only a mathematical construct without physical reality. The paper argues that these principles govern atomic structure, planetary motion, galactic organization, and black hole formation, that the universe comprises only matter and its movements in three dimensions, experiences heat transfers, resulting in its evolution and revolution.

Keywords: matter, mass, energy, unity, unity force, gravity, inertia, space, time, universe.

I. Introduction

The universe is simple and beautiful, with simple and beautiful principles of matter, space, and time.

The universe comprises billions of beautiful galaxies. Each galaxy is centred on at least one black hole, circled with star systems. Each star system is centred on a beautiful star, circled with planets. Each planet is also the centre of its moons or rocks. The universe is hierarchically organized. [1][2][4]

The hierarchical units are called unities (defined further in the *Principles of Matter*).

Inside the centre of stars and planets (nuclear fusion centres), unity force (also defined in the *Principles of Matter*) creates atomic nuclei, comprising each proton circled with a neutrino or an electron. [1][2][3][4][5]

When moved out of the nuclear fusion centres, each created atomic nucleus becomes the centre of an atom, circled with electron unities. Each of the electron unity is centred on the electron, circled with a photon.[1][2][3][4][5]

Therefore, the universe comprises nested unities.

In his first law of motion, Isaac Newton described inertia as the natural tendency of objects in motion to remain in motion and objects at rest to remain at rest, unless a force causes the velocity to change.[6]

So, Newton had realised that inertia has two states: inertia at rest and inertia in motion, although their causes were unknown.

Through the following *Principles of Matter, Space and Time*, this paper explains inertia and the universe the way it is.

II. The Principles of Matter

Here are the Principles of Matter or Laws of Unity, updated from my original version: [1][2][3][4][5]

1. *Matter* is any substance that has *mass (m)* and *energy*. Mass and energy are properties of matter, not physical entities. Matter's energy is scalar, not vector.
2. Matter shows its energy as *forces*. A *force* is a measurable vector that transfers energy.
3. Matter organises itself into hierarchical units, called *unities*, through its energies: matter retains its *potential-energy (Ep)* and *sharing-energy (Es)* within a *unity* as a *unity member*, until it becomes a *free particle* with sufficient *excess-energy* (Ee ≥ Es) from external excess-energy (see *Figure 1: Matter*).

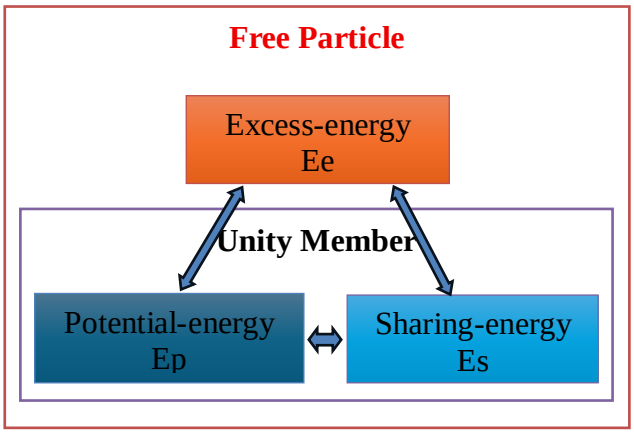

Figure 1: Matter

Author: Mountain View Growers.
e-mail: changming@mountainviewgrowers.com

4. Matter forms and maintains unity with its *unity force* or *inertia*:

$$Fu = Es + Ee,$$

where Es causes an active and constant pull, as *inertia-at-rest* or *gravity (F)* or *weight (W)*, towards the unity centre (Es = F = W); and Ee produces *inertia-in-motion* or *heat*, away from the external excess-energy.

4.1. Matter oscillates away with the excess-energy (Ee ≥ Es) as a free particle, transferring the Ee as inertia-in-motion or heat (Ee → Ee → 0)—such as light waves if the particle is a photon or a neutrino, or electron waves with magnetic effects if the particle is an electron—until returning or joining a unity (Ee = 0).

4.2. In the unity, Ee = 0, leaving only Es in its unity force, matter orbits or gravitates to the unity centre, like an electron orbiting an atomic nucleus or a planet orbiting a star, showing as inertia-at-rest or gravity (F) or weight (W): Fu = Es = F = W.

5. Matter does not show its potential-energy but converts its potential-energy between its sharing-energy and excess-energy (As shown in *Figure 1: Matter*). For example, when going up in an airplane, our weight is decreasing while our potential-energy is increasing (Es → Ep). At the same time, the plane's external excess-energy also increases our potential-energy (Ee → Ep). When going even higher in a spacecraft, we become "weightless" (weighing less). When landing on the Moon or Earth, our potential-energy is decreasing while our weight is increasing (Ep → Es).

6. Breaking free a member with Es from a unity requires sufficient external excess-energy (Ee ≥ Es), causing inertia-in-motions and heat transfers (Ee → Ee), leading to new unities. The more energy is shared (Ep → Es, such as in a nuclear fusion), the tighter the formed unity (such as the produced nucleus unity), the more external excess-energy is required to break the unity, and vice versa (such as in beta decay).

Therefore:

1. Gravity or weight or inertia-at-rest is redefined as matter's active and constant pull towards its unity centre due to its sharing-energy.
2. Inertia is redefined and generalised as the unity force resulting from both sharing-energy (as inertia-at-rest or gravity or weight) and excess-energy (as inertia-in-motion or heat).
3. Matter moves relative to its unity centre, as its reference point, nullifying the base of the observational reference frame [7] and relativity.
4. The Principles of Matter or Laws of Unity is governed by matter's unity force or inertia:

   Fu = Es + Ee, where,

   Es = F = W = mg, where m is the mass of the matter, g is the acceleration by the Es or F or W,

   Ee = ma, where m is the mass of the matter, a is the acceleration by the Ee.

Hence,

Fu = mg + ma = m(g + a), cycling through the following states:

a = 0 (the matter is in its unity),

a ≥ g (the matter is out of the unity),

a → 0 (the matter is returning or joining a unity).

III. The Principles of Space

1. Matter moves in three dimensions, to form and maintain unity by its unity force: Fu = Es + Ee, where Es causes orbits or gravitation (or inertia-at-rest or weight) towards the unity centre; and Ee produces inertia-in-motion or heat away from the external excess-energy.
2. *Space* is the three dimensions of matter and its movements.
3. Matter's space is three-dimensional only.

Therefore:

1. Space is not preexisting. Space is wherever matter moves.
2. No vacuum exists in space. Matter shows its Es as an active and constant pull towards its unity centre mediated or transferred by any member in between and shows its Ee as a direct push to other matter away from the external excess-energy.
3. In physics, mathematics is a necessary tool, can use more or fewer dimensions, but must conclude matter's three dimensions.

IV. The Principles of Time

1. A **time** is an event in which a free particle (as heat) bumps into a unity, transferring the heat.
2. *Time* is a series of heat transfers.

Therefore:

1. Matter experiences its own time, with or without changes in its composition or configuration due to the heat transfers.
2. A timer is matter or a device that experiences heat transfers regularly. For example:

- A clock or a watch experiences a heat transfer every second, or in a shorter interval.
- Each part of the Earth experiences photonic heat from the sun regularly. Although the sun is transferring photonic heat all the time, the rotation and revolution of Earth make the Sun-Earth group a perfect timer, resulting in year, season, month, day, night, hour, to the divisions of a second.

3. Timers produce standardised time. We use timing systems based on timers to quantify and control heat transfers (as time), including photonic heat and electronic heat in lights and computers, plus atomic and molecular heat in engines and living organisms.
4. As a series of heat transfers, time is accumulative, so that it only moves forward. For example, matter can move back to its original (old) position, while adding a new event of heat transfer (a time).
5. Since it cannot move backward, time is not a dimension, as a dimension requires moving forward and backward (bi-directional movements).
6. Spacetime [8] is proposed as a mathematical model that combines the three dimensions of space and the one dimension of time into a single four-dimensional continuum. Since time is not a dimension, spacetime can only be a mathematical construct, not a physical reality.

V. Conclusion

1. Matter is any substance with mass and energy.
2. Matter organises itself into hierarchical units, called *unities*, through its energies: matter retains its *potential-energy (Ep)* and *sharing-energy (Es)* within a *unity* as a *unity member*, until it becomes a *free particle* with sufficient *excess-energy* (Ee ≥ Es) from external excess-energy.
3. Matter forms and maintains unity with its *unity force* or *inertia*: Fu = Es + Ee, where Es causes an active and constant pull, as *inertia-at-rest* or *gravity (F)* or *weight (W)* towards the unity centre; and Ee produces *inertia-in-motion* or *heat* away from the external excess-energy.
4. That is, gravity or weight or inertia-at-rest is redefined as matter's active and constant pull towards its unity centre due to its sharing-energy.
5. Inertia is redefined and generalised as the unity force resulting from both sharing-energy (as inertia-at-rest or gravity or weight) and excess-energy (as inertia-in-motion or heat).
6. Matter converts its potential-energy between its sharing-energy and excess-energy; until and unless in a black hole, where matter converts its potential-energy completely into sharing-energy Ep → Es, so that Ep = 0, and sharing-energy becomes infinity: Es = W = F → ∞, producing infinite pull towards the centre, making the black hole into a physical singularity. [1][2]
7. Matter moves relative to its unity centre, as its reference point, nullifying the base of the observational reference frame [7] and relativity.
8. Matter moves to form and maintain unity by its unity force, in three dimensions.
9. *Space* is the three dimensions of matter and its movements.
10. Space is not preexisting.
11. No vacuum exists in space. Matter shows its Es as an active and constant pull towards its unity centre mediated or transferred by any member in between and shows its Ee as a direct push to other matter away from the external excess-energy.
12. A **time** is an event in which a free particle (as heat) bumps into a unity, transferring the heat.
13. *Time* is a series of heat transfers.
14. Matter experiences its own time, with or without changes in its composition or configuration due to the heat transfers.
15. A timer is matter or a device that experiences heat transfers regularly. For example, the Sun-Earth group is a perfect timer, in which each part of the Earth experiences photonic heat from the sun regularly, resulting in year, season, month, day, night, hour, to the divisions of a second.
16. Timers produce standardised time. We use timing systems based on timers to quantify and control heat transfers (as time), including photonic heat and electronic heat in lights and computers, plus atomic and molecular heat in engines and living organisms.
17. As a series of heat transfers, time is accumulative, so that it only moves forward, not backward. As a dimension requires moving forward and backward (bi-directional movements), time is not a dimension.
18. As time is not a dimension, spacetime [8] can only be a mathematical construct, not a physical reality.
19. Space and time are properties of matter, not physical entities.
20. The universe comprises only matter and its movements in three dimensions, experiences heat transfers, resulting in its evolution and revolution.

References Références Referencias

1. Changming Wang (2025). The Photon and the Principles of Matter. *Global Journal of Science Frontier Research (A)*, Volume 25 Issue 5 Version 1.0 1-9. https://globaljournals.org/GJSFR_Volume25/1-The-Photon-and-the-Principles.pdf
2. Changming Wang (2025). The Nature of the Neutrino. *Global Journal of Science Frontier*

Research (A), Volume 25 Issue 3 Version 1.0 35-41. https://globaljournals.org/GJSFR_Volume25/2-The-Nature-of-the-Neutrino.pdf
3. Changming Wang (2025). The Nature of the Electron. *Global Journal of Science Frontier Research (A)*, Volume 25 Issue 2 Version 1.0 23-30. https://globaljournals.org/GJSFR_Volume25/4-The-Nature-of-the-Electron.pdf
4. Changming Wang (2025). The Formation of the Universe. *Global Journal of Science Frontier Research (A)*, Volume 25 Issue 2 Version 1.0 7-12. https://globaljournals.org/GJSFR_Volume25/2-The-Formation-of-the-Universe.pdf
5. Changming Wang (2025). The Fundamental Forces and their Unification. *Global Journal of Science Frontier Research (A)*, Volume 25 Issue 1 Version 1.0 81-87. https://globaljournals.org/GJSFR_Volume25/4-The-Fundamental-Forces.pdf
6. Wikipedia (2025). Newton's laws of motion. *Wikipedia.* https://en.wikipedia.org/wiki/Newton's_laws_of_motion
7. Wikipedia (2025). Frame of reference. *Wikipedia.* https://en.wikipedia.org/wiki/Frame_of_reference
8. Wikipedia (2025). Spacetime. *Wikipedia.* https://en. wikipedia.org/wiki/Spacetime