

General theory of the micro and macro world II

–A World Told by Ontology IV

Jason Kuyun Ryoo

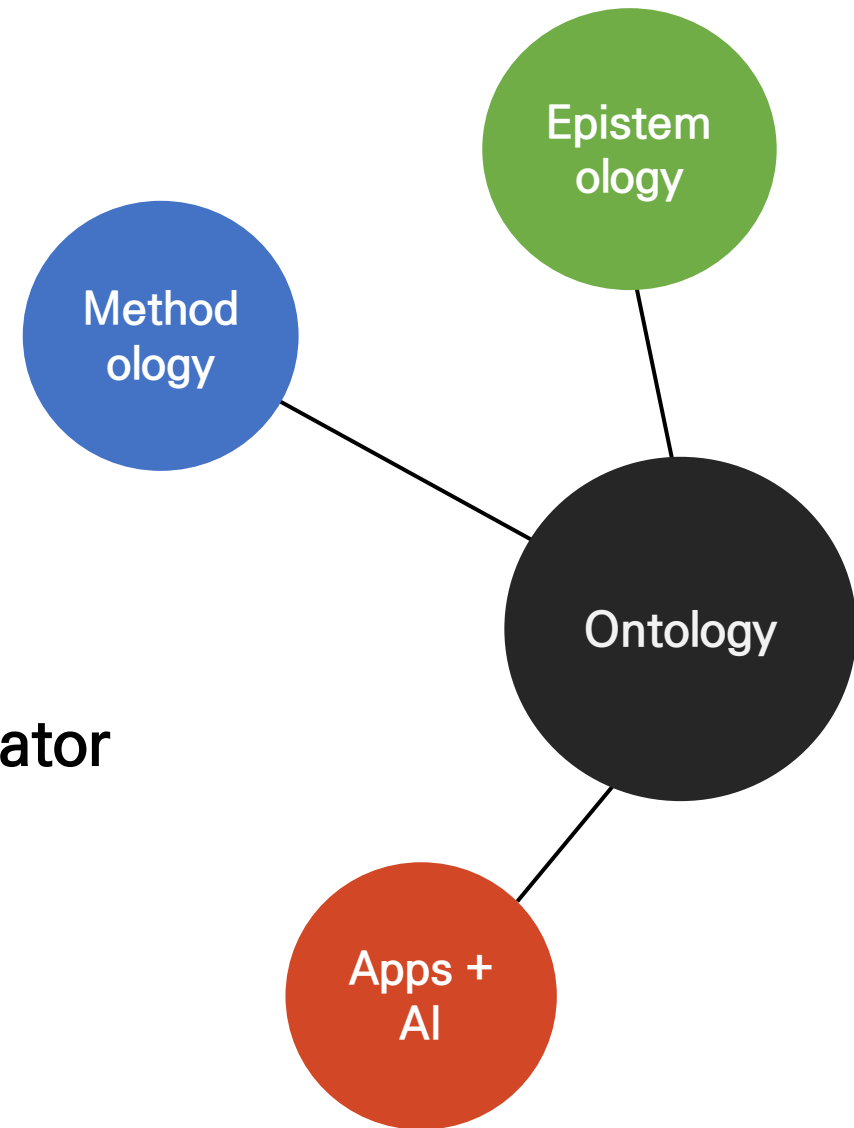
2025-01-21

Inno Lab



Understanding Being: Essence and Phenomena

- **Essence:** Oscillator Energy
- **Phenomenon:** Dynamics movement of Mass Energy in Space
- **Existence:** Natural dynamic oscillator Oscillator
- **Principle:** Law of conservation of energy and principle of least action



Ontological scientific method

- **Ontology** ⇨ **What?**

What is it

Why should it exist

Recognize existence in the position of existence

- **Essentialism** ⇨ **Why?**

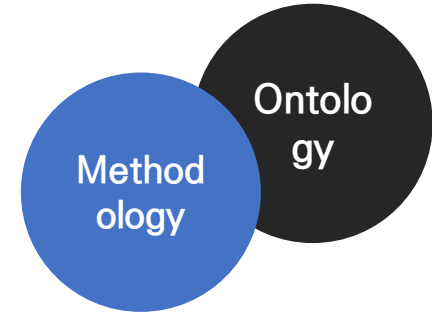
Phenomena → Essence ↔ Existence

Self-constitutive principle of existence: efficient self-existence

- **Phenomenology** ⇨ **How?**

Phenomena and essence causal pattern analysis and inference and verification

Big Data and AI



- The world is composed of mass energy and space
- Nature is an essential three-dimensional world
- Time is not a physical element but a human element

I. Universal Dynamics : Natural Gravity Theory Based on Quantum Field Theory



Being and the World

- Quantum theory
- Complex Oscillator
- Natural theory of gravity
- General principles of nature

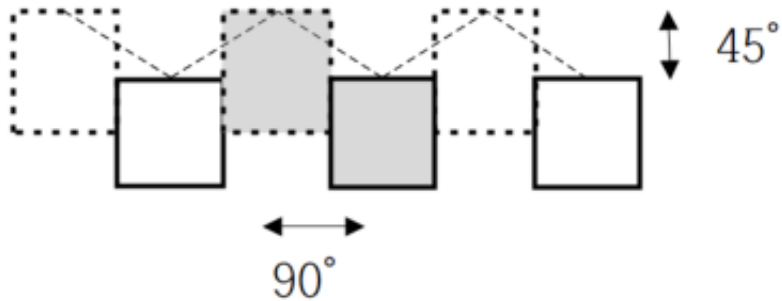
The essence of the world is energy, and the physical entity of energy is the complex oscillator.

All energy is a complex pairing system (+)(-) like electromagnetic waves.

“Complex Oscillator” with 90 Degree Phase Shift
Linear Alignment mechanism

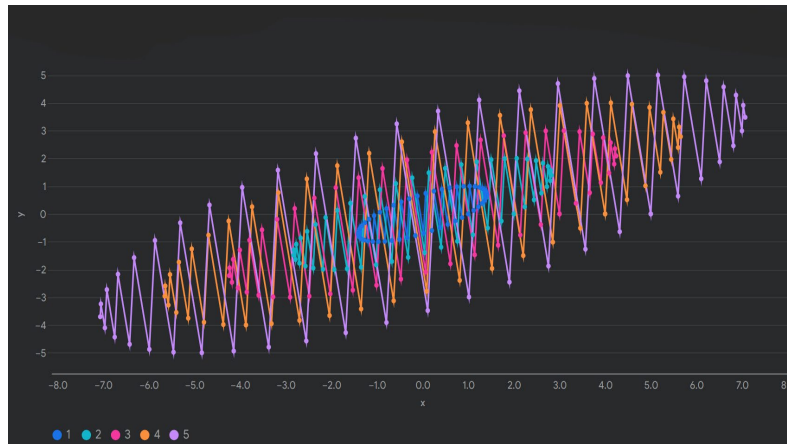
Phase Motion of Complex Oscillator

1. Riemann 1/2 alignment



Wave analysis of the oscillator

$$\Psi(x) = A(x) \cdot e^{i\theta(x)}$$

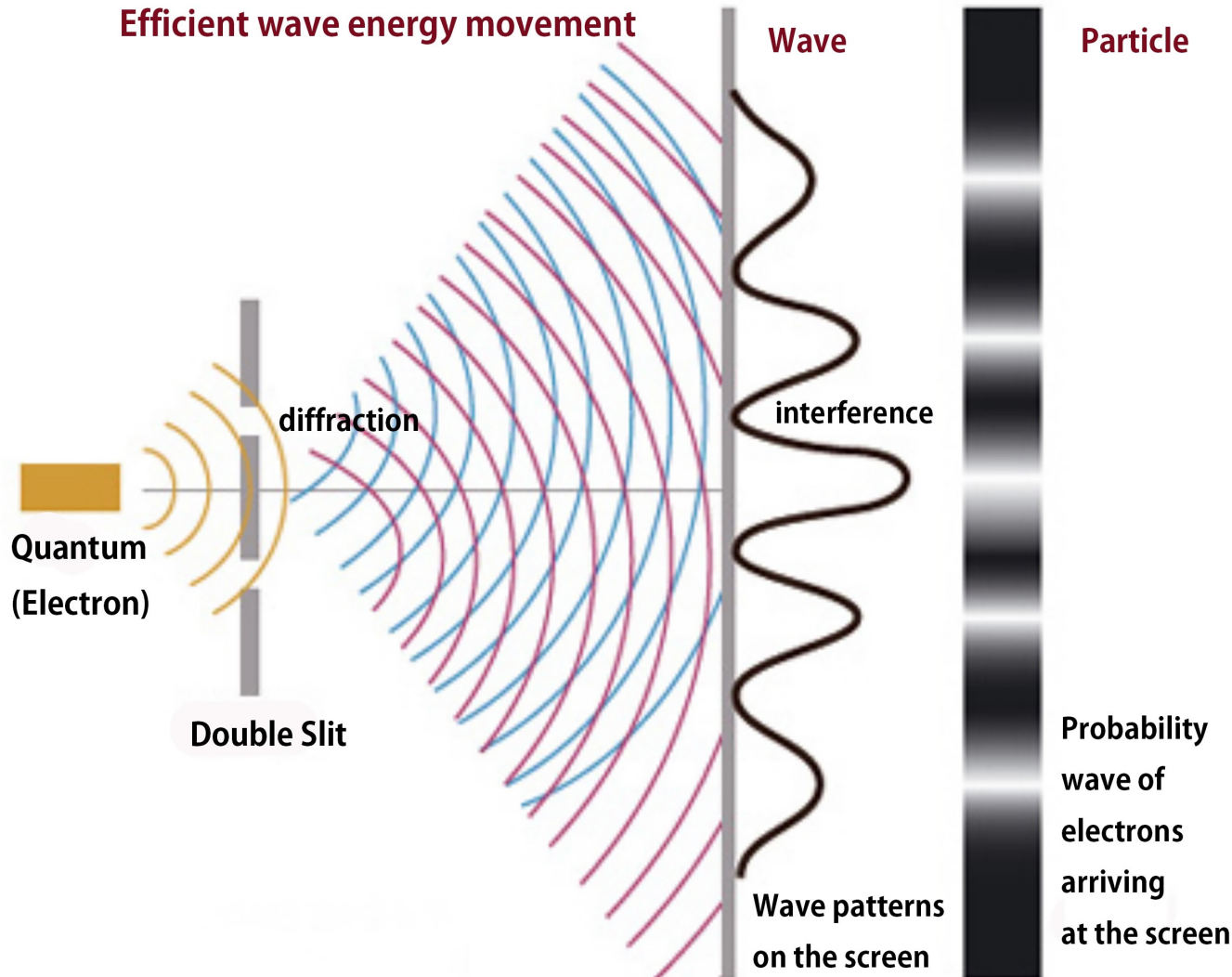


Mathematical
Analysis of Waves

$$\psi(r) = \frac{A}{r} e^{ikr} \approx A e^{ikr}$$

$$|\psi(\vec{r})|^2 = P(\vec{r})$$

Figure 1. Wave Partical duality in Double slit



1. Essence of Wave Particle Duality

- Waves as essence manifest as particles – neurophysiological principles
- High density multi-waves are perceived as matter
- Matter is not dualistic, Human perception is dualistic

Essence: Wave **Phenomenon:** Particle

$$\left| \sum_n c_n \phi_n(\vec{r}) \right|^2 = |\psi(\vec{r})|^2$$

Rationality

Experience

2. Quantum superposition as seen from waves

- Waves are the most ideal structures for organizing, conserving, and transmitting energy density.
- The principle of quantum superposition efficiently realizes this essential requirement (characteristic) of waves, and also complies with the universal principles of nature, such as conservation of energy and the principle of least action.
- Quantum superposition is a phenomenon in which a quantum exists in multiple states within the structure of a wave. This can be expressed as a linear combination of wave functions.

- Linear combination of wave functions

$$\psi = C_1\psi_1 + C_2\psi_2 + \dots + C_n\psi_n$$

- Superposition of spin-up and spin-down states of a quantum

$$\psi = C_+\psi_+ + C_-\psi_-$$

e.g.) A laser beam can be explained as a high-density superposition of coherent waves in the wave essence theory.

3. The wave nature of quantum entanglement

- Quantum entanglement is understood as a phenomenon in which two or more quantum are connected to each other, and one quantum state affects the other quantum state.
- However, this can be seen as a result of the combination of the Globality of waves and coherence.
- The problem of the local characteristics of particles can be overcome by the Globality of waves.

The above are the results of pattern analysis using ontological and essentialistic method.

- Wave-functional composition of quantum entanglement

$$\psi = c_1 \psi_{\{A_1\}} \psi_{\{B_1\}} + c_2 \psi_{\{A_2\}} \psi_{\{B_2\}} + \dots + c_n \psi_{\{A_n\}} \psi_{\{B_n\}}$$

- Structure of spin entanglement state:

When two electrons A and B are in a spin entanglement state, the wave function can be expressed as follows.

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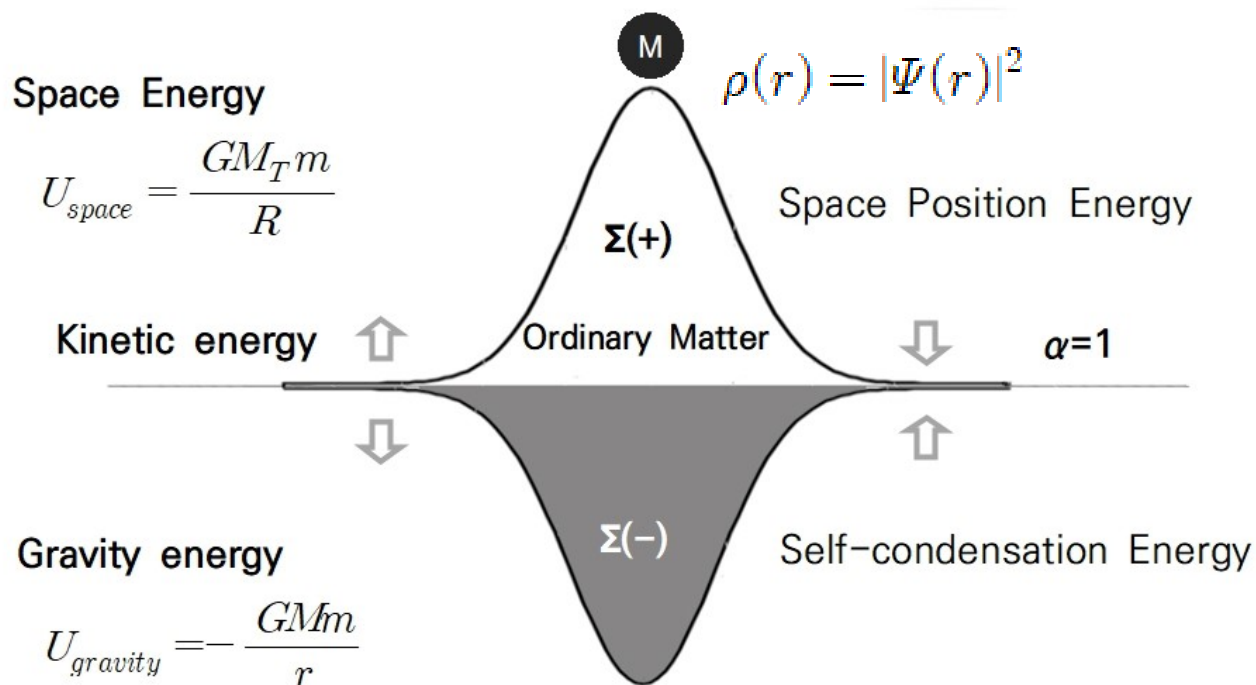
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This could be a more succinct alternative to the Copenhagen interpretation.

(+)(-) Complex Gravitational Energy System

Classical Mechanical Interpretation

Complex Gravity system

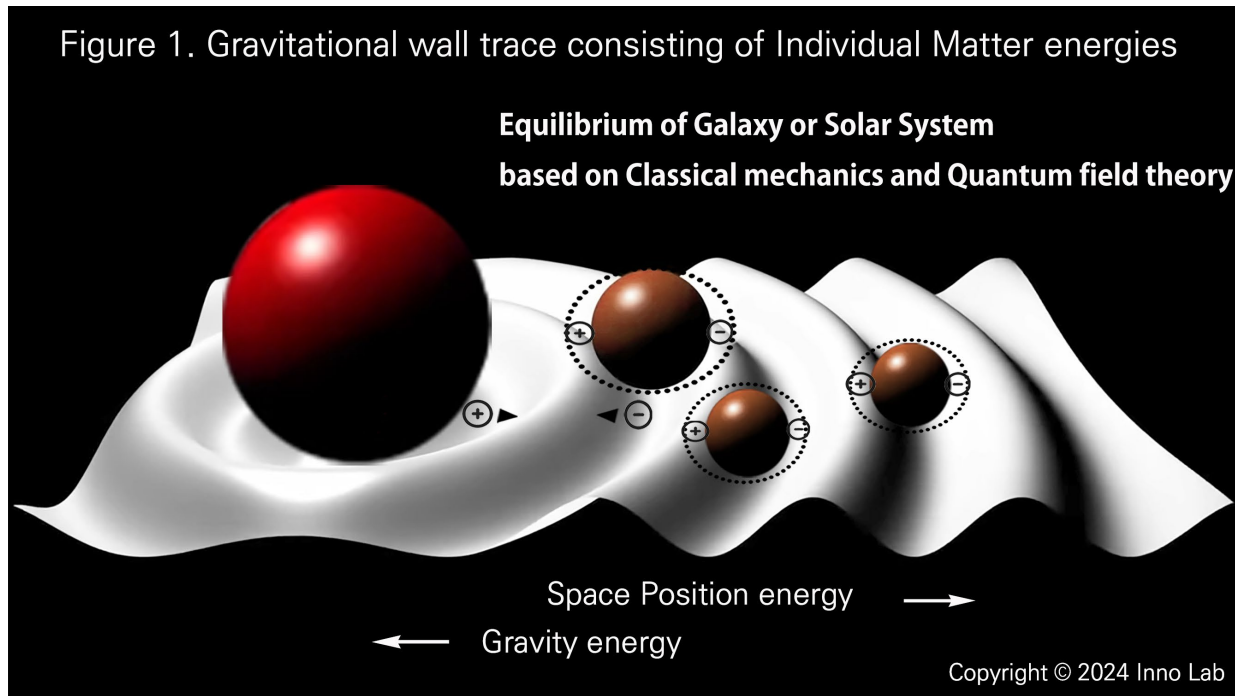


Gravity Generation and the space movement

The world is the space of energy-density motion
 Mass energy is itself position energy

- Space produces mass energy
- Mass energy produces position energy (+) in space.
- The space position energy produces a corresponding Gravity energy (-).
- Gravity is a natural dynamical system

Energy Density Equilibrium Movement of Gravity



Celestial bodies do not revolve, even though they rotate. Most satellites, including the moon, only rotate synchronously and do not orbit. Since (+) gravity acts in a balanced manner, gravitational orbital motion is not necessary.

- Space is a closed, large fluid with extremely low density and temperature, and has elasticity, and does not interact unnecessarily.
- Space is the mother of the universe that perfectly stores, transfers, and transforms energy.
- Celestial bodies, which are large masses, compress space, and compressed space has potential energy of (+) and (-).
- Gravity is a natural dynamic that is a sophisticated and stable energy density balance movement.

- World System Interpretation

Hamiltonian dynamics

$$U_H = E_{kinetic} - U_{gravity} + U_{space}$$

Classical mechanics interpretation

UH Natural Dynamics

$$U_H = \frac{1}{2}mv^2 - \frac{GMm}{r} + i\frac{GMm}{r}$$

Quantum field theory interpretation
With

- Individual System Configuration

System Functions

Kinetic energy

$$E_{kinetic} = \frac{1}{2}mv^2$$

Unified movement

Gravity energy

$$U_{gravity} = -\frac{GMm}{r}$$

Control System

(-) Gravity

Space position energy

$$U_{space} = i\frac{GMm}{r}$$

Adjustment System

(+) Gravity

3. Research Methodology Advancement

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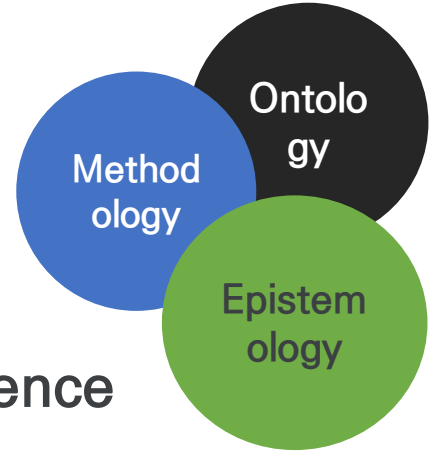
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Essence and Phenomena Patterns Analysis

- Dualistic perception of existence

Essence and Phenomena
 with **Patterns Analysis**
 Clarification of phenomena
 from the essence
 Clarification of existence
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- Pattern analysis and inference
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1. Geometrical natural dynamics

1) Geometric Gauge Symmetry

$$|\Psi'(x)|^2 = |A(x) \cdot e^{i\theta(x)}|^2 = |\Psi(x)|^2$$

2) Conservation of energy and minimum action

$$\delta \int |\nabla\theta(x)|^2 dx = 0$$

1 and 2 are principles of geometric necessity.

3) Humans, who are part of nature, are no different.

Following natural principles is called “reason” or “wisdom.”

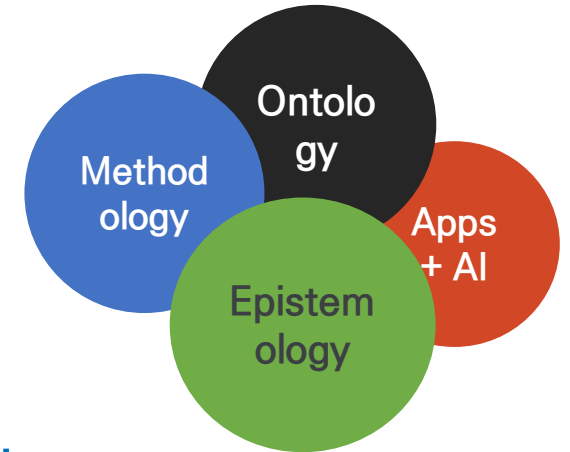
The big principles are strict, and the small principles are flexible.



Autonomy and self-sufficiency of the individual

- A clear and flexible world perception
- Autonomy and self-sufficiency are the basic principles, and interaction is the complementary principle.
- Human Science

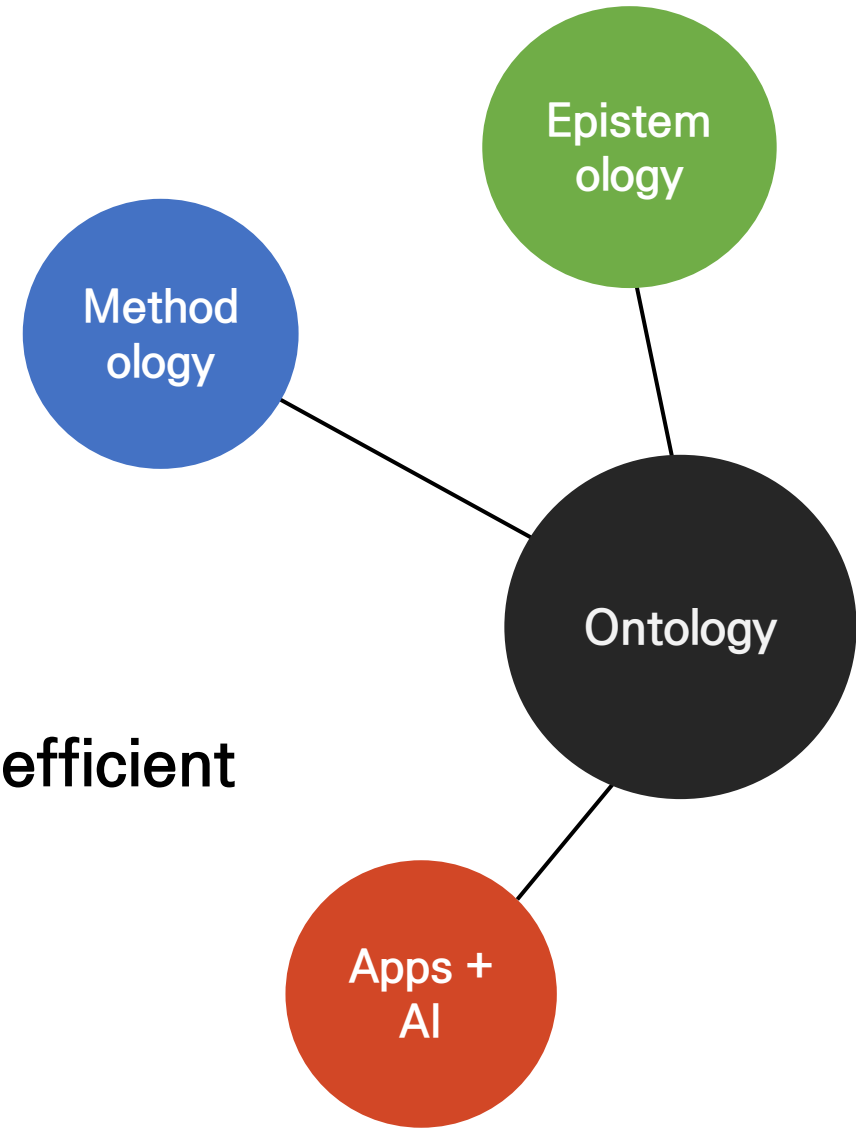
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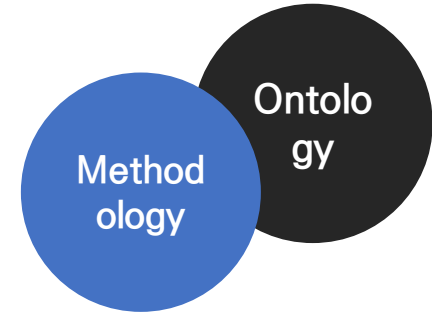
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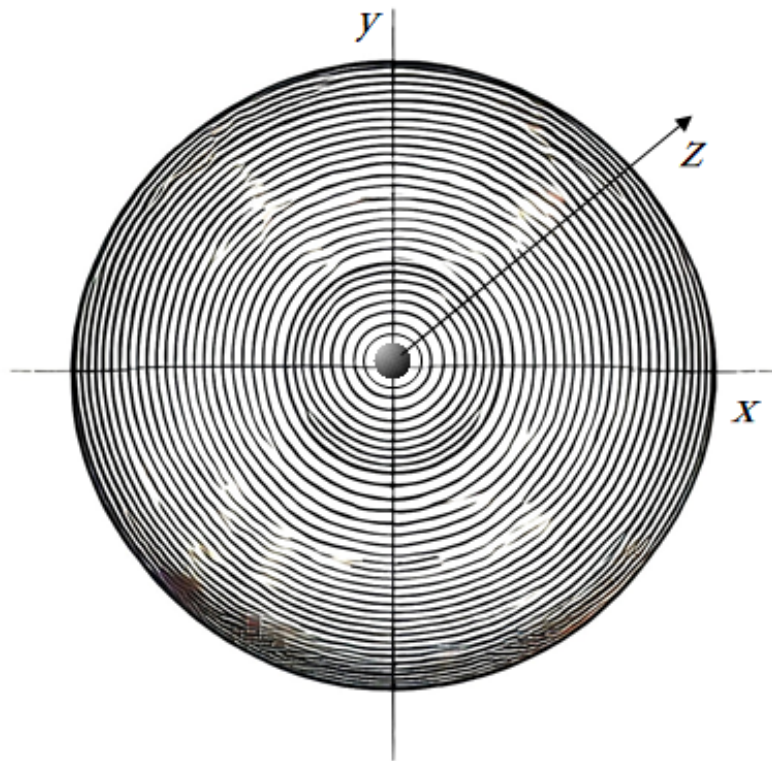
Being and the World

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The basic structure of quantum

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Quantum prototype:
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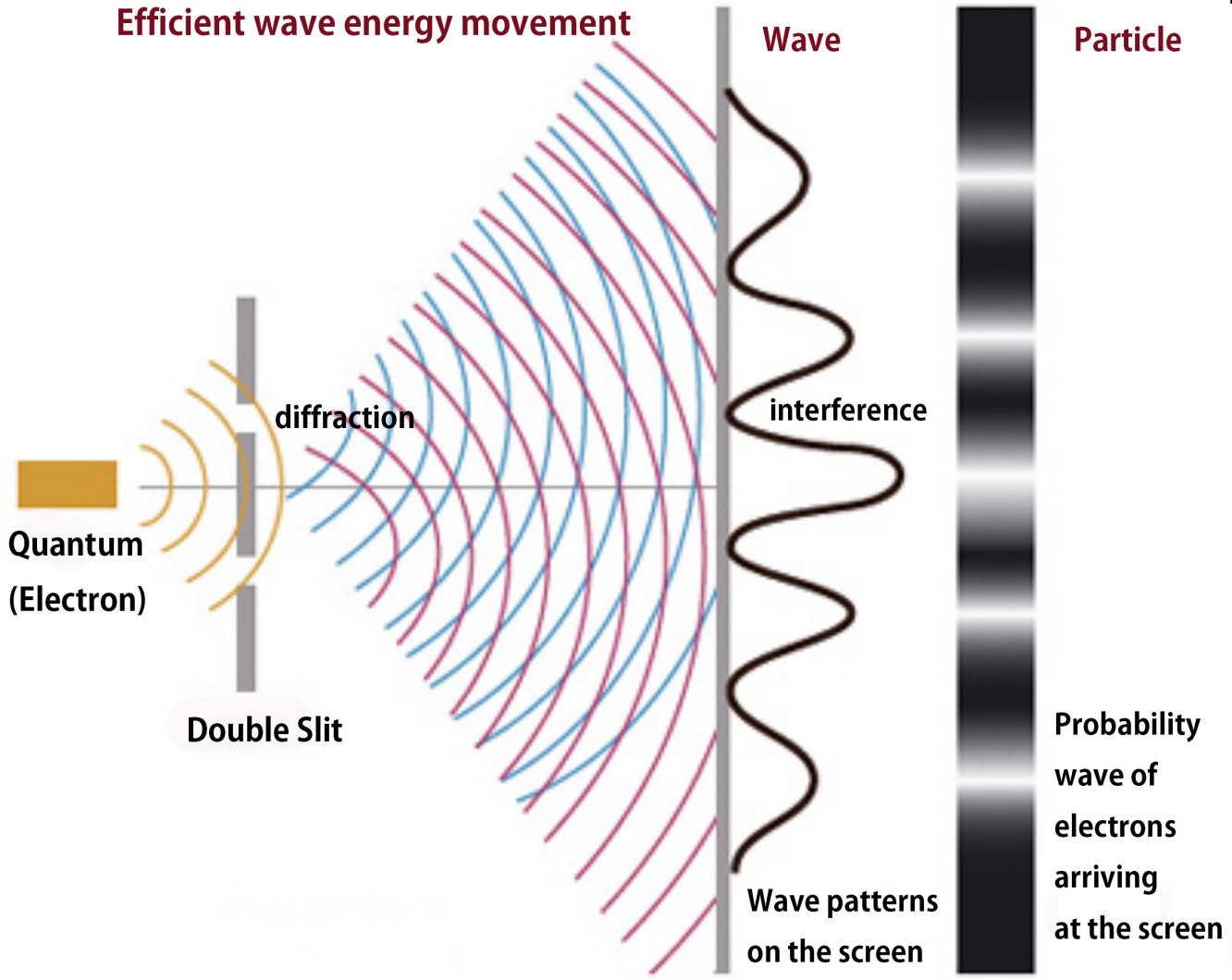
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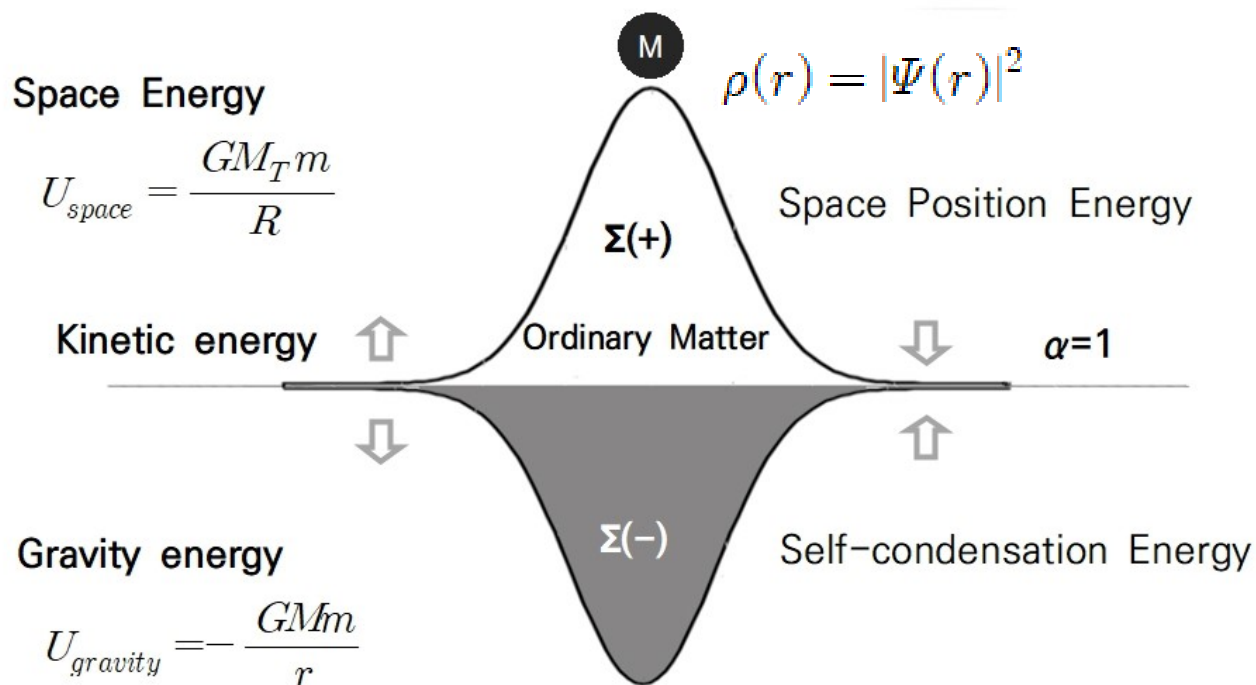
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Classical Mechanical Interpretation

Quantum field theory interpretation



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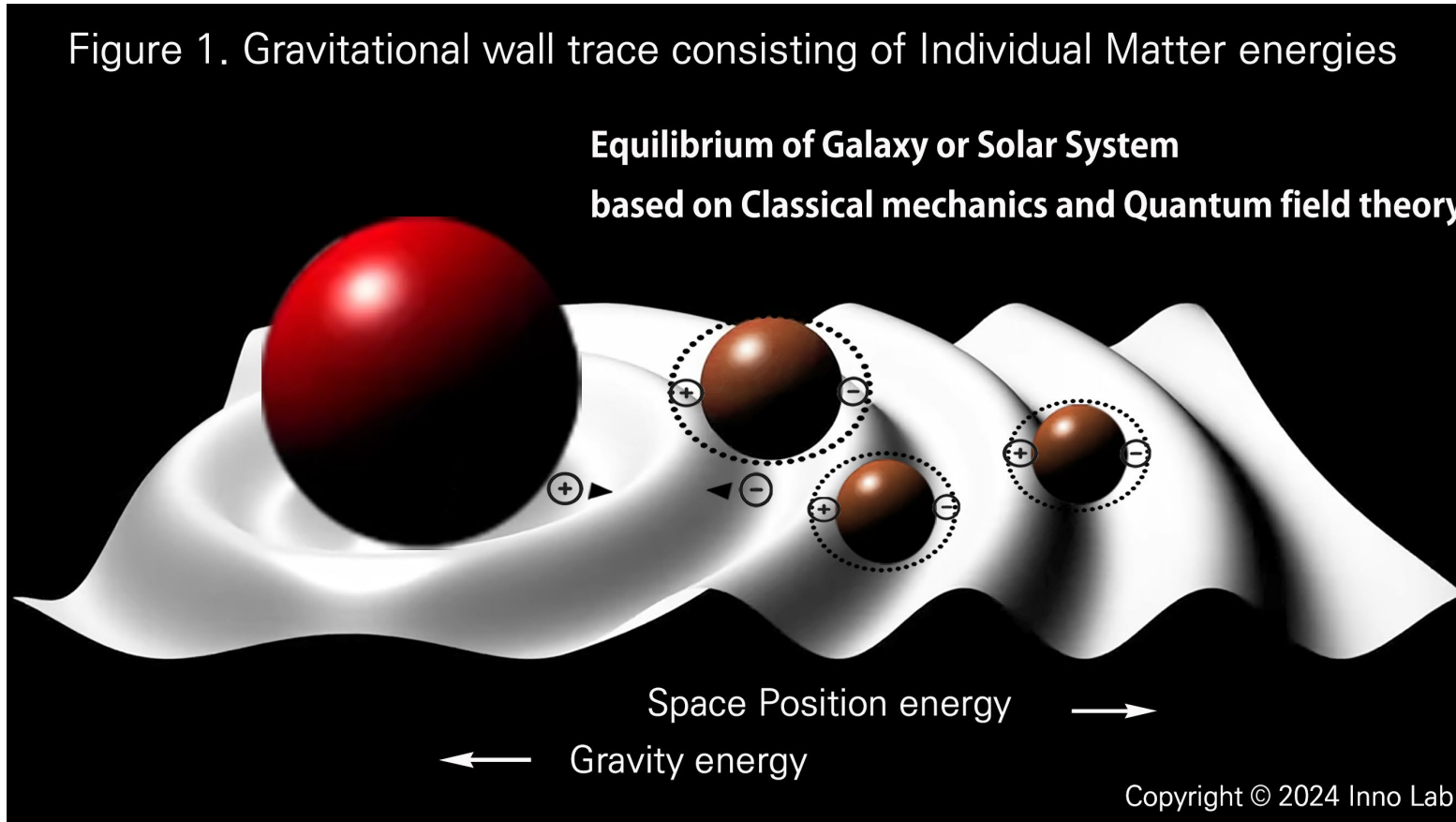
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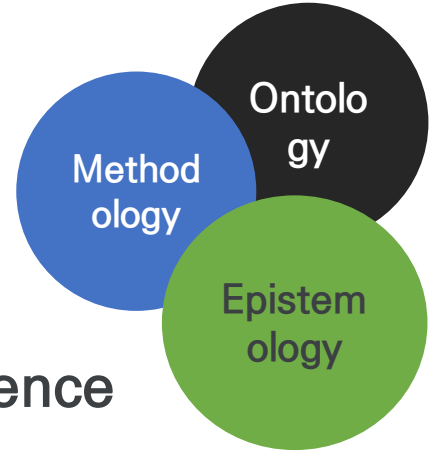
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Conservation of Energy and Minimum Action

- Rational self-realization based on natural principles
- Minimum and maximum correspondence

The minimum action under the law of conservation of energy maximizes the efficiency of the system. It "minimizes" the action while "maximizing" the dynamics of the system.

When nature changes a system, the change follows the most efficient path possible (minimum action, shortcut).

Humans, who are part of nature, are no different. Following natural principles is called "rationality" or "wisdom." Big principles are strict, and small principles are flexible.

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Harmony between individual autonomy and community

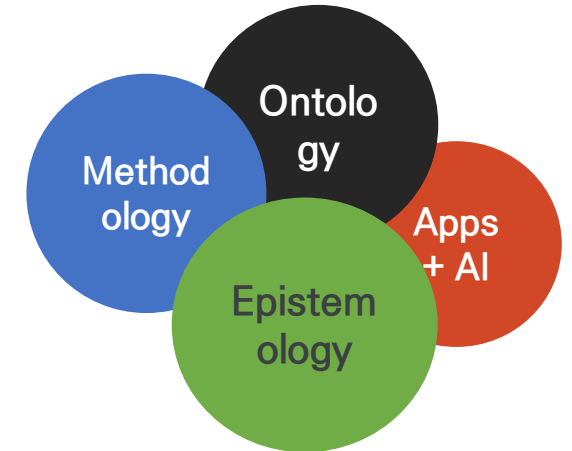
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Harmony of Subjectivity and Objectivity

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$$U_H = \frac{1}{2}mv^2 - \frac{GMm}{r} + \alpha \frac{GM_T m}{R} + \rho(r)$$

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-A World Told by Ontology III

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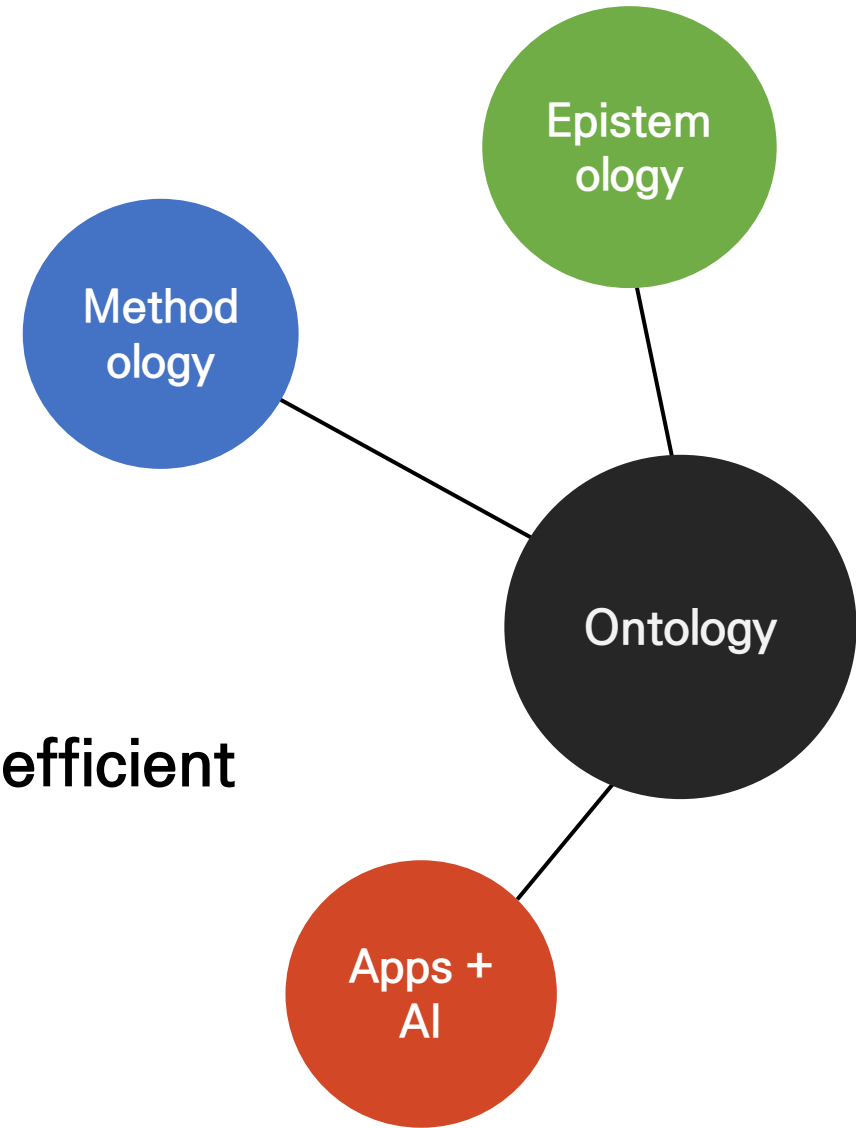
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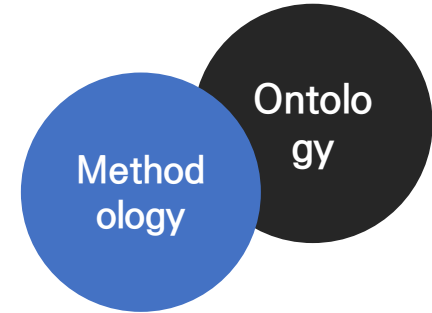
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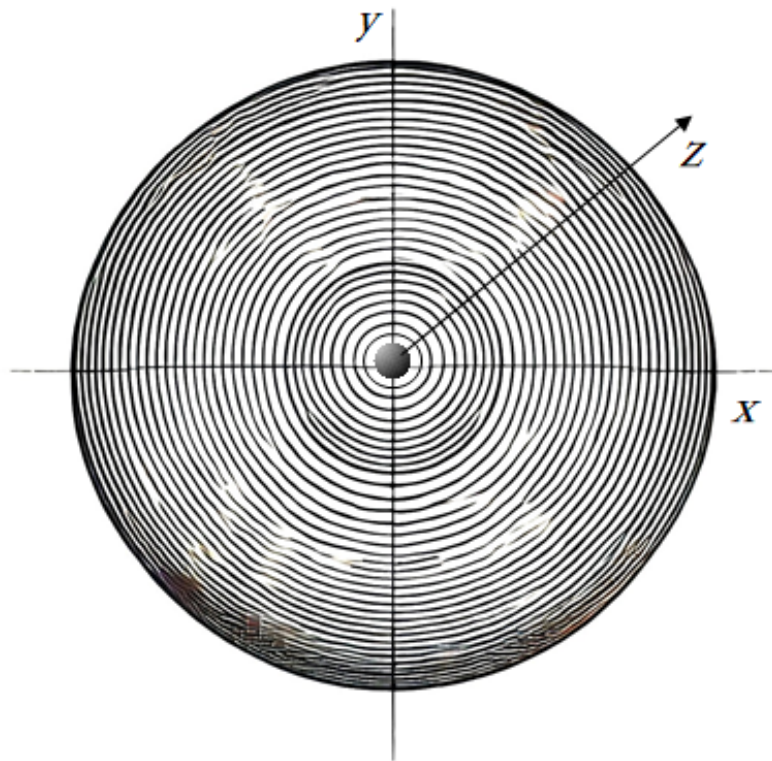
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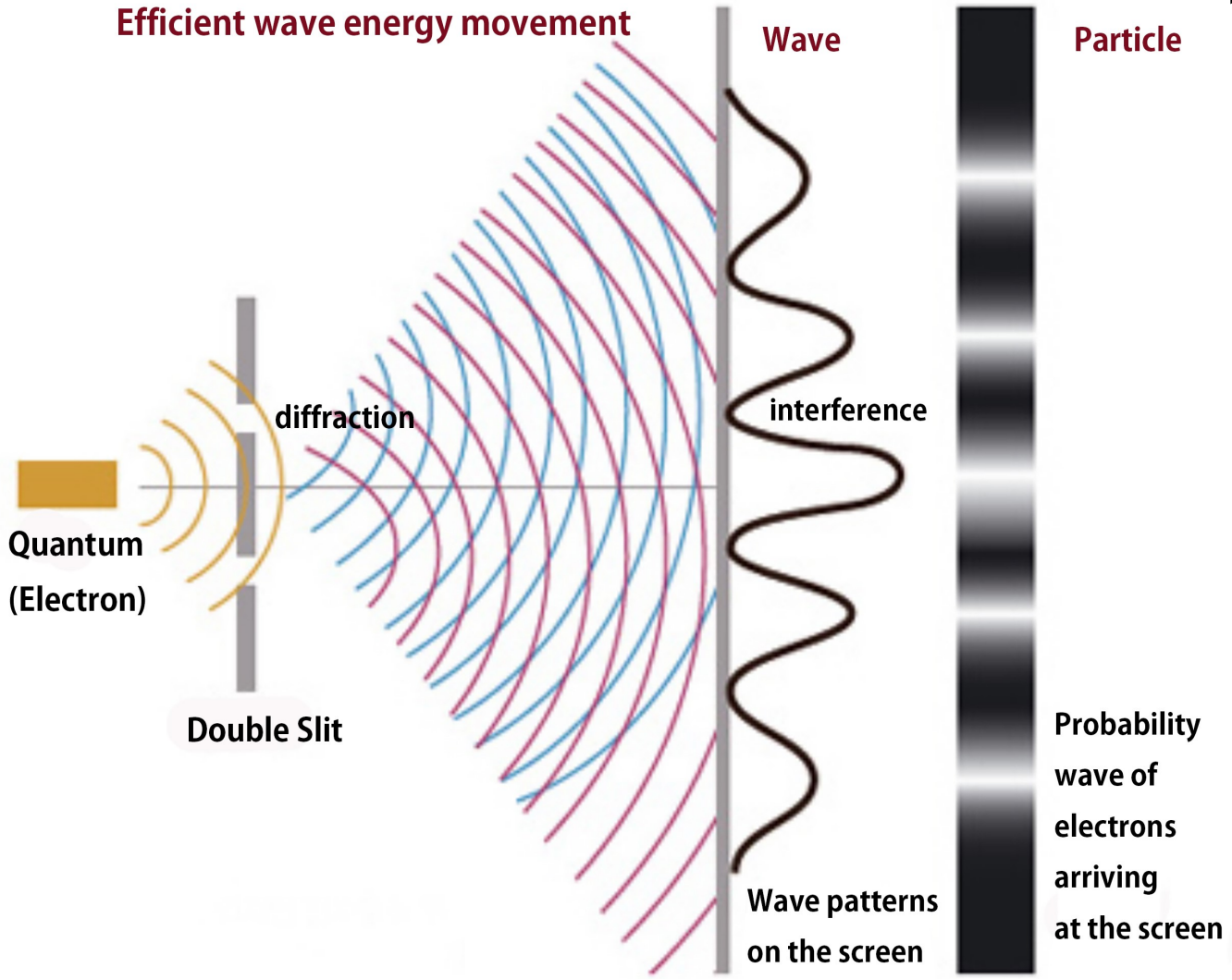
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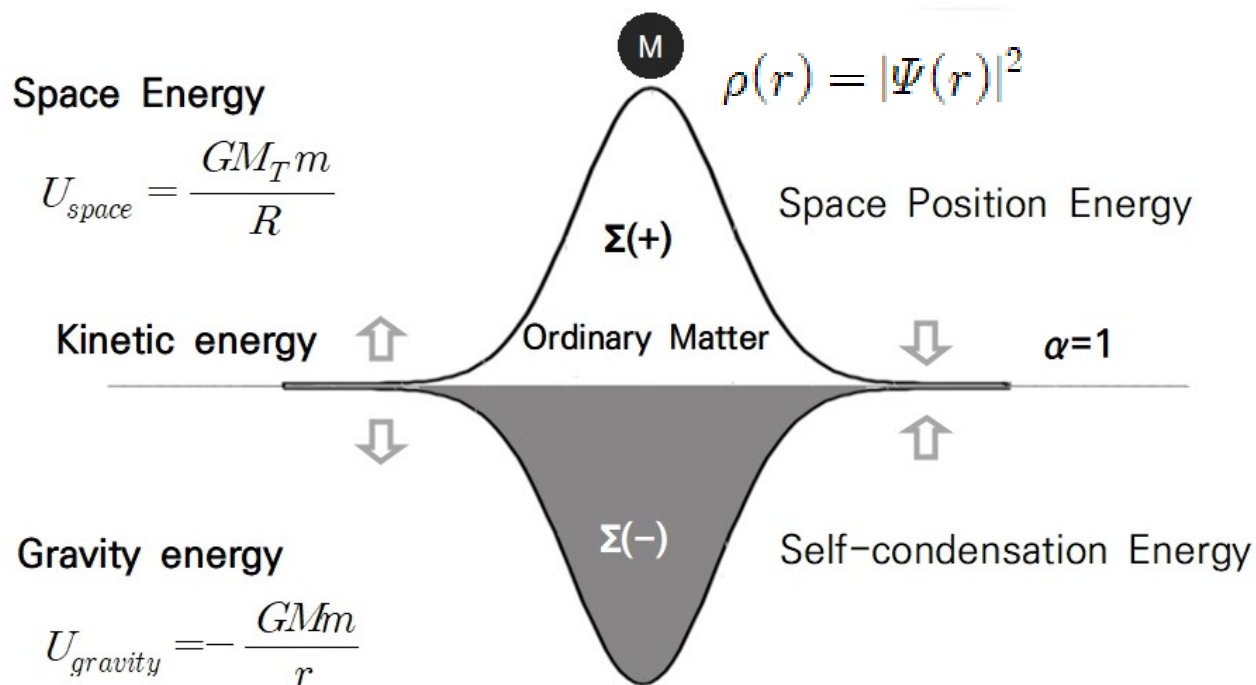
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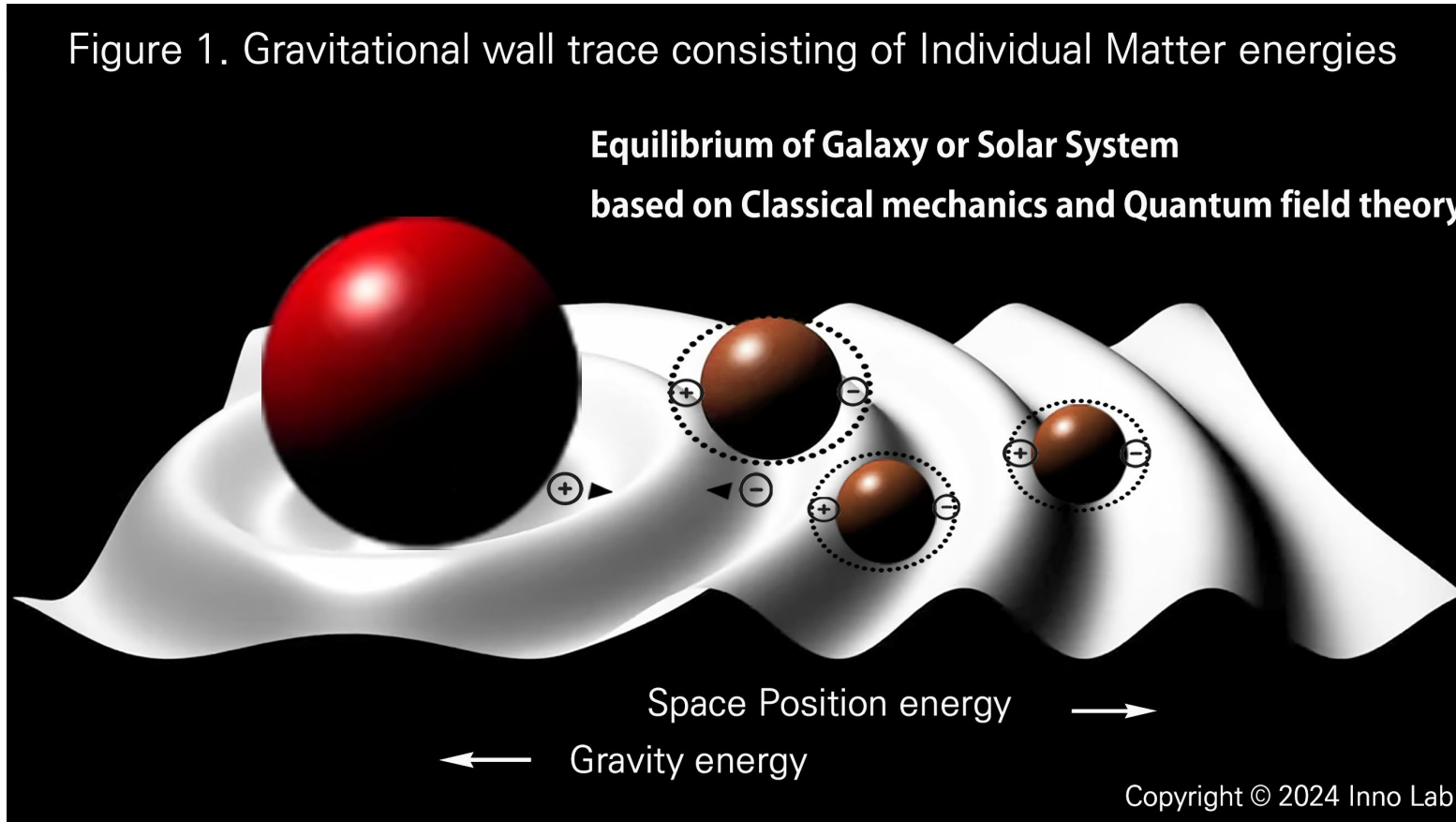
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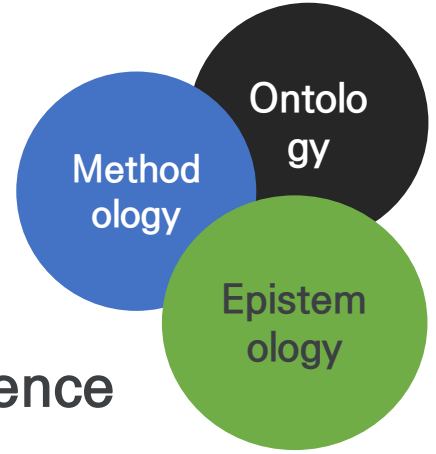
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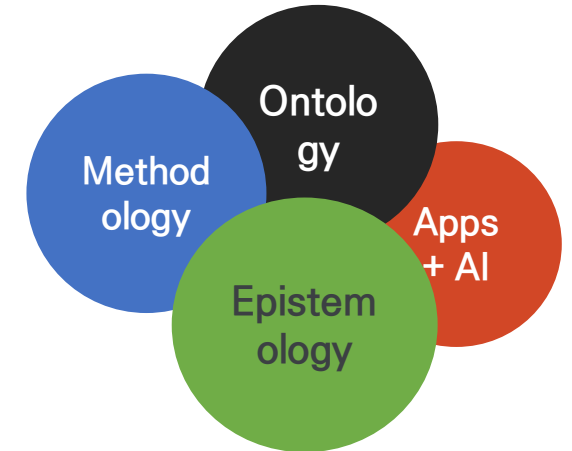
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Harmony of Subjectivity and Objectivity

Balance between individuals and systems

$$U_H = \frac{1}{2}mv^2 - \frac{GMm}{r} + \alpha \frac{GM_T m}{R} + \rho(r)$$

$$U_{\mathcal{L}} = \frac{1}{2}(\nabla\phi)^2 - \frac{1}{2}G\phi\nabla^2\phi + \alpha G \frac{\phi\phi_T}{R^2} + \rho(r)$$



Supplement :

Essentialist Scientific Method with Human Science

1. Essentialist scientific method
2. Causal inference engine : CIE
3. Scientific method as natural dynamics

1. Essentialist scientific method

A shift in methodology to focus on essence

The expansion of awareness from the existing phenomenon-centered understanding of the world to an essence-centered understanding is becoming easier with big data and artificial intelligence.

phenomenon → Essence ↔ Existence

- Effective use of the innate dualistic cognitive system
- Find the essence and clarify existence in the pattern and context of the phenomenon.
- A priori reasoning ability allows us to recognize the phenomenon and essence together.
- If we rely too much on existing knowledge and information, a priori cognitive ability cannot grow.
- When the subjective subjectivity is established, we can begin to achieve harmonious cognition.

2. Causal inference engine : CIE

Causal Inference Engine

Scientific methods can be continuously built up based on causality.

Causal inference: Through $P_x(y) = P(y|do(x))$, we can identify the causal influence of a specific variable x on other variables, and based on this, we can model the relationship between variables more accurately in $P(y) = fg(P(V))$.

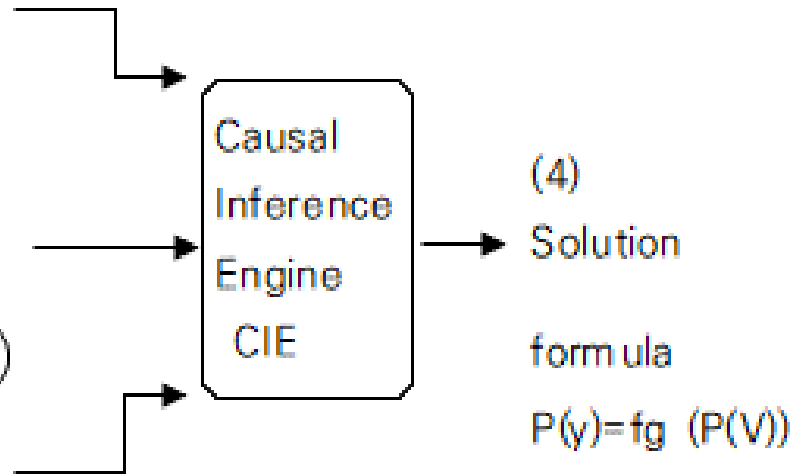
(1) Query

$$P_x(y) = P(y|do(x))$$

(2) Causal Diagram



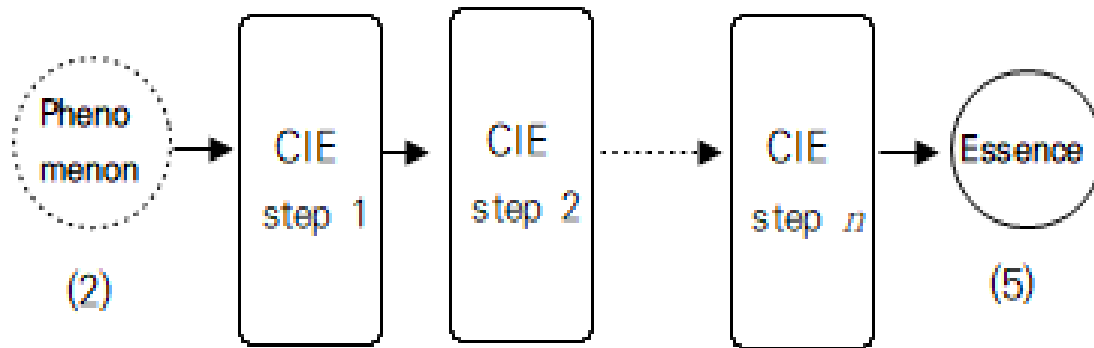
(3) data $P(v)$



Prediction and Decision Making: You can predict the future by considering various variables through $P(y) = fg(P(V))$, and make optimal decisions by predicting the impact of a specific action through $P_x(y) = P(y|do(x))$.

2.1 Multidimensional causal inference

Building a Complex Causal Inference System: Capturing Multidimensional Phenomenon–Essential Patterns



1. Obtain questions (1) and solutions (4) about the research topic. Based on current knowledge, how much data (3) can be collected that can be used for the phenomenon (2)?
2. How close can we get to the essence (5) through the step-by-step continuation of the causal inference process?
3. Multidimensional causal inference uses ‘P-E pattern analysis’ to capture the phenomenon–essence pattern, revealing causal relationships that were not easily revealed. Patterns form a context and are captured in the system configuration. The scientific method based on causal theory has continuous momentum through the CIE: Causal Inference Engine.

2.3 Precise interaction of the system

- **Whole System Interaction:**

- 1) Phenomenon System Interaction
- 2) Essence System Interaction
- 3) Whole System Interaction

- **Establishment of existence as a whole system**

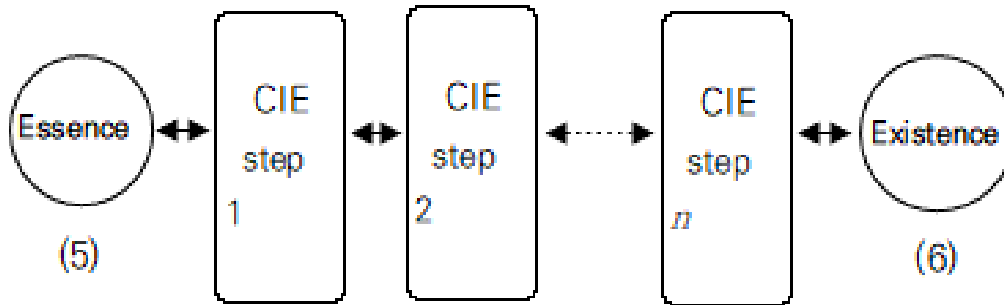
The essential system X and the phenomenon system Y interact and develop autonomously. The phenomenon system Y strengthens itself through precise interaction with the essential system X, forms a network through interaction, and develops into the entire system.

There are also exceptions (ε). Exceptions (ε) can develop into mainstream phenomena or essences, or remain as temporary phenomena and disappear.

Individuals or systems develop into the most efficient self-organizing principle through autonomous and neighboring interactions according to the given environment.

3. Essentialistic scientific method as natural dynamics

In this way, causal research deepens through the inference process of $Px(y) = P(y|do(x))$ and continues to gain momentum through CIE: Causal Inference Engine. This is recognized as a phenomenon at the individual level, and is identified as a group that shares the essence in the pattern analysis process, and is developed into a whole system based on the group and defined as a total entity (6).



1. This can also be seen as a human cognitive process viewed from the perspective of Natural Dynamics.
2. Because it shows the general compositional principles of nature.
3. The essence of existence is energy, moving along the path of self-existence and efficiency based on Geometric necessity.
4. The dynamic movement pattern of existence sometimes appears chaotic, but it creates a flow that finds a more efficient direction through the process of trial and error.

– The End