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Research Article

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MIRROR-SYMMETRY GRAVITATIONAL FIELD THEORY

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ABSTRACT

In contemporary astrophysics, gravitation is regarded as the dominant interaction governing the large-scale structure, dynamics, and kinematics of celestial bodies. Planetary bodies are approximately spherical and execute quasi-Keplerian orbits around their host stars as a consequence of gravitational attraction. Within the Solar System, the Sun functions as the central gravitating mass about which all planets, including Earth, revolve. Although the conventional gravitational paradigm is highly successful and permits precise predictions of orbital trajectories, masses, and inter-body separations, it does not fully elucidate the deeper dynamical mechanisms that generate and sustain such motion. Fundamental questions persist regarding what intrinsically drives planetary motion and what stabilizes stellar systems within the cosmic gravitational state.In response to these open problems, this research introduces a novel conceptual framework: the Mirror Gravitational Field Theory. The proposed framework is intended to augment, rather than replace, the standard gravitational description by incorporating a dual-phase, symmetry-based field structure that may underlie observed gravitational phenomena.

Keywords: Mirror Gravitational Field, Dual-Phase Symmetry, Parity Symmetry, Spontaneous Symmetry Breaking, Gravitational-Magnetic Coupling, Mirror Phase Field, Orbital dynamics.

INTRODUCTION

Existing models in theoretical physics attempt to account for dark matter by postulating a hidden sector populated by hidden matterhypothetical partner particles that could serve as viable dark matter candidates. These constructions typically invoke left- and right-handed chiral sectors or discrete parity symmetries, with mirror particles interacting only feebly with Standard Model fields, thereby reproducing the purely gravitational signatures attributed to dark matter. In the Plebanski-type formulations of gravity, for example, the left-handed sector can be associated with ordinary gravitational dynamics, whereas the right-handed sector is interpreted as a parity-violating mirror counterpart.

While such frameworks offer partial solution, they remain insufficient to capture the full phenomenology of gravitation. Their explanatory power, is constraint at the basis of matter part, but didn't mention much about the interaction with the gravity and the mechanism behind.

Our innovative proposal is confined to symmetry-based reconstructions of known interactions rather than revealing the deeper ontological mechanism underlying the gravitational field. More specifically, our innovative mirror-phase-field symmetry models succeed in reproducing observational gravitational effects, but they do not yet provide a unified, mechanistic account of gravitational interactions, nor a comprehensive description of how gravitational and non-gravitational forces might emerge coherently from a common field substrate.

From this perspective, the present study proposes that gravity may not be an isolated curvature phenomenon within spacetime geometry but rather a derivative manifestation of a more fundamental interaction field. By exploring potential coupling structures that could link gravitational curvature tensors to gauge field dynamics or quantum potentials, the model aims to clarify whether gravity could arise as an emergent property of field interactions rather than as a primary force. Such a reformulation may help reconcile the persistent tension between general relativity's [1-6] geometric abstraction and quantum field theory's probabilistic framework.

Furthermore, this study considers how parity-violating mirror sectors might influence the effective coupling constants governing cosmic evolution [7], potentially offering new interpretative pathways for dark energy and cosmic acceleration. If the mirror gravitational sector is not merely hidden but dynamically entangled with our visible universe through subtle field exchanges, this could explain phenomena such as apparent mass discrepancies and the non-local behavior observed in galactic rotation curves. In such a scenario, the gravitational field's mirror counterpart may play an active role in shaping the large-scale structure of spacetime.

Ultimately, the objective is to advance a more holistic theoretical architecture in which gravitation, electromagnetism, and quantum-scale interactions all emerge from unified underlying principles. This conceptual direction aligns with the broader program toward a unified field theory and challenges conventional assumptions separating curvature and force. The implications extend beyond cosmology, offering promising connections to quantum gravity research, potential alternative formulations of spacetime, and even technological applications in high-energy physics or propulsion concepts derived from field unification dynamics.

SUGGESTION

We propose a unified theoretical framework, termed the Unifying Mirror (Gravitational) Field Theory, which synthesizes and extends existing mirror-gravity concepts. In this framework, the Mirror Field is modeled as a distinct gravitational "phase," within which a dual structure emerges under microscopic or sub-Planckian gravitational conditions. These conditions may induce an effective "lift" component that counteracts the conventional gravitational attraction, thereby contributing to the structural stability and long-term dynamical equilibrium of planets and stars embedded in a larger gravitational network.

We hypothesize the existence of a symmetry-based duality that operates at a fundamental level and contributes to the coherence of planetary systems. Within this construct, the Mirror Field acts as a kinematic and dynamical guide field that modulates both orbital motion and rotational degrees of freedom. This assumption may furnish a conceptual bridge between unresolved issues in gravitation and quantum theory. Concretely, each planet is conjectured to be associated with two conjugate Mirror Fields, each residing in a corresponding phase. These phase sectors give rise to coupled, magnetic-like components that jointly define a gravitational–magnetic pathway, which both stabilizes the planetary position and constrains its trajectory in configuration space.

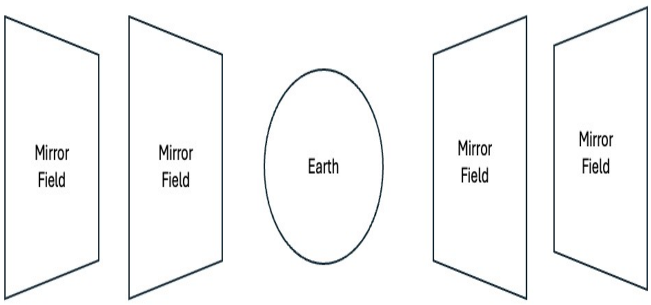

Figure 1: Symmetry-based duality Mirror Gravitational Field

Thus, each mirror gravitational field is composed of discrete phases that can be regarded as the fundamental constituents responsible for emergent gravitational behavior. The superposition of these phases generates a coherent field configuration that propagates as magnetic-like wave modes, dynamically sustaining the planetary body. In turn, this feedback process self-consistently reinforces and regenerates the Mirror Gravitational Field.

To account for motion along a well-defined orbit, we extend the preceding argument by positing that the mirror phase field contains both attractive and repulsive components. Their mutual interaction engenders a dynamic push–pull mechanism that regulates the planet's propagation along its trajectory. In this view, the Mirror Gravitational Field emerges as a candidate mechanism for a unified, gravitational-magnetic interaction that could participate in the unification of the four fundamental forces and help interpolate between general relativity and quantum mechanics.

In the math's expression: $G=M_{T}M_{\perp}/r^2$

Where M refer to the Mirror Field

M_{T}refer to the Mirror Field symmetry break (left-side)

$M_{\perp}$ refer to the Mirror Field symmetry break (right-side-opposite)

r is the radius in between the planetary

Our Mirror SymmetryGravitational Field Theory therefore postulates a dual-phase parity structure in which two phases coexist in a state of quasi-equilibrium via mirror gravitational-magnetic coupling, each sustaining the other. When this symmetry is spontaneously broken, an asymmetric configuration emerges, giving rise to dynamical effects that may manifest as planetary motion along orbital trajectories. Within this framework, asymmetry between mirror phases induces a coupled magnetic–kinematic response, producing gravitational-like influences through a unified gravitational-magnetic mechanism.

We further propose symmetry breaking within the mirror gravitational field generates a phase sector endowed with both attractive and repulsive contributions. The interplay between these contributions yields a push-pull effect that can be interpreted as an emergent magnetic-like force, potentially responsible for directed orbital motion. A more precise characterization thus centers on symmetry breaking in the mirror phase field, driven by transitions between attractive and repulsive regimes, with the resulting non-equilibrium dynamics accounting for the observed directional motion. This refined mirror-field picture may also offer a qualitative explanation for reported uplift-like forces on planetary bodies in certain astrophysical observations.

In this formulation, the Mirror Phase corresponds to a configuration in which spatial position is mapped to an opposite or conjugate state. Upon symmetry breaking, both positional and phase degrees of freedom undergo a correlatedsiri. Consequently, the Mirror Phase can be interpreted as a state in which position attains a definite value in phase space. This interpretation supports our mirror-field hypothesis, which aims to address the quantum-mechanical tension between well-defined trajectories and localized position: when location is indeterminate, the path may be constrained, and conversely, when motion is indeterminate, position may be sharply defined. In the mirror-field model, both the positional state (via the phase) and the circular trajectory (as in the Earth's orbit) can be simultaneously specified, such that at each corresponding Mirror Phase, both position and motion approximate a state of effective definiteness.

CONCLUSION

The Mirror Gravitation Field Theory introduced here articulates a novel conceptual framework that extends beyond conventional gravitational models by positing a dual-phase, symmetry-governed mechanism underlying both the stability and motion of astrophysical systems. By integrating parity symmetry, spontaneous symmetry breaking, and mirror-field dynamics, the theory outlines a possible route toward reconciling tensions between general relativity and quantum mechanics.

The central contribution of this study rely in formulating the mirror gravitational field as a coupled system of attractive and repulsive phases whose dynamical interaction yields an effective gravitational–magnetic response. This push–pull mechanism offers an alternative perspective on orbital dynamics, suggesting that planetary trajectories are shaped not only by spacetime curvature or classical Newtonian attraction, but also by underlying phase-based interactions that regulate stability and motion.

The proposed symmetry-breaking process further furnishes a mechanism for transitions from equilibrium to directed motion, providing a qualitative account of the emergence of orbital dynamics in planetary systems. In this context, the mirror gravitational field complements existing theoretical approaches and opens new avenues for interpreting phenomena such as dark matter signatures, gravitational anomalies, and possible uplift-type forces in astrophysical environments.

Although the Mirror-Symmetry-Gravitational-Field Theory is currently theoretical and awaits rigorous mathematical formalization and empirical scrutiny, it delineates a conceptual platform for subsequent theoretical and phenomenological work. Continued development of this framework may advance the broader quest for a unified description of fundamental interactions and deepen our understanding of the underlying structure of spacetime and the true nature of gravitation. Hope this research can contribute to the world and the mankind.

REFERENCES

[1] Einstein,A.(1905). Folgerungenaus den Kapillaritätserscheinungen. *Annalen der Physik*, *4*(3), 513–523.

[2] Einstein, A. (1905). Übereinen die Erzeugung und Verwandlung des LichtesbetreffendenheuristischenGesichtspunkt. *Annalen der Physik*, *4*(17), 132–148.

[3] Einstein, A. (1905). Über die von der molekularkinetischenTheorie der WärmegeforderteBewegung von in ruhendenFlüssigkeitensuspendiertenTeilchen. *Annalen der Physik*, *4*(17), 549–560.

[4] Einstein, A. (1905). Zur Elektrodynamikbewegter Körper. *Annalen der Physik*, *4*(17), 891–921.

[5] Einstein, A. (1915). Die Grundlage der allgemeinen Relativitätstheorie. *Annalen der Physik*, *4*(49), 769–822.

[6] Einstein, A., Podolsky, B., & Rosen, N. (1935). Can quantum-mechanical description of physical reality be considered complete? *Physical Review*, *47*(10), 777–780.

[7] LIE, Chun Pong. (2026).Mirror Gravitation Field Theory. International Journal of Science Academic Research. Vol. 07, Issue 04, pp.712-714.

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