Hypothesis: Coupling Between Gravitational Field and the Vortex BN Field

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Serious theoretical physics playtime

Abstract

This hypothesis proposes a fundamental coupling between time-varying gravitational fields and a novel vortex field (BN) through torsional spacetime dynamics. We derive a set of field equations where:

- Variable gravitational fields $\mathbf{g}(t)$ induce rotational BN fields via $\nabla \times \mathbf{B}_N = -c^{-2}\partial_t \mathbf{g}$
- The BN field exerts velocity-dependent forces $\mathbf{F}_{BN} = m(\mathbf{v} \times \mathbf{B}_N)$ on matter

The theory predicts: (1) new high-frequency gravitational wave modes, (2) modification of galactic rotation without dark matter, and (3) measurable torsion effects in N-body systems. Experimental verification routes include LIGO data analysis and laboratory-scale torsion detectors. The mathematical framework extends Einstein-Cartan geometry with a propagating torsion field $T^{\lambda}_{\mu\nu} \propto \epsilon^{\lambda\alpha\mu\nu} B_{N\alpha}$.

Assumptions

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Assumptions

1. A **time-varying gravitational field** $\mathbf{g}(t, \mathbf{r})$ induces a **vortex BN field** $\mathbf{B}_N$ via:
$$\nabla \times \mathbf{B}_N = -\frac{1}{c^2}\frac{\partial \mathbf{g}}{\partial t}.$$

2. The **BN field** interacts with matter through a force:
$$\mathbf{F}_{BN} = m\left(\mathbf{v} \times \mathbf{B}_N\right),$$
where m is mass and $\mathbf{v}$ is velocity.

Predictions

- **New gravitational waves**: **g**-BN waves propagating at light speed.
- **Galaxy rotation curves**: BN field explains anomalies without dark matter.
- **Solar system effects**: Perturbations in planetary orbits near high-$\mathbf{B}_N$ regions.

Experimental Verification

1. **BN wave detection**: Search LIGO/Virgo data for signals at 10^{-3} Hz.
2. **Gyroscope experiment**: Measure axis drift in an isolated BN field.
3. **N-body simulations**: Add $\mathbf{F}_{BN}$ to galactic motion equations.

Mathematical Framework

- Torsion tensor:
$$T^{\lambda}_{\mu\nu} = \epsilon^{\lambda\alpha\mu\nu} B_{N\alpha}.$$

- Lagrangian:
$$\mathcal{L} = \frac{1}{4} B_{N\mu\nu} B_N^{\mu\nu} - \frac{1}{2}\mu_g J_g^{\mu} B_{N\mu},$$
where $B_{N\mu\nu} = \partial_\mu B_{N\nu} - \partial_\nu B_{N\mu}$.

Discussion

- Is BN gravity's **dark photon**?
- Is $\mathbf{J}_g$ a **quantum information flow**?
- How does BN affect **spacetime entropy**?

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Anomalie w rotacji galaktyk